START

9613479.1358

WC068-ITC-679

0045372

INTERNATIONAL TECHNOLOGY CORPORATION

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Dear J.A. Lerch

Thank you for purchasing analytical testing services from IT Corporation. It is our intention to supply our clients with data packages which not only meet the industry's highest standards for quality, but are also easy to use. Features which we point out are:

1. A Data Summary Packet which allows you to review your data without searching through the complete data package.

   Your Data Summary Packet contains the following items:

   - Case Narrative: listing of sample identifications, analyses performed, explanation of any problem associated with samples, corrective action taken.
   - Quality control sample identifications and analyses performed.
   - Data summary.

2. A data package which meets the specific requirements you requested and is easy to use as well. The package is organized in accordance with the Table of Contents which you will find at the beginning of each section. Sections are separated by color-coded tabs, making it easy to find individual analytical parameters which may be of particular interest to you. The data package is custody-sealed at the laboratory - your assurance that parts of the package are not missing.

We are constantly searching for ways to improve our service to you. This current product has many of the features which you have told us are important to you. Your suggestions regarding additional improvements will be appreciated.

Please contact me with any questions or suggestions.

Sincerely,

Sheree Schneider

Sheree' Schneider
Project Manager

Regional Office
5815 Middlebrook Pike • Knoxville, Tennessee 37921 • 615-588-6401

KDB 6/7/96

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

DATE: October 10, 1994

TO: W0068-ITC-079

FROM: Pat Reich H4-19

Telephone: 372-2785

cc:

SUBJECT: SUMMARY VALIDATION

The Validation Summary Report for 100-FR-3 Project, Round 5 Groundwater Sampling for this SDG is filed in BOBMY4-TMA-760.

Pat Reich

9613479.1340

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 12

2. Preprinted No. 052864

QA Log No. EQA-94-041

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Rev.
N/A	RI/FS	SAMPLES	BOBMP0, ~~BOBMP1~~, BOBMP2 RCS 6/6/94	N/A

8. Program/Project/Other	9. Safety Class	10. ASME Code Items
100-FR-3/94-087	N/A	☐ Yes ☒ No (If yes, notify authorized inspector)

11. Supplier Name/Address	12. Notification of Potential Occurence Required
ENVIRONMENTAL FIELD SAMPLING SERVICES	☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	3	3	0	☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other SAF 94-087 AND EPA METHODS RCS 5/31/94 ~~5/31/94~~

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
①	AS STATED ON SAMPLE ANALYSIS FORM 94-087 AND IN ~~SAF~~ RCS 5/31/94 EPA METHODS, THE HOLDING TIMES FOR ~~NOA~~, SEMI-VOA, PCB/PESTS, TDS, AND SULFIDE IS 7 DAYS. RCS 6/31/94 CONTRARY TO THE ABOVE, ~~THESE~~ SAMPLES BOBMP0 WAS ~~ARE~~ COLLECTED ON 5/17/94 AND ARRIVED AT IT-RICHLAND ON 5/24/94. THE HOLDING TIMES FOR LISTED ANALYSES WAS MISSED. RCS 6/6/94	① Reject: ROD ~~6-94~~ 94-0139 ~~and~~ 94-0141 indicate that the analysis was cancelled. 6-28-94 ② Reject. the above referenced RODs indicate ① Use-As-Is; Analysis for the referenced aliquots was cancelled, and replaced with sample # BOCIG5 for semi-VOA, Pest/PCBs, TDS, and sulfide. WHC-CM-7-7, REV. 4, SEC 6-2
②	AS STATED IN WHC-CM-7-7, ~~EII~~ 5-2, REV 4, SEC 6-2, THE CHAIN OF CUSTODY DOCUMENTATION FOR ~~THESE SAMPLES~~ SAMPLE BOBMP2 SHOULD BE COMPLETED CORRECTLY AND ACCOMPANY THE SAMPLES. RCS 6/6/94 CONTRARY TO THE ABOVE, CHAIN OF CUSTODY DOCUMENTATION FOR ~~THESE~~ SAMPLE BOBMP2 WAS NOT IN ORDER. RCS 6/6/94 CHAIN OF CUSTODY BROKEN.	② Per analytical services, sample BOBMP2 is a trip blank and shall be analyzed for VOA only. Although the data hasn't been returned from IT lab, the attached printout from analytical services confirms the data type will be VOA. Therefore, USE-AS-IS. The correct analysis will be performed

20. Originator's Signature	Date	23. Design Document Change Required?
RC SMITH R Clayton Smith	5/31/94	☐ Yes, Doc. No. _____ ☒ No
21. Cognizant QA Manager's Signature	**Date**	**24. Corrective Action Required?**
D.D. Volkman	6-2-94	☐ Yes, No. _____ ☒ No

Disp. App.	25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
	JM AYRES	7/13/94	NA			
	QA Engineer 7-13-94	Date	Signature/Org.	Date	Signature/Org.	Date
	G.S. CORRIGAN		NA		NA	

Close	27. Accept 2 Reject 0 Follow on NCR NA	QA/C Personnel	Date
			7-13-94

A-7310-104 (11/92)

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

June 30, 1994

Job Number: 579; 583; 602

This is the Certificate of Analysis for the following samples:

SDG:	W0068
Client Project ID:	WHC SAF-94-087 100-FR-3 Groundwater-5th Round
Date Received by Lab:	May 21, May 25 & May 27, 1994
Number of Samples:	Eighteen (18)
Sample Type:	Water

I. Introduction

On May 21, May 25 and May 27, 1994, eighteen (18) water samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results.

The samples were analyzed for Target Compound List (TCL) volatiles and semivolatiles by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 3/90 Statement of Work.

Reviewed and Approved:

Sheree' A. Schneider for
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

II. Analytical Results/Methodology (Continued)

The samples were analyzed for Target Compound List (TCL) pesticides and PCBs by gas chromatography/electron capture detection (GC/ECD) in accordance with the EPA CLP 3/90 Statement of Work.

The samples were analyzed for Target Analyte List (TAL) metals by cold vapor atomic absorption spectroscopy (CVAA), graphite furnace atomic absorption spectroscopy (GFAA), and inductively coupled plasma spectroscopy (ICP) in accordance with the EPA CLP ILM03 Statement of Work.

The samples were analyzed for total cyanide in accordance with the EPA CLP ILM03 Statement of Work.

The samples were analyzed for ammonia based on EPA method 350.2.

The alkalinity of the samples was determined using EPA method 310.1.

The samples were analyzed for chemical oxygen demand (COD) at the ITAS-Knoxville laboratory using the EPA approved HACH procedure, HACH Water Analysis Handbook, HACH Chemical Company, 1980. The samples were analyzed for chemical oxygen demand (COD) at the ITAS ST. Louis laboratory based on EPA method 410.2. A copy of their report is enclosed.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The pH of the samples was determined using EPA method 9040.

The specific conductance of the samples was measured using EPA method 120.1.

The samples were analyzed for sulfide based on EPA method 376.1.

The total dissolved solids (TDS) content of the samples was determined using EPA method 160.1.

The samples were analyzed for total organic carbon (TOC) based on EPA method 9040.

The samples were analyzed for total organic halogens (TOX) based on EPA method 9020A.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

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III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan INCOS XL GC/MS/DS. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. The recovery for 4-nitrophenol was slightly high in the matrix spike and matrix spike duplicate for sample BOBMY0.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples for work order #579 were digested on May 24, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 22, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample BOBMY0 (total) and BOB9635 (dissolved). Spike recovery (accuracy) results were within acceptance limits for all requested parameters except for cyanide, where a blank spike was substituted for a spiked sample due to insufficient volume. Duplicate (RPD) precision) results were within acceptance limits for all requested parameters.

The samples for work order #583 were digested on May 26, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 23, 1994. All run QC was acceptable. The samples were batched with QC from work order #579.

The samples for work order #602 were digested on June 7, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 23, 1994. All run QC was acceptable. The samples were batched with QC from work order #579.

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III. Quality Control (Continued)

Data were reported with qualifiers as follows:

"C" Qualifiers

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.

"Q" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for fluoride, chloride, phosphate and sulfate on June 6 and June 13, 1994 by EPA method 300.0. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMV2. All quality control results were acceptable.

The samples were analyzed for alkalinity on May 27 and June 8, 1994. A duplicate was analyzed using sample BOBMY0. All quality control results were acceptable.

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III. Quality Control (Continued)

The samples were analyzed for ammonia on June 14 and June 17, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The samples were analyzed for nitrate/nitrite on June 3. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The pH of the samples was determined on May 25, May 26, May 31 and July 6, 1994. A duplicate analysis was performed on July 6, 1994 outside of holding time using sample BOBMY0. All quality control results were acceptable.

The specific conductance of the samples was determined on June 10, 1994. A duplicate was analyzed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for sulfide on May 25, May 26, and May 31, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The total dissolved solids (TDS) of the samples was determined on May 26 and May 31, 1994. A duplicate analysis was performed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for total organic carbon (TOC) on June 14, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for total organic halogens (TOX) on June 15, June 16 and June 22, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. All quality control results were acceptable.

The samples for work orders #579 and #583 were analyzed for chemical oxygen demand (COD) on June 3 and June 6, 1994 at the ITAS-Knoxville laboratory. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. The samples for work orders #579, #583 and #602 were analyzed for chemical oxygen demand (COD) on June 15 and June 16, 1994 at the ITAS St. Louis laboratory. A duplicate was analyzed using sample number BOBMY0. All quality control results were acceptable. Both sets of results are provided in this report.

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KNOXVILLE, TN

IT Corporation
June 30, 1994
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Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9609	405447-01A-C	BOBMW8	VOC
AA9610	405447-01D-F	"	SVOC
"	405447-01G-I	"	PEST/PCB
AA9611	405447-01J	"	ANIONS
"	"	"	pH
"	"	"	CONDUCTIVITY
AA9612	405447-01L	"	NO3NO2
AA9613	405447-01M	"	ALKALINITY
AA9620	405447-01N	"	TDS
AA9614	405447-01O	"	SULFIDE
AA9615	405447-01P	"	AMMONIA
AA9615 5329-010 (ST. LOUIS)	" "	" "	COD "
AA9616	405447-01Q	"	METALS-T
AA9617	405447-01R-S	"	CYANIDE
AA9618	405447-01T	"	TOC
AA9619	405447-01U	"	TOX
AA9621	405447-02A	BOBMW9	METALS-D
AA9622	405447-03A-C	BOBMX0	VOC
AA9623	405447-04A-C	BOBMY0	VOC

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KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9624	405447-04D-F	BOBMY0	SVOC
"	405447-04G-I	"	PEST/PCB
AA9625	405447-04J-K	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9626	405447-04L	"	NO3NO2
AA9627	405447-04M	"	ALKALINITY
AA9634	405447-04N	"	TDS
AA9628	405447-04O	"	SULFIDE
AA9629	405447-04P	"	AMMONIA
AA9629 5329-011 (ST. LOUIS)	" "	" "	COD "
AA9630	405447-04Q	"	METAL-T
AA9631	405447-04R-S	"	CYANIDE
AA9632	405447-04T	"	TOC
AA9633	405447-04U	"	TOX
AA9635	405447-05A	BOBMY1	METALS-D
AA9636	405447-06A-C	BOBMY2	VOC
AA9702	405508-01A-C	BOBMP0	VOC
AA9703	405508-01D-E	"	SVOC

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IT ANALYTICAL SERVICES
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III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9703	405508-01F-G	BOBMP0	PEST/PCB
AA9704	405508-01H	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9705	405508-01I	"	NO3NO2
AA9706	405508-01J	"	ALKALINITY
AA9707	405508-01K	"	TDS
AA9708	405508-01L	"	SULFIDE
AA9709	405508-01M	"	AMMONIA
AA9709 5329-018 (ST. LOUIS)	" "	" "	COD "
AA9710	405508-01N	"	METALS-T
AA9711	405508-01O	"	CYANIDE
AA9712	405508-01P	"	TOC
AA9713	405508-01Q	"	TOX
AA9715	405508-02A	BOBMP1	METALS-D
AA9716	405508-03A-C	BOBMP2	VOC
AA9718	405508-04A-C	BOBMX2	VOC
AA9719	405508-04D-F	"	SVOC

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III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9719	405508-04G-I	BOBMX2	PEST/PCB
AA9720	405508-04J	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9721	405508-04L	"	NO3NO2
AA9722	405508-04M	"	ALKALINITY
AA9723	405508-04N	"	TDS
AA9724	405508-04O	"	SULFIDE
AA9725	405508-04P	"	AMMONIA
AA9725 5329-019 (ST. LOUIS)	" "	" "	COD "
AA9726	405508-04Q	"	METAL-T
AA9727	405508-04R-S	"	CYANIDE
AA9728	405508-04T	"	TOC
AA9729	405508-04U	"	TOX
AA9731	405508-05A	BOBMX3	METALS-D
AA9733	405508-06A-C	BOBMX4	VOC
AA9735	405508-07A-C	BOBMZ2	VOC
AA9736	405508-07D-F	"	SVOC
"	405508-06G-I	"	PEST/PCB

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IT ANALYTICAL SERVICES
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III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9737	405508-07J	BOBMZ2	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9738	405508-07L	"	NO3NO2
AA9739	405508-07M	"	ALKALINITY
AA9740	405508-07N	"	TDS
AA9741	405508-07O	"	SULFIDE
AA9742	405508-07P	"	AMMONIA
AA9742 5329-017 (ST. LOUIS)	" "	" "	COD "
AA9743	405508-07Q	"	METALS-T
AA9745	405508-07R-S	"	CYANIDE
AA9746	405508-07T	"	TOC
AA9747	405508-07U	"	TOX
AA9749	405508-08A	BOBMZ3	METALS-D
AA9752	405508-09A-C	BOBMZ6	VOC
AA9923	405572-01A-C	BOBMZ8	VOC
AA9924	405572-01D-F	"	SVOC
"	405572-01G-I	"	PEST/PCB
AA9925	405572-01J-K	"	pH

IT Corporation
June 30, 1994
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IT ANALYTICAL SERVICES
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KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9925	405572-01J-K	BOBMZ8	CONDUCTIVITY
"	"	"	ANIONS
AA9926	405572-01K	"	NO3NO2
AA9937	405572-01L	"	ALKALINITY
AA9939	405572-01M	"	TDS
AA9927	405572-01N	"	SULFIDE
AA9928	405572-01O	"	AMMONIA
AA9928 5329-020 (ST. LOUIS)	" "	" "	COD "
AA9929	405572-01P	"	METALS-T
AA9930	405572-01Q-R	"	CYANIDE
AA9931	405572-01S	"	TOC
AA9942	405572-01T	"	TOX
AA9951	405572-02A	BOBMZ9	METALS-D
AA9952	405572-03A-C	BOBNO0	VOC

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
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IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IV. Certification

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 has been authorized by the laboratory manager or his designee, as verified by the following signature:

Reviewed and Approved:

Sheree' A. Schneider for
Project Manager

CUR#1681

Work Order No.: 579

Condition Upon Receipt Variance Report

ITAS - -KNOXVILLE Laboratory

Client: I·T Richland

Date: 5-23-94

Project No: Westinghouse Hanford

Initiated by: KAK

Analysis Requested: Sulfide, Cyanide, NO_3/NO_2,

RFA/COC Numbers: 453661 + 453662

Client Sample Numbers Affected: B0BMW8 + B0BMY0

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH B0BMW8 NO_3/NO_2 = 4, Sulfide = 7, Cyanide = 7
   - ☑ other: pH B0BMY0 Cyanide = 11
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): _____

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Kenneth Klemm Date: 5/24/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

9613479.1354

0000017

CUR #1685

Work Order No.: 583

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: ITAS Richland

Date: 05-25-94

Project No: Westinghouse Hanford

Initiated by: KAK Lemm

Analysis Requested: CN; Sulfide, TOC, pH KAK 5-25-94

RFA/COC Numbers: 453664, 45666, 45665

Client Sample Numbers Affected: BOBMP0, BOBMX2, BOBMZ2, Trip Blanks

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH BOBMP0 CN = pH 10, TOC = pH 3; BOBMX2 CN: pH 9; BOBMZ2 S= pH 7 CN = pH 11
   - ☐ ~~pH~~ other: _____ KAK 5-25-94
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☑ No sample ID on sample container. No labels on 40ml VOA vials not list on RFA/COC; assume these are "Trip Blanks"
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ~~☐~~ ☑ Other (explain below): KAK 5/25/94

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Bryan Blomquist Date: 5/25/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

WO#583

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 40550801 DATE INITIATED: 5/24/94

INITIATED BY: Karen Gottselig

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/24/94 1315

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B03MP0		

Samples were received with the following deficiencies:

- ☐ 1. Not enough sample received for proper analysis.
- ☐ 2. Sample received without proper preservative.
- ☐ 3. No sample received in container.
- ☐ 4. Sample received without a RFA/COC form.
- ☐ 5. No sample ID on container.
- ☐ 6. Sample received broken or leaking.
- ☐ 7. Holding time exceeded at receipt.
- ☐ 8. Custody tape broken.
- ☐ 9. COC not relinquished by client.
- ☐ 10. Sample information on container does not match sample information on the paper work (Explain below).
- ☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  - ☐ RFA/COC received
  - ☐ RFA/COC not received
- ☒ 12. Other (Explain below).

NOTES: COC has 3 Bottles Rcvd only Two. for Semi Voa. Has Two for PCB/PEST 3 Rcvd

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

OFFICE OF SAMPLE MANAGEMENT
RECORD OF DISPOSITION

ROD-94-0139
Record of Disposition No.

DATE: 5/31/94 | **LABORATORY:** IT

PROJECT TITLE/NO.: 100-FR-3/94-087 | **NCR NO.:** 052864

SAMPLE IDENTIFICATION NUMBERS:

B0BMP0, B0BMP1, B0BMP2

DESCRIPTION OF EVENT:

Samples were collected on 5/17/94 and arrived at IT-Richland on 5/24/94; IT-Knoxville on 5/25/94. The 7 day holding time for Semi-VOA, PCB/Pests, TDS, and Sulfide analyses were missed.

DISPOSITION OF SAMPLES:

With concurrence from J.M. Ayres, project engineer, do not perform those analyses for which holding times have been missed.

APPROVAL SIGNATURES:

R. C. Smith/ RClayton Smith — 5/31/94
OSM Project Coordinator (Print/Sign Name) — Date

J. M. Ayres/ JMAyres — 6/1/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

W0583

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0141
Record of Disposition No.

DATE: 6/6/94 **LABORATORY:** IT

PROJECT TITLE/NO.: 100-FR-3/94-087 **NCR NO.:** 052864

SAMPLE IDENTIFICATION NUMBERS:

B0BMP0, B0BMP2

DESCRIPTION OF EVENT:

This ROD replaces ROD-94-0139.

1) Sample B0BMP0 was collected on 5/17/04 and arrived at IT-Richland on 5/24/94; IT-Knoxville on 5/25/94. The 7 day holding time for Semi-VOA, PCB/Pests, TDS, and Sulfide analyses was missed.

2) The chain-of-custody for sample B0BMP2 was incomplete. The chain-of-custody was broken.

DISPOSITION OF SAMPLES:

1) With concurrence from J.M. Ayres, project engineer, do not perform analyses for which holding times have been missed (replacement aliquots for these analyses will be collected, shipped, analyzed, abd reported under B0C1G5).

2) Continue with analysis of B0BMP2 for "informational purposes only".

APPROVAL SIGNATURES:

R. C. Smith/ RClayton Smith 6/6/94
OSM Project Coordinator (Print/Sign Name) Date

J. M. Ayres/ AD Krug QS Krug for 6/9/94
Technical Representative (Print/Sign Name) Date

N/A
Quality Assurance (Print/Sign Name) Date

W0583

WO#579

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/20/94 1260 Client Name WHC

Project/Client # 94-087 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) ER-10

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☐ No ☑
7. Number of sample containers in cooler: 36
8. Samples have: ____ tape ____ hazard labels
   ____ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore Date/Time 5/20/94 1200

FORM NO. LS-042, Rev.0, 2/94

WO#579

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/20/94 1200 Client Name WHC

Project/Client # 94-087 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) ER-8

1. Condition of shipping container? ok
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☐ No ☑
7. Number of sample containers in cooler: 30
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 4°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore Date/Time 5/20/94 1200

FORM NO. LS-042, Rev.0, 2/94

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WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-1C

1. Condition of shipping container? OK.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 5-24-94 34 33
8. Samples have: X tape ____ hazard labels
   ____ custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 4°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Ashtenburg ITAS KAREN ASHTENBERG Date/Time 5-24-94 13:15

FORM NO. LS-042, Rev.0, 2/94

WO #583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) EL-ID

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 34
8. Samples have: X tape ____ hazard labels
   ____ custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) n/a
    Request for analysis #(s) n/a
    Airbill # n/a Carrier n/a
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature ~~Karen Ashenberg~~ ITAS KAREN ASHENBERG Date/Time 5-24-94 1315

FORM NO. LS-042, Rev.0, 2/94

WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) SMC-516

1. Condition of shipping container? SMC-516 Good
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☑ No ☐
7. Number of sample containers in cooler: 34
8. Samples have: X tape ____ hazard labels
   ____ custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 5°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) n/a
    Request for analysis #(s) n/a
    Airbill # n/a Carrier n/a
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☑

Printed Name/Signature Karen Achtenberg KAREN Achtenberg Date/Time 5-24-94 13:15

FORM NO. LS-042, Rev.0, 2/94

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WO#602

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-26-94 12:05 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-7D

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 36
8. Samples have: X tape ____ hazard labels
   X custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☐
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore Tom Gilmore Date/Time 5/26/94 1210

FORM NO. LS-042, Rev.0, 2/94

9613479.1364

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WO#579

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W44-0-0-941-9

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	ER Field Sampling

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT Analytical Services 2800 George Washington Way Richland, WA 99352	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: [illegible] Cooler ID: CK-5 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B0B4W4 B0BMW1, B0BMW2 Cooler ID: SNL-516 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 100 AKE-9

Bill of lading # NA

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

RM Clearance for Public Release	RM Survey No.	Date
	5326	5/20/94

Location of Property (Area & Bldg.)	Contact	Phone
100 FH-3	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/20/94	88410 FD3AA	NA

Originated By	Date	Authorized By	Date
P.H. Butcher		C. Kupsor	

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		W Hankel	5/20/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
ITAS				
Date 5/20/94 1200				

DISTRIBUTION

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

54-3000-470 (09/89)

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WO#579

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		WA44-0-0544-10

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	ER Field Sampling

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT Analytical Services 2800 George Washington Way Richland, WA 99352	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BMV4, B0BMV1, B0BMV2. Cooler ID: ER-IC Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B0BMV4, B0BMV3, B0BMV5, Cooler ID: ER-IC Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the

Bill of lading # NA

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

RM Clearance for Public Release	RM Survey No.	Date
	13534	5/20/94

Location of Property (Area & Bldg.)	Contact	Phone
200 ER 3	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/20/94	8B410 PD3AA	NA

Originated By	Date	Authorized By	Date
P. H. Butcher	5/20/94	C.A. Simpson	5/20/94
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[signature]	9/20/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[signature] - ITAS				
Date 5/20/94 1200				

DISTRIBUTION

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

54-3000-479 (09/89)

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WO #583

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0594-12

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	~~ER Field Sampling~~

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT Analytical Services 2800 George Washington Way Richland, WA 99352	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: BMP0 BO BMP1 BO BMP2 Cooler ID: ER-1C Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: BO BMX2 BO BM13 BO BMX4 Cooler ID: SML-S16 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 100 200 300 areas.

Bill of lading # NA

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

RM Clearance for Public Release	RM Survey No.	Date
[signature]	178575	5/24/94

Location of Property (Area & Bldg.)	Contact	Phone
Operational	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/24/94	8B410 / 1231A	

Originated By	Date	Authorized By	Date
P.H. Butcher		C.J. Simpson	5/24/94
Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient / Date	Return Order No.	Date Issued	Purchase Order No.	Date Issued
[signature]				

DISTRIBUTION

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

WO#583

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W44-0-0544-14

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	ER Field Sampling

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT Analytical Services 2800 George Washington Way Richland, WA 99352	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BMZ2 B0BMZ3 ~~B0BMZ4~~ A25 5/24/94 B0BMZ6 Cooler ID: ER-1D Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: Cooler ID: Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 100 200 600 areas.

Bill of lading # NA

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

RM Clearance for Public Release	RM Survey No	Date
N/A	121525	5/24/94

Location of Property (Area & Bldg.)	Contact	Phone
Operations	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/24/94	8B410	

Originated By	Date	Authorized By	Date
P.H. Butcher		AJ Simpson	5/24/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
IT Analytical Services				
Date 5/24/94				

DISTRIBUTION

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

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WO#602

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W44-0-0594-15

PART I – TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ER Eng Support	Field & Analytical Supp	ER Field Sampling

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

Routing ☒ Contractor ☐ Vendor

Shipped to	Off-site Custodian
IT Analytical Services 2800 George Washington Way Richland, WA 99352	Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 114 lbs.	Sample #: BOBN23 BOBM24 BOBN00 Cooler ID: ER-1D Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: Cooler ID: – Polycooler with groundwater samples packed in wet ice and vermiculite	N/A

AJS 5/26/94

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

Necessity for the Off-Site Use of this Property

Sampling supports RI/FS work in the 100 area

RECEIVED

MAY 26 1994

PROPERTY RECORDS

Bill of lading # NA

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

RM Clearance for Public Release	RM Survey No.	Date
	178594	5/26/94

Location of Property (Area & Bldg.)	Contact	Phone
100 FR-3	P. H. Butcher	(509) 376-4388

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5/26/94	3B410 / B3 PD304	NA

Originated By	Date	Authorized By	Date
P.H. Butcher			5/26/94
Signature and Name of Property Control	**Custodian Date**	**Property Management Approval**	**Date**
		J P Hankel	5/26/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
ITAS				
Date 5/26/94 1210				

DISTRIBUTION

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

INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001681*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

WO#579 RL#737

Reference Document No. 453661
Page 1 of 3

Project Name/No. [1] 94-087
Sample Team Members [2]
Profit Center No. [3] 4632
Project Manager [4] Van Petley
Purchase Order No. [6]
Required Report Date [11]

Samples Shipment Date [7] 5/20/94
Lab Destination [8] Middlebrook
Lab Contact [9]
Project Contact/Phone [12]
Carrier/Waybill No. [13]

Bill to: [5] ITAS Richland
Report to: [10] ITAS Richland

AA

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
40534[illegible]01A	BOBMW8/H2O	5/19/94 1150	Glass	40ml	HCl 4°C	VOA	Rec'd at 2°C KAL 5/21/94	
B @5/20/94							FOR LAB USE ONLY	
C								
D				1L		Semi VOA		
E								
F							FOR LAB USE ONLY	
G						PCB/Pest		
H								

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal: [25]
Return to Client ☒ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: [26]
Normal ☒ Rush ☐

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068

1. Relinquished by [28] (Signature/Affiliation) ITAS	Date: 5/20/94 Time: 1600	1. Received by [28] (Signature/Affiliation) Kerry A Klemm, ITAS-KN	Date: 05-21-94 Time: 09:05
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments: [29]

MCA 3/15/91

White: to accompany samples Yellow: field copy

*See back of form for special instructions.

9613479 * 1269

00000061

INTERNATIONAL TECHNOLOGY CORPORATION

COC No. 1681

WO# 577
RL# 737

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453661
Page 2 of 2

Project Name W0068 Project No. 94-087 Samples Shipment Date 5/20/94

ONE CONTAINER PER LINE

AA-	Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
9610	405448 01 I	BOBMW8 / H_2O	5/19/94 1150	Glass	1L	4°C	PCB/Pest	Rec'd at 2°C KMK 5/21/94	
9611	J			Poly	500ml		Anions PH COND	FOR LAB	
↓	K						SO4 F Cl PO4	USE ONLY	
9612	L					H_2SO_4	NO2/NO3	pH = 4 FOR LAB	
9613	M				250ml		Alk	USE ONLY	
9620	N				500ml		TDS		
9614	O			Glass	500ml	ZnAc	Sulfide	pH = 7 FOR LAB	
9615	P				1L	H_2SO_4	Ammonia COD	pH = <2 USE ONLY	
9616	Q				1L	HNO_3	ICP Metals As Se Pb Tl Hg	pH = <2 FOR LAB	
9617	R			Poly	500ml	NaOH	CN	pH = 7 USE ONLY	
↓	S							pH = 7	
9618	T			Glass	250ml	HCL	TOC	pH = <2 FOR LAB	
9619	U				500ml	H_2SO_4	TOX	pH = <2 USE ONLY	
9621	405448 02 A	BOBMW9 / H_2O			1L		ICP Metals As Se Pb Tl Hg	pH = <2 FOR LAB	
9622	405448 03 A	BOBMX0 / H_2O			40ml	HCL	Voa	USE ONLY	
	B								
	C							FOR LAB	
	5/20/94							USE ONLY	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.1370

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001682*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

WO# 579
RL# 738

Reference Document No. 453662
Page 1 of 2

Project Name/No.[1] 94-087
Sample Team Members[2]
Profit Center No.[3] 4632
Project Manager[4] Van Petten
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 5/20/94
Lab Destination[8] Middlebrook
Lab Contact[9]
Project Contact/Phone[12]
Carrier/Waybill No.[13]

Bill to:[5] ITAS Richland
Report to:[10] ITAS Richland

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
40544[illegible]04A	BOBMYO / H_2O	5/18/94 1200	Glass	40ml	HCl 4°C	Voa	Rec'd at 2+3°C KMC 5/21/94	
(5/20/94) B							FOR LAB USE ONLY	
C								
D				1000ml		Semi Voa		
E							FOR LAB USE ONLY	
F								
G						PCB/Pest		
H								

Special Instructions:[23]

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25]
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required:[26]
Normal ☐ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068

1. Relinquished by[28] (Signature/Affiliation) [signature] ITAS	Date: 5/20/94 Time: 1600	1. Received by[28] (Signature/Affiliation) Kenny Clifton, ITAS-KN	Date: 05-21-94 Time: 09:05
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

MCA 3/15/91

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

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INTERNATIONAL TECHNOLOGY CORPORATION

COC# 1682

WO# 579

RL# 738

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453662

Page 2 of 2

Project Name SDG W00608

Project No. 94-087

Samples Shipment Date 5/20/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
405448 04 I	BOBMY0 / H_2O	5/18/94 1200	Glass	1000ml	4°C		Rec'd at 2+3°C KMC 5/21/94	
J			Poly	500ml		Anions con PH	FOR LAB USE ONLY	
K						SO4 F Cl PO4 ↓		
L					H_2SO_4	NO2/NO3	pH=<2	
M				250ml		Alk		
N				500ml		TDS		
O			Glass		ZnAc	Sulfide	pH=11	
P						Ammonia COD	pH=<2	
Q				1000ml		ICP Metals As Se Pb Tl Hg	pH=<2	
R			Poly	500ml		CN	pH=11	
S							pH=11	
T			Glass	250ml		TOC	pH=<2	
U						TOX	pH=<2	
405448 05 A	BOBMY1 / H_2O			1000ml		ICP Metals As Se Pb Tl Hg	pH=<2	
405448 06 A	BOBMY2 / H_2O			40ml		VOA		
B								
C								

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

MCA 3/15/91

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001685*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO# 583

Reference Document No. 453664

Page 1 of 2

Project Name/No.[1] 94-087 | Samples Shipment Date[7] 5/24/94 | Bill to:[5] ITAS Richland

Sample Team Members[2] | Lab Destination[8] Middlebrook

Profit Center No.[3] 4632 | Lab Contact[9]

Project Manager[4] Van Pettey | Project Contact/Phone[12] | Report to:[10] ITAS Richland

Purchase Order No.[6] | Carrier/Waybill No.[13]

Required Report Date[11]

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Preservative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
4055080/A	BOBMPO/ H_2O	5/17/94 1058	Glass	40ml	HCl 4°C	Voa	Coolers Rec'd at 2,3+9°C KAH 5/25/94	
B				1	1	1	FOR LAB USE ONLY	
C								
D				1L		Semi Voa		
E						1		
F						Pest/PCB	FOR LAB USE ONLY	
G						1		
H			Poly			cond pH Anions SO4,Cl,F,PO4		

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25] Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required:[26] Normal ☑ Rush ☐

QC Level:[27] I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068

1. Relinquished by[28] (Signature/Affiliation) ITAS	Date: 5/24/94 Time: 1600
1. Received by[28] (Signature/Affiliation) ITAS-KN	Date: 05-25-94 Time: 09:00
2. Relinquished by (Signature/Affiliation)	Date: Time:
2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:
3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

MCA 3/15/91

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

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COC No. 1685

WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453664

Page 2 of 2

Project Name _____ Project No. 94-087 Samples Shipment Date 5-24-94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
4055080 I	BOBMP0/H_2O	5-17-94 1058	500 ml		HNO3 4°C	NO2/NO3 pH=	Coolers Rec'd at 2, 3, 4°C <2 KAM 5/25/94	
J			250ml			ALK	FOR LAB USE ONLY	
K			500 ml			TDS		
L			500 ml		ZnAc	sulfide	pH = 10	
M			1 L		H_2SO_4	Ammonia COD	pH = <2	
N			↓		HNO3	ICP METALS	pH = <2	
O			↓		NaOH	CYA.	pH = 10	
P			250ml		HCl	TOC	pH = <2	
Q			500ml		H_2SO_4	~~TOX~~ TOX	pH = <2	
4055080 2 A	BOBMP1/H_2O		1 L		HNO3	ICP METALS	pH = <2	
4055080 3 A	BOBMP2/H_2O		40ml		HCl	VOA		
B	↓		↓			↓	FOR LAB USE ONLY	
C	↓	↓	↓			↓		
4055080 1 R	BOBMPC	5-17-94 1058	1000ml	1000ml		PCB/PEST	FOR LAB USE ONLY	
		KAM 5-24-94					FOR LAB USE ONLY	

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

MCA 3/15/91

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001687*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#583

Reference Document No. 453665

Page 1 of 2

Project Name/No.[1] 94-087

Sample Team Members[2]

Profit Center No.[3] 4632

Project Manager[4] Van Petty

Purchase Order No.[6]

Required Report Date[11]

Samples Shipment Date[7] 5/24/94

Lab Destination[8] Middlebook

Lab Contact[9]

Project Contact/Phone[12]

Carrier/Waybill No.[13]

Bill to:[5] ITAS Richland

Report to:[10] ITAS Richland

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
40550807A	BOBMZZ/H2O	5/20/94 1130	Glass	40ml	HCl 4°C	VOA	Coolers Rec'd at 2,3,+4°c KAK 5/25/94	
B				1	1	1	FOR LAB USE ONLY	
C								
D				1L		Semi VOA		
E						1	FOR LAB USE ONLY	
F								
G						PCB/Pest		
H						1		

Special Instructions:[23]

Possible Hazard Identification:[24] Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal:[25] Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required:[26] Normal ☑ Rush ☐

QC Level:[27] I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068 55 KAK 5/25/94

1. Relinquished by[28] (Signature/Affiliation) Tom Petty ITAS	Date: 5/24/94 Time: 1600	1. Received by[28] (Signature/Affiliation) Kenyth Klenn, ITAS-KN	Date: ~~05-24~~ 05/25/94 Time: 09:00
2. Relinquished by (Signature/Affiliation)	Date: Time:	2. Received by (Signature/Affiliation)	Date: Time:
3. Relinquished by (Signature/Affiliation)	Date: Time:	3. Received by (Signature/Affiliation)	Date: Time:

Comments:[29]

MCA 3/15/91

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

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INTERNATIONAL TECHNOLOGY CORPORATION

COC No. 1687

WO# 583

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453665

Page 2 of 2

Project Name _____ Project No. 94-087 Samples Shipment Date 5/24/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
40550807 I	BOBMZ2/H2O	5/20/94 1130	Glass	1L	4°C	PCB/Pest	Coolers Rec'd at 2.3+4°C KAK 5/25/94	
4			Poly	1		Anion SO4 Cl F PO4 pH Cond	FOR LAB USE ONLY	
K				500ml	H2SO4	NO2/NO3	pH=<2	
L				250ml		Alk		
M				500ml		TDS	FOR LAB USE ONLY	
N			Glass	1	ZnAc	Sulfide	pH=7	
O				1L	H2SO4	Ammonia COD	pH=<2	FOR LAB
P				1	HNO3	ICP metals As Se Pb TL Hg	pH=<2	USE ONLY
Q			Poly	1	NaOH	CN	pH=11	
R			Glass	250ml	HCl	TOC	pH=<2	FOR LAB
S				50ml	H2SO4	TOX	pH=<2	USE ONLY
40550808 A	BOBMZ3/H2O			1L	HNO3	ICP metals As Se Pb TL Hg	pH=<2	FOR LAB
40550809 A	BOBMZ6/H2O			40ml	HCl	VOA		USE ONLY
B				1	1	1		
C							FOR LAB USE ONLY	
5/24/94								
							FOR LAB USE ONLY	

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

MCA 3/15/91

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001686*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#583

Reference Document No. 453666

Page 1 of 2

Project Name/No. [1] 94-087

Sample Team Members [2]

Profit Center No. [3] 4632

Project Manager [4] Van Petty

Purchase Order No. [6]

Required Report Date [11]

Samples Shipment Date [7] 5/24/94

Lab Destination [8] Middlebrook

Lab Contact [9]

Project Contact/Phone [12]

Carrier/Waybill No. [13]

Bill to: [5] ITAS Richland

Report to: [10] ITAS Richland

ONE CONTAINER PER LINE

Sample Number [14]	Sample Description/Type [15]	Date/Time Collected [16]	Container Type [17]	Sample Volume [18]	Preservative [19]	Requested Testing Program [20]	Condition on Receipt [21]	Disposal Record No. [22]
40550804/A	BOB mix2/H2O	5/23/94 0930	Glass	40ml	HCl 4°C	VOA	Coolers Rec'd at 2, 3+4° KHK 5/25/94	
B							FOR LAB USE ONLY	
C								
D				1L		Semi VOA		
E								
F							FOR LAB USE ONLY	
G						PCB/Pest		
H								

Special Instructions: [23]

Possible Hazard Identification: [24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☑

Sample Disposal: [25]
Return to Client ☑ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required: [26]
Normal ☑ Rush ☐

QC Level: [27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068

1. Relinquished by [28] (Signature/Affiliation) [signature] ITAS — Date: 5/24/94 Time: 1600	1. Received by [28] (Signature/Affiliation) Kenny A Klemm, ITAS-KN — Date: 05-25-94 Time: 09:00
2. Relinquished by (Signature/Affiliation) — Date: Time:	2. Received by (Signature/Affiliation) — Date: Time:
3. Relinquished by (Signature/Affiliation) — Date: Time:	3. Received by (Signature/Affiliation) — Date: Time:

Comments: [29]

MCA 3/15/91

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

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INTERNATIONAL TECHNOLOGY CORPORATION

COC No. 1686

WO# 583

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453666

Page 2 of 2

Project Name _____ Project No. 94-087 Samples Shipment Date 5/24/94

ONE CONTAINER PER LINE

Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
40550804 I	BOBMX2 /H_2O	5/23/94 0930	Glass	1L	4°C	PCB/Pest	Coolers Rec'd at 2.3,4 KAK 5/25/94	42
J			Poly	1		Anions, SO_4 Cl F Poly pH Cond	FOR LAB USE ONLY	
K				500ml	H_2SO_4	NO2/NO3	pH= <2	
L				250ml		Alk		
M				500ml		TDS		
N			Glass	1	ZnAc.	Sulfide	pH=10	
O				1L	H_2SO_4	Ammonia COD	pH=<2	
P					HNO_3	ICP Metals As Se Pb TL Hg	pH=<2	
Q			Poly		NaOH	CN	pH=9	
R			Glass	250ml	HCl 1+1	TOC	pH=<2	
S				500ml	(5) H_2SO_4	TOX	pH=<2	
40550805 A	BOBMX3 /H_2O			1L	HNO_3	ICP Metals As Se Pb TL Hg	pH=<2	
40550806 A	BOBMX4 /H_2O			40ml	HCl	VOA		
B							FOR LAB USE ONLY	
C								
(15) 5/24/94								
							FOR LAB USE ONLY	

MCA 3/15/91

White: To accompany samples Yellow: Field copy *See back of form for special instructions.

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001706*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#602 RL#764 #765

Reference Document No. 453639
Page 1 of 2

Project Name/No.[1] SAF 94-087
Sample Team Members[2]
Profit Center No.[3] 4632
Project Manager[4] Van Petteys
Purchase Order No.[6]
Required Report Date[11]

Samples Shipment Date[7] 5-26-94
Lab Destination[8] Middleboor
Lab Contact[9]
Project Contact/Phone[12] 261 2178 812 =3°c
Carrier/Waybill No.[13] 261 2177 531 =4°c

Bill to:[5] IT Richland
Report to:[10] IT Richland

Write: To accompany samples Yellow: Field copy See back of form for special instructions.

961379.1379

ONE CONTAINER PER LINE

Sample Number[14]	Sample Description/Type[15]	Date/Time Collected[16]	Container Type[17]	Sample Volume[18]	Pre-servative[19]	Requested Testing Program[20]	Condition on Receipt[21]	Disposal Record No.[22]
AA 9423 40557201 A	BOBM78/H_2O	5/25 1145	GS	40ml	Cool 4°	VOA	Rec'd at 3+4°c KMK 5-27-94	
9424 B			↓	↓		↓	FOR LAB USE ONLY	
C			↓	↓		↓		
D			aG	1000ml		Semi-VOA		
E			↓	↓		↓		
F			↓			↓	FOR LAB USE ONLY	
G			aG			PCB/PEST		
H			↓	↓	↓	↓		

Special Instructions:[23] As per WHC Contract

Possible Hazard Identification:[24]
Non-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☒

Sample Disposal:[25]
Return to Client ☒ Disposal by Lab ☐ Archive _____ (mos.)

Turnaround Time Required:[26]
Normal ☒ Rush ☐

QC Level:[27]
I. ☐ II. ☐ III. ☐ Project Specific (specify): SDG W0068

1. Relinquished by[28] (Signature/Affiliation) JHudeberg IT Date: 5-26-94 Time: 14:00	1. Received by[28] (Signature/Affiliation) Kenny A Klemm, ITAS-KN Date: 05-27-94 Time: 08:55
2. Relinquished by (Signature/Affiliation) Date: Time:	2. Received by (Signature/Affiliation) Date: Time:
3. Relinquished by (Signature/Affiliation) Date: Time:	3. Received by (Signature/Affiliation) Date: Time:

Comments:[29]

MCA 3/15/91

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INTERNATIONAL TECHNOLOGY CORPORATION

COC No. 1706 WO# 602

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD (cont.)*

Reference Document No.[30] 453639

Page 2 of 2

Project Name SAF 94-087 Project No. SDG-W0068 Samples Shipment Date 5-26-94

ONE CONTAINER PER LINE

	Sample[14] Number	Sample[15] Description/Type	Date/Time[16] Collected	Container[17] Type	Sample[18] Volume	Pre-[19] servative	Requested Testing[20] Program	Condition on[21] Receipt	Disposal[22] Record No.
MA-9924	40557201 I	BOBMZ8 / H2O	5/25 1145	ag	1000ml	Cool 4°	PCB / PEST	Rec'd at 3+4°c KMC 5/27/94	
9925	J			P	500ml		Cond, pH ANIONS, SO4, F, Cl, PO4	FOR LAB USE ONLY	
9926	K			G/P	250ml		NO_2, NO_3	pH=<2	
9937	L			↓	500ml		ALK		
9939	M			↓	↓		TDS		
9927	N			P	1000ml		Sulfide	pH=11	
9928	O			G	↓		Ammonia COD	pH=<2	
9929	P			↓	↓		ICP Metals, Lead Arsenic, Se, Tl, Hg	pH=<2	
9930	Q			P	500ml		Cyanide	pH=11	
9930	R			↓	↓		↓	pH=11	
9931	S			ag-s	250ml		TOC	pH=<2	
9942	T			ag-s	500ml		TOX	pH=2	
~~9944~~ 9925	U	↓	↓	P	↓		Cond, pH ANIONS, SO4, F, Cl, PO4	~~pH=<2~~ KMC 5-27-94	
	40557202A	BOBMZ9 / H2O		G	1000ml		ICP Metals, Lead Arsenic, Se, Tl, Hg	pH=<2	
	03A	BOBN00		GS	40ml		VOA		
	B	↓	↓	↓	↓		↓		
	C	↓	↓	↓	↓	↓	↓	FOR LAB USE ONLY	

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

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WO#579

"Yes's" are Category I.
"No" is Cat. II.
JRN 20 May 94

TENNELEC #1 SCREENING CALCULATION SPREADSHEET

Customer Code	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC	5-20-94	12:00	5-20		5-20	10	13	219	240

Customer ID	pH <2	Pinchl Wght	Vol. Anal.	Sample Size	SMPLE CNT DATA Hldr	Total	Counts	Net Sample Counts/Minute		DPM / Aliqout		uCi per Sample		2 Sigma Error uCi per Sample		pCi/(Gm or L)		Catagory 1	Aliquot to Cat 1 Gm or Ltr	
WHC	Rcvd/Relq	(mGrms)	mG mL	Gm L	Num.	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
BOBJ15		56.9	57	1100.0	11	9	29	0.85	1.99	6.49E+00	3.92E+00	5.7E-02	3.4E-02	4.5E-05	2.0E-05	5.1E+01	3.1E+01	No	1.9E+02	3.2E+03
BOBMYO		0.9	5	4.0	7	6	29	0.75	1.99	2.86E+00	3.75E+00	1.0E-03	1.3E-03	8.6E-07	7.3E-07	2.6E+02	3.4E+02	Yes	3.9E+01	3.0E+02
BOBMW8		4.3	5	4.0	8	4	164	0.35	15.49	9.29E-01	3.30E+01	3.3E-04	1.2E-02	5.9E-07	6.9E-05	8.4E+01	3.0E+03	Yes	1.2E+02	3.4E+01
BOBMWO		3.1	5	4.0	10	5	23	0.45	1.39	1.77E+00	2.67E+00	8.4E-04	9.6E-04	8.8E-07	9.1E-07	1.6E+02	2.4E+02	Yes	8.3E+01	4.2E+02
BOBMP4		4.9	5	4.0	9	3	20	0.25	1.09	9.94E-01	2.17E+00	3.8E-04	7.8E-04	5.1E-07	1.1E-06	9.0E+01	2.0E+02	Yes	1.1E+02	5.1E+02
TOTAL uCi												5.9E-02	4.9E-02							

9613479.1381

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WO#583

TENNELEC #1 SCREENING CALCULATION SPREADSHEET

Customer Code	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC			52494		524	10	11	219	240

Customer ID	pH	RESIDUE	Vol.	Sample	SMPLE CNT DATA			Net Sample		DPM / Aliqout		uCi per Sample		2 Sigma Error		pCi/(Gm or L)		Catagory 1	Aliquot to Cat 1	
	<2	Wght	Anal.	Size	Hldr	Total	Counts	Counts/Minute						uCi per Sample					Gm or Ltr	
WHC/WATER	Rcvd/Relq	(mGrms)	mG mL	Gm L	Num.	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta	Yes/No	Alpha	Beta
B0BMP0		1.9	5	1.0	1	1	15	0.05	0.59	2.0E-01	1.2E+00	1.8E-05	1.1E-04	5.4E-08	9.7E-08	1.8E+01	1.1E+02	Yes	5.6E+02	9.1E+02
B0BMX2		2.3	5	1.0	2	5	33	0.45	2.39	1.7E+00	4.8E+00	1.6E-04	4.3E-04	1.7E-07	2.0E-07	1.6E+02	4.3E+02	Yes	6.4E+01	2.3E+02
B0BMZ2		0.3	5	1.0	3	1	11	0.05	0.19	2.0E-01	3.6E-01	1.8E-05	3.3E-05	5.3E-08	9.6E-08	1.8E+01	3.3E+01	Yes	5.4E+02	3.1E+03
TOTAL	uCi							-0.05	-0.91	-1E-01	-2E+00	1.9E-04	5.8E-04	ERR	ERR	ERR	ERR	Yes	ERR	ERR

O.K. JRN
24 May 94

WO# 602

TENNELEC #1 SCREENING CALCULATION SPREADSHEET

O.K. JRM
26 May 94

Customer Code WHC	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
			52694		526	10	11	310	300

Customer ID WHC/WATER	pH <2 Rcvd/Reiq	RESIDUE Wght (mGrms)	Vol. Anal. mG	mL	Sample Size Gm	L	SMPLE CNT DATA Hldr Num.	Total Alpha	Counts Beta	Net Sample Counts/Minute Alpha	Beta	DPM / Aliqout Alpha	Beta	uCi per Sample Alpha	Beta	2 Sigma Error uCi per Sample Alpha	Beta	pCi/(Gm or L) Alpha	Beta	Catagory 1 Yes/No	Aliquot to Cat 1 Gm or Ltr Alpha	Beta
B0BMZ8		0.7	5		4.0		8	1	17	0.06	0.67	2.3E-01	1.4E+00	8.1E-05	5.0E-04	2.3E-07	4.1E-07	2.0E+01	1.2E+02	Yes	4.9E+02	8.0E+02

05/19/94 10:09 ☎373 3176 222S 3B 003

WO#579

SAMPLE STATUS REPORT FOR E 6440. E-BLANK 1-F5-1 TIME: 5/19/94 10:51
DISPATCHED: 4/ 5/94 13: 6 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/19/94 7:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	VOGEL

END OF REPORT

8 copies

BO BMP4
BO BMP5
BO BMP6
BO BMP7

AJS 5/24/94

BO BMY8
BO BMY9
BO BMZ0
BO BMZ1

BO BMY0
BO BMY1
BO BMY2
BO BMY3

05-20-94 01:38 [illegible] 2225 05 P.005

WO #579

SAMPLE STATUS REPORT FOR E 6456. E-BLANK 1-F8-3 TIME: 5/20/94 8:26
DISPATCHED: 4/ 5/94 13:21 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/20/94 7:56

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	82.42 PCI/G <1% POSSIBLE ALPHA			VOGEL

END OF REPORT

BOBM W8
BOBM W9
BOBM X0
BOBM X1

05/19/94 10:09 ☎373 3176 222S 3B 002

WO#583

SAMPLE STATUS REPORT FOR E 6439. E-BLANK 1-F1-2 TIME: 5/19/94 11: 3
DISPATCHED: 4/ 5/94 13: 4 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/19/94 7:47

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	VOGEL

END OF REPORT

BO BMP0
BO BM P1
BO BM P2
BO BM P3

AJS 5/24/94

05/23/94 11:52 ☎373 3176 222S 3B 003

WO#583

SAMPLE STATUS REPORT FOR E 6459. E-BLANK FREBLNK1 TIME: 5/23/94 8:51
DISPATCHED: 4/ 5/94 13:22 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/23/94 8: 2

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	VOGEL

END OF REPORT

BO BMZ2
BO BMZ3
~~BO BMZ4~~ AJS 5/24/94
~~BO BMZ5~~
BOBMZ6 LBR 5-24-94
BOBMZ7

05/24/94 09:01 ☎373 3176 222S 3B 002

WO #583

SAMPLE STATUS REPORT FOR E 6458. E-BLANK 1-F8-4 TIME: 5/24/94 9:48
DISPATCHED: 4/ 5/94 13:21 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/24/94 7:59

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	VOGEL

END OF REPORT

BO BMX2
BOBMX3
BO BMX4
BO BMX5

05/26/94 07:26 ☎373 3176 222S 3B WO#602 002

SAMPLE STATUS REPORT FOR E 6460. E-BLANK FREBLNK2 TIME: 5/26/94 8:18
DISPATCHED: 4/ 5/94 13:23 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/26/94 7:48

EXT.	DETER.	RESULTS OR STATUS	OUT OF RANGE?	GOOD ANS?	CHARGE CODE
****	********	**********	***	***	******
4271	TOT-ACT	< 5.00000E 01 pCi/G	N	Y	VOGEL

END OF REPORT

BO BMZ8

BO BMZ9

BO BN00

BO BN01

WO # 577

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-8	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0594-9	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks:		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	2 (KT 5/19/94)	1	1	1	1	1	1	2 (KT 5/19/94)	1	1	3	6 (KT 5/19/94)
Volume	40ml	1000ml	1000ml	~~1000ml~~ 500mL (KT 5/19/94)	500ml	250ml	500ml	500ml	1000ml	1000ml	~~1000ml~~ 500mL (KT 5/19/94)	250ml	500ml	4000ml	~~1000ml~~ 500mL (KT 5/19/94)

SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
4054470 1	ABC	DEF	GHI	Jk	L	M	N	O	P	Q R	RS	T	U	4054 4801	

Sample No.	Matrix*	Date Sampled	Time Sampled													
60BMW8	W	5/19/94	1150	X	X	X	X	X	X	X	X	X	X	X	X	X
60BMW9	W	↓	↓													
60BMX0	W	↓	↓													

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: K. Trapp / K. Trapp	Date/Time: 5/19/94 1405	Received By: Karen E. Rogers	Date/Time: 5-19-94 1405
Relinquished By: Karen E. Rogers	Date/Time: 5-19-94 1425	Received By: Kimberly Sweeney	Date/Time: 5/19/94 1425
Relinquished By: Kimberly Sweeney	Date/Time: 5/20/94 1200	Received By: ITAS	Date/Time: 5/20/94 12:00
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION

Received By: Title: Date/Time:

FINAL SAMPLE DISPOSITION

Disposal Method: Disposed By: Date/Time:

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0000044

9613479.1590

W0#5447

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-8	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0547-9	Bill of Lading/Air Bill No.: N/A NONE
Possible Sample Hazards/Remarks:		

Preservative	N/A	HNO3<2	None			HCl pH<2												
Type of Container	Gs	G	aGS			Gs												
No. of Container(s)	1	1	1			3												
Volume	1000ml	1000ml	40ml			40ml												
SAMPLE ANALYSIS 405447	TRITIUM C-14 405448 01	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FILTERD	Activity Scan			VOA (CLP) ~~TRIP~~ KT 5/19/94												

Sample No.	Matrix*	Date Sampled	Time Sampled															
600MW8	W	5/19/94	1150	X		X												
600MW40ZA	W	↓	↓		X													
600MX003ABC	W	↓	↓						X									

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/19/94 1405	Karen Rogers	5-19-94 1405
Karen Rogers	5-19-94 1425	D Sweeney / L Sweeney	5/19/94
D Sweeney / L Sweeney	5/20/94 1200	ITAS	5/20/94 1200
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION — Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.1391

00000045

WO#579

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-10	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W74-0-0594-10	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks:		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	2	1	1	1	1	1	1	2	1	1	3	3
Volume	40ml	1000ml	1000ml	~~1000ml~~ 500mL	500ml	250ml	500ml	500ml	1000ml	1000ml	~~1000ml~~ 500mL	250ml	500ml	4000ml	~~1000ml~~ 500mL
SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
40544704	ABC	DEF	GHI	JK	L	M	N	O	P	Q	RS	T	U	40544302	

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMY0	W	5/18/94	1200	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B0BMY1	W																
B0BMY2	W																

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/18/94 1605	L Sweeney L Sweeney	5/18/94 1605
L Sweeney L Sweeney	5/20/94 1200	ITAS	5/20/94 1200

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

9613479.1392

0000046

WO#579

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: ~~EFL-1055~~ per 5/19/94 100 F	SAF No.: 94-087
Ice Chest No.	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0594-10	Bill of Lading/Air Bill No.: N/A NONE

Possible Sample Hazards/Remarks

Preservative	N/A	HNO3<2	None			HClpH<2									
Type of Container	Gs	G	aGs			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40mL			40ml									

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 405447

	TRITIUM C-14 405448 02	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan	VOA (CLP) TRIP
BOBMY0	X		X	
BOBMY105A		X		
BOBMY206ABC				X

Sample No.	Matrix*	Date Sampled	Time Sampled
BOBMY0	W	5/18/94	1200
BOBMY105A	W	↓	↓
BOBMY206ABC	W	↓	↓

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/19/94 1607	K Sweeney/K Sweeney	5/18/94 1605
K Sweeney/K Sweeney	5/20/94 1200	ITAS	5/20/94 1005
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

9612479.1393

0000047

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO# 583

Page 1 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: NA	SAF No.: 94-087
Ice Chest No.: ER-IC	Field Logbook No.: EFL 1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0594-12	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks:		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	G P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	2 3	1	1	1	1	1	1	1	1	1	1	6 3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	2000 4000ml	1000ml

SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
40550801	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	40550901	
	ABC	DE	FG	H	I	J	K	L	M	N	O	P	Q		

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMP0	W	5/17/94	1058	X	X	X	X	X	X	X	X	X	X	X	Y	X	X
B0BMF1	W																
B0BMF2	W																

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
G G Hamilton	5-17-94 1430	L Sweeney	5-17-94 1430
L Sweeney	5-24-94 0945	Karen E. Rogers	5-24-94 0940
Karen E. Rogers	5-24-94 1030	Karen Rathbun DMS	5-24-94 1315

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By ____ Title ____ Date/Time ____

FINAL SAMPLE DISPOSITION: Disposal Method ____ Disposed By ____ Date/Time ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.1594

0000048

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 2 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: NA	SAF No.: 94-087
Ice Chest No.: ER-IC	Field Logbook No.: EFL 1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W9A4-0-0504-12	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks	Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative	Type of Container	No. of Container(s)	Volume	SAMPLE ANALYSIS: TRITIUM C-14 405509	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan	VOA (CLP) TRIP									
				N/A	Gs	1	1000ml													
				HNO3<2	G	1	1000ml													
				NONE	G	1	40ml													
				HCl pH<2	Gs	3	40ml													
405508																				
BOBMF0	W	5/17/94	1058					X		X										
BOBMP1 02A	W	5/17/94	1058						X											
BOBMP2 03ABC	W																			

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: P.C. Hamilton P.C. HAMILTON	Date/Time: 5/17/94 1430	Received By: L Sweeney L Sweeney	Date/Time: 5/17/94 1430
Relinquished By: L Sweeney L Sweeney	Date/Time: 5/24/94 0940	Received By: Brian Rogers	Date/Time: 5-24-94 0940
Relinquished By: Brian Rogers	Date/Time: 5-24-94 1030	Received By: Karen Hattaway IT-HS	Date/Time: 5-24-94 1311
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

SDG-W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 1 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-F	SAF No.: 94-087
Ice Chest No.: SML-516	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0594-12	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks:		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	1	1	1	1	1	1	1	1	1	1	6	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
405080	ABC	DEF	GHI	J	K	L	M	N	O	P	Q	R	S	40550	902

Sample No.	Matrix*	Date Sampled	Time Sampled														
600MX2	W	5/23/94	0930	X	X	X	X	X	X	X	X	X	X	X	X	X	X
600MX3	W																
600MX4	W																

CHAIN OF POSSESSION

Sign/Print Names			
Relinquished By: K. Trapp/K. Trapp	Date/Time: 5/23/94 1440	Received By: Loren E. Doggett	Date/Time: 5-23-94 1440
Relinquished By: Loren E. Doggett	Date/Time: 5-24-94 1320	Received By: JTAS	Date/Time: 13:15 5-24-94
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GANMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG6068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0096196

0000050

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO #583

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: SML-516	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0594-12	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

SAMPLE ANALYSIS: 405508

Preservative	N/A	HNO3<2	None			HCl pH<2										
Type of Container	Gs	G	aGs			Gs										
No. of Container(s)	1	1	1			3										
Volume	1000ml	1000ml	40mL			40ml										
	TRITIUM C-14 ✓ 405509 02	ICP ✓ METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan ✓			VOA (CLP) TRIP ✓ KT 5/23/94										

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMX2	W	5/23/94	0930	X		X											
B0BMX3	W	5/23/94			X												
B0BMX4	W								X								

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/23/94 1440	Irene C. Rogers	5-23-94 1440
Irene C. Rogers	5-24-94 1315	Karen Stebbins JTAS	5-24-94 1315

SPECIAL INSTRUCTIONS

SDG W0068

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

LABORATORY SECTION: Received By ____ Title ____ Date/Time ____

FINAL SAMPLE DISPOSITION: Disposal Method ____ Disposed By ____ Date/Time ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.1397

0000051

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 1 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3 JQR 5-24-94	Sampling Location: SML	SAF No.: 94-087
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W44-0-0594-14	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	eG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	1	1	1	1	1	1	1	1	1	1	6 KEYSTONE	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	2L KEYSTONE 4000ml	1000ml
SAMPLE ANALYSIS 40550807	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)P	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
	ABC	DEF	GHI	J	k	L	m	N	O		Q	R	S	40550903	

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMZ2	W	5/20/94	1130	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B0BMZ3	W																
B0BMZ4 (DUP of B0BMZ4)	W																
B0BMZ6																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/20/94 1415	K. Sweeney / K. Sweeney	5/20/94 1417
K. Sweeney / K. Sweeney	5/24/94 0540	Thor. Rogers	5-24-94 0540
Thor. Rogers	5-24-94 1030	Karen Stebbins FTAS	5-24-94 1315

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.1398

0000052

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST W0#583

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: SML	SAF No.: 94-087
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W 94-0-0SCH-14	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks:		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

SAMPLE ANALYSIS: 405508

Preservative	N/A	HNO3<2	Vone			HClpH<2										
Type of Container	Gs	G	orGs			Gs										
No. of Container(s)	1	1	1			3										
Volume	1000ml	1000ml	40ml			40ml										
	TRITIUM C-14 405509 R3	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan			VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOBMZ2	W	5/20/94	1130	X		X												
BOBMZ3 08A	W	5/20/94	1130		X													
and BOBMZ4	W								\									
BOBMZ6 09ABC		5/20/94	1130						X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/20/94 1415	D Sweeney/D Sweeney	5/20/94 1415
D Sweeney/D Sweeney	5/24/94 0940	Karen Hagels	5-24-94 0940
Karen T. Hagels	5-24-94 1030	Karen Schilling TAS	5-24-94 15:15

SPECIAL INSTRUCTIONS

SDGW0068

Matrix*

- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.1399

0000053

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#602

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	$N_{0.1}P$			HCl pH<2									
Type of Container	Gs	G	aGs			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40mL			40ml									
SAMPLE ANALYSIS 40557301	TRITIUM C-14	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan			VOA (CLP) TRIP ABC									

Sample No.	Matrix*	Date Sampled	Time Sampled													
~~BOBMZ9~~	W	5/25/94	1145	X		X	KT 5/25/94									
~~BOBN00~~	W	↓	↓		X		KT 5/25/94									
	W															
BOBMZ8	W	5/25/94	1145	X		X										
BOBMZ9 02A	W	↓	↓		X											
BOBN00 03	W	↓	↓						X							

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/25/94 1350	G.J. Simpson	5/25/94 1400
G.J. Simpson	5/26/94 0907	Karen E. Rogers	5-26-94 0907
Karen E. Rogers	5-26-94 0907	[illegible] ITAS	5/26/94 1210
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

STDs W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION: Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION: Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#602

Page 1 of 2

Date Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 120 E	SAF No.: 94-087
Ice Chest No.: ER-10	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks:		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	2 KT 5/25/94	1	1	1	1	1	1	2 KT 5/25/94	1	1	3	6 KT 5/25/94
Volume	40ml	1000ml	1000ml	500mL ~~1000ml~~ KT 5/25/94	500ml	250ml	500ml	500ml	1000ml	1000ml	500mL ~~1000ml~~ KT 5/25/94	250ml	500ml	4000ml	500mL ~~1000ml~~ KT 5/25/94
SAMPLE ANALYSIS 40557201	VOA (CLP) ABC	SEMIVOA (CLP) DEF	PCB/ PEST (CLP) GHI	ANIONS (IC)SO4 F,Cl, PO4 COND,pH JU	NO2/NO3 K	ALK L	TDS M	SULFIDE N	AMMONIA COD O	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP) P	CYANIDE (CLP) QR	TOC S	TOX T	*3 40557301	Tc-99 A

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMZ8	W	5/25/94	1145	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	W																
	W																

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/25/94 1350	AJ Simpson	5/25/94 1600
AJ Simpson	5/26/94 0907	Lorent E. Pogue	5-26-94 0907
Lorent E. Pogue	5-26-94 0921	ITAS	5/26/94 1210
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W00068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION — Received By | Title | Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method | Disposed By | Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9619429.1401

0000055

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9702

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9702

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	10	U
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	10	U
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

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9702

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9702

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMP2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9716

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9716

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	12	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMP2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9716

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9716

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9609

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9609

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	2	J
67-64-1	Acetone	11	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9609

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9609

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9622

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9622

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	2	J
67-64-1	Acetone	18	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9622

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9622

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9718

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9718

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	10	
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	2	J
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9718

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9718

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. _____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMX4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9733

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9733

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	14	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9733

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9733

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9623

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9623

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	3	J
67-64-1	Acetone	17	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9623

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9623

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9636

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9636

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	3	J
67-64-1	Acetone	15	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMY2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9636

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9636

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9735

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9735

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	7	J
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9735

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9735

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9752

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9752

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	12	
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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9752

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9752

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9923

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9923

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	2	BJ
67-64-1	Acetone	14	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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9923

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9923

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBNO0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9952

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9952

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	2	BJ
67-64-1	Acetone	14	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	10	U
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

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BOBNO0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9952

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9952

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 4 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	11.92	2	J
2.		UNKNOWN	14.63	13	J
3.	314-40-9	BROMACIL	17.62	35	JN
4.		UNKNOWN	19.35	6	J

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 314-40-9	BROMACIL	17.55	26	JN

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: decanted: (Y/N) Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/27/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/21/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/24/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/26/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/28/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMYO

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/21/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/24/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/26/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/28/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/27/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 06/01/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/13/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	gamma-BHC (Lindane)	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
7421-93-4	Endrin aldehyde	0.10	U
5103-71-9	alpha-Chlordane	0.050	U
5103-74-2	gamma-Chlordane	0.050	U
8001-35-2	Toxaphene	5.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	2.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.:W0068_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
_BOBMW8_____	_AA9616_____
_BOBMW8_____	_AA9617_____
_BOBMW9_____	_AA9621_____
_BOBMY0_____	_AA9630_____
_BOBMY0D_____	_AA9631D_____
_BOBMY0D_____	_AA9630D_____
_BOBMY0S_____	_AA9630S_____
_BOBMY0_____	_AA9631_____
_BOBMY1_____	_AA9635_____
_BOBMY1D_____	_AA9635D_____
_BOBMY1S_____	_AA9635S_____
_BLKSPK_____	_AA9631S_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

_____

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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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Christopher Kaufer Name: Christopher Kaufer

Date: June 24, 1994 Title: Chemist

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9616

Level (low/med): LOW__ Date Received: 05/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	475	_		P_
7440-36-0	Antimony_	50.0	U		P_
7440-38-2	Arsenic__	2.6	B		F_
7440-39-3	Barium___	112	B		P_
7440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium__	5.0	U		P_
7440-70-2	Calcium__	135000	_		P_
7440-47-3	Chromium_	270	_		P_
7440-48-4	Cobalt___	10.0	U		P_
7440-50-8	Copper___	10.0	U		P_
7439-89-6	Iron_____	889	_		P_
7439-92-1	Lead_____	2.0	U		F_
7439-95-4	Magnesium	37300	_		P_
7439-96-5	Manganese	17.1	_		P_
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	86.8	_		P_
7440-09-7	Potassium	7000	_		P_
7782-49-2	Selenium_	2.0	U		F_
7440-22-4	Silver___	5.0	U		P_
7440-23-5	Sodium___	59200	_		P_
7440-28-0	Thallium_	2.0	U		F_
7440-62-2	Vanadium_	10.0	U		P_
7440-66-6	Zinc_____	6.0	B		P_
5955-70-0	Cyanide__		_		NR
			_		
			_		
			_		
			_		
			_		
			_		
			_		
			_		
			_		

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9617
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:
CYANIDE_ONLY.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW9

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9621
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	121	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	112	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	134000			P
7440-47-3	Chromium	82.4			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	235			P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	37100			P
7439-96-5	Manganese	4.7	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	24.0	B		P
7440-09-7	Potassium	6170			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	59100			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9630

Level (low/med): LOW__ Date Received: 05/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	67.1	B		P
7440-36-0	Antimony_	50.0	U		P
7440-38-2	Arsenic__	2.0	U		F
7440-39-3	Barium___	22.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium__	5.0	U		P
7440-70-2	Calcium__	26100			P
7440-47-3	Chromium_	53.5			P
7440-48-4	Cobalt___	10.0	U		P
7440-50-8	Copper___	10.0	U		P
7439-89-6	Iron_____	246			P
7439-92-1	Lead_____	2.0	U		F
7439-95-4	Magnesium	4420	B		P
7439-96-5	Manganese	4.8	B		P
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium_	2.0	U		F
7440-22-4	Silver___	5.0	U		P
7440-23-5	Sodium___	3040	B		P
7440-28-0	Thallium_	2.0	U		F
7440-62-2	Vanadium_	10.0	U		P
7440-66-6	Zinc_____	6.5	B		P
5955-70-0	Cyanide__				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9631
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: Clarity Before: Texture:
Color After: Clarity After: Artifacts:

Comments:
CYANIDE_ONLY.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY1

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9635
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	73.4	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	21.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	24000			P
7440-47-3	Chromium	45.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	132			P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	4040	B		P
7439-96-5	Manganese	3.3	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2730	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.:W0068_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
BOBMP0	AA9710
BOBMP0	AA9711
BOBMP1	AA9715
BOBMX2	AA9726
BOBMX2	AA9727
BOBMX3	AA9731
~~BOBM22~~ BOBMZ2	AA9743
~~BOBM22~~ BOBMZ2	AA9745
~~BOBM23~~ BOBMZ3	AA9749

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES
If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Christopher Kawka Name: Christopher Kawka

Date: June 29, 1994 Title: Chemist

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EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9710

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	40.0	U		P
7440-36-0	Antimony_	50.0	U		P
7440-38-2	Arsenic__	10.3			F
7440-39-3	Barium___	27.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium__	5.0	U		P
7440-70-2	Calcium__	33000			P
7440-47-3	Chromium_	10.0	U		P
7440-48-4	Cobalt___	10.0	U		P
7440-50-8	Copper___	10.0	U		P
7439-89-6	Iron_____	36.6	B		P
7439-92-1	Lead_____	5.0			F
7439-95-4	Magnesium	10800			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	20.0	U		P
7440-09-7	Potassium	3490	B		P
7782-49-2	Selenium_	2.0	U		F
7440-22-4	Silver___	5.0	U		P
7440-23-5	Sodium___	44900			P
7440-28-0	Thallium_	2.0	U	W	F
7440-62-2	Vanadium_	19.9	B		P
7440-66-6	Zinc_____	18.2	B		P
5955-70-0	Cyanide__				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9711

Level (low/med): LOW Date Received: 05/25/94

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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EPA SAMPLE NO.

BOBMP1

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9715

Level (low/med): LOW_ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	43.6	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	10.9			F
7440-39-3	Barium	28.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	34800			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	24.1	B		P
7439-92-1	Lead	3.8			F
7439-95-4	Magnesium	11300			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	4040	B		P
7782-49-2	Selenium	2.1	B	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	47200			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	22.4	B		P
7440-66-6	Zinc	17.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9726

Level (low/med): LOW Date Received: 05/25/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.7	B		F
7440-39-3	Barium	32.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64600			P
7440-47-3	Chromium	19.4			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	34.2	B		P
7439-92-1	Lead	3.2			F
7439-95-4	Magnesium	16500			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5090			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	45100			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9727

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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EPA SAMPLE NO.

BOBMX3

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9731

Level (low/med): LOW_ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	4.9	B		F
7440-39-3	Barium	33.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64400			P
7440-47-3	Chromium	17.2			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	26.2	B		P
7439-92-1	Lead	2.7	B		F
7439-95-4	Magnesium	16400			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5720			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	45300			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	11.4	B		P
7440-66-6	Zinc	9.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

DISSOLVED._____

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EPA SAMPLE NO.

BOBMZ2
~~BOBM22~~ JBK 11/11/94

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9743

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	42.8	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	93.9	B		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	21.0	B		P
7439-92-1	Lead	35.0			F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	161	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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EPA SAMPLE NO.

BOBM22
~~BOBM22-JOR~~ 7/7/94

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9745

Level (low/med): LOW_ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ3
~~BOBM23~~ JOK 7/6/94

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9749

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_	42.3	B		P
7440-36-0	Antimony_	50.0	U		P
7440-38-2	Arsenic__	2.0	U		F
7440-39-3	Barium___	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium__	6.2			P
7440-70-2	Calcium__	89.4	B		P
7440-47-3	Chromium_	10.0	U		P
7440-48-4	Cobalt___	10.0	U		P
7440-50-8	Copper___	10.0	U		P
7439-89-6	Iron_____	18.6	B		P
7439-92-1	Lead_____	5.0			F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury__	0.20	U		CV
7440-02-0	Nickel___	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium_	2.0	U		F
7440-22-4	Silver___	5.0	U		P
7440-23-5	Sodium___	149	B		P
7440-28-0	Thallium_	2.0	U		F
7440-62-2	Vanadium_	10.0	U		P
7440-66-6	Zinc_____	8.3	B		P
5955-70-0	Cyanide__				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

DISSOLVED._____

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Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO602 SAS No.: _____ SDG No.:W0068_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
BOBMZ8	AA9929
BOBMZ8	AA9930
BOBMZ9	AA9951

Were ICP interelement corrections applied ? Yes/No YES

Were ICP background corrections applied ? Yes/No YES

If yes - were raw data generated before application of background corrections ? Yes/No NO_

Comments:

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 floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Christopher Kanker Name: Christopher Kanker

Date: June 29, 1994 Title: Chemist

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO602 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9929

Level (low/med): LOW__ Date Received: 05/27/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	94.8	B		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	16.8	B		P
7439-92-1	Lead	6.4			F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	185	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO602 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9930

Level (low/med): LOW Date Received: 05/27/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CYANIDE_ONLY.

U.S. EPA - CLP

1

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ9

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO602 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9951

Level (low/med): LOW__ Date Received: 05/27/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	88.3	B		P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	26.9	B		P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	244	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

DISSOLVED._____

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/27/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6268	2	U
BOBMW8	AA9613	482	+
BOBMY0	AA9627	78	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/27/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6268	2	U
BOBMZ2	AA9739	2	U
BOBMP0	AA9706	150	+
BOBMX2	AA9722	194	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/08/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6294	2	U
BOBMZ8	AA9937	4	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6315	0.1	U
BOBMY0	AA9629	0.1	U
BOBMW8	AA9615	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6315	0.1	U
BOBMP0	AA9709	0.1	U
BOBMZ2	AA9742	0.1	U
BOBMX2	AA9725	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6334	0.1	U
BOBMZ8	AA9928	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/06/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMY0	AA9629	1	U
BOBMW8	AA9615	14	+

\+ - Positive result.
* - A method blank is not applicable for this analysis.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMX2	AA9725	5	+
BOBMP0	AA9709	5	+
BOBMZ2	AA9742	1	U

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
* - A method blank is not applicable for this analysis.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-St. Louis	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579, 583 & 602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/15/94 & 06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
BOBMY0	5329-011	5	U
BOBMW8	5329-010	15	+
BOBMZ2	5329-017	5	U
BOBMP0	5329-018	5	U
BOBMX2	5329-019	5	U
BOBMZ8	5329-020	10	+

Sample BOBMY0 was analyzed on June 15, 1994.

Samples BOBMW8, BOBMZ2, BOBMP0, BOBMX2 and BOBMZ8 were analyzed on June 16, 1994.

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMW8	AA9612	0.88	+
BOBMY0	AA9626	0.63	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMP0	AA9705	4.14	+
BOBMX2	AA9721	21.2	+
BOBMZ2	AA9738	0.06	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMZ8	AA9926	0.02	U

Note: CCB subtracted from sample result.

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/25/94, 07/06/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMW8	AA9611	7.18	-
BOBMY0	AA9625	7.44	-

* - A method blank is not applicable for this analysis.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMP0	AA9704	7.65	-
BOBMZ2	AA9737	4.88	-
BOBMX2	AA9720	7.82	-

* - A method blank is not applicable for this analysis.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMZ8	AA9925	4.65	-

* - A method blank is not applicable for this analysis.

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMW8	AA9611	1200	+
BOBMY0	AA9625	202	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMP0	AA9704	488	+
BOBMX2	AA9720	702	+
BOBMZ2	AA9737	4	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMZ8	AA9925	3	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/25/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6263	1	U
BOBMW8	AA9614	8	+
BOBMY0	AA9628	5	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6265	1	U
BOBMP0	AA9708	40	+
BOBMX2	AA9724	19	+
BOBMZ2	AA9741	3	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6277	1	U
BOBMZ8	AA9927	4	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6270	1	U
BOBMW8	AA9620	811	+
BOBMY0	AA9634	136	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6271	1	U
BOBMX2	AA9723	517	+
BOBMZ2	AA9740	3	+
BOBMP0	AA9707	292	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6274	1	U
BOBMZ8	AA9939	81	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMW8	AA9618	5	+
BOBMY0	AA9632	1	U

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMP0	AA9712	1	U
BOBMX2	AA9728	2	+
BOBMZ2	AA9746	1	U

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMZ8	AA9931	1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/15/94, 06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6330	20	U
BOBMW8	AA9619	20	U
BOBMY0	AA9633	48	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6330	20	U
BOBMP0	AA9713	20	U
BOBMX2	AA9729	20	U
BOBMZ2	AA9747	20	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/22/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6340	20	U
BOBMZ8	AA9942	22	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Client Sample ID:	BOBMW8	Preparation Date:	06/13/94
Lab Sample ID:	AA9611	Analysis Date:	06/13/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	6.0	+	2.0
phosphate	1.0	U	1.0
sulfate	73	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Client Sample ID:	BOBMY0	Preparation Date:	06/13/94
Lab Sample ID:	AA9625	Analysis Date:	06/13/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	1.4	+	0.4
phosphate	1.0	U	1.0
sulfate	17	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMP0	Preparation Date:	06/06/94
Lab Sample ID:	AA9704	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.76	+	0.4
chloride	11	+	2.0
phosphate	1.0	U	1.0
sulfate	57	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMX2	Preparation Date:	06/06/94
Lab Sample ID:	AA9720	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.5	+	0.4
chloride	12	+	2.0
phosphate	1.0	U	1.0
sulfate	65	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMZ2	Preparation Date:	06/06/94
Lab Sample ID:	AA9737	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	0.4	U	0.4
phosphate	1.0	U	1.0
sulfate	1.5	U	1.5

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Client Sample ID:	BOBMZ8	Preparation Date:	06/06/94
Lab Sample ID:	AA9925	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	0.40	U	0.40
phosphate	1.0	U	1.0
sulfate	1.5	U	1.5

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

INTERNATIONAL TECHNOLOGY CORPORATION

Analytical Data Package Prepared For

Westinghouse Hanford

Radiochemical Analysis By

IT Analytical Services
Richland Laboratory

Sample Delivery Group Number: W0068

WHC IDENTIFICATION NUMBER	ITAS RICHLAND ID NUMBER
B0BMW8	40544801
B0BMY0	40544802
B0BMP0	40550901
B0BMX2	40550902
B0BMZ2	40550903
B0BMZ8	40557301

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Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

July 18, 1994

Attention: J.A.Lerch

SAF Number	:	94-087
Date SDG Closed	:	June 3, 1994
Number of Samples	:	Six (6)
Sample Type	:	Water
SDG Number	:	W0068
Data Deliverable	:	Stand Alone

I. Introduction

On May 20, 24, and 26, 1994, six water samples were received by ITAS-Richland for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the WHC specific IDs:

ITAS-Richland ID	WHC ID	Matrix	Date of Receipt
405448-01A	B0BMW8	Water	5/20/94
405448-02A	B0BMY0	Water	5/20/94
405509-01A	B0BMP0	Water	5/24/94
405509-02A	B0BMX2	Water	5/24/94
405509-03A	B0BMZ2	Water	5/24/94
405573-01A	B0BMZ8	Water	5/27/94

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Alpha Spectroscopy
Americium-241 by method ITAS-RD-3302
Plutonium-238, -239/40 by method ITAS-RD-3209
Uranium-234, 235, 238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Carbon-14 by method ITAS-RD-3247
Technetium-99 by method ITAS-IT-RS-0001
Tritium by method ITAS-RD-3205

III. Quality Control

The analytical results for each analysis performed under SDG W0068 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

Results from the initial radioactivity screening of these samples classified them as Category I.

Alpha Spectroscopy

Americium-241 by method ITAS-RD-3302
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Plutonium-238, -239/40 by method ITAS-RD-3209
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Uranium-234, 235, 238 by method ITAS-RD-3234
Sample B0BMY0 was not analyzed with the other samples in SDG W0068. An error had been made during the pour-up step for the batch. Sample B0BMX2 had inadvertently been poured up in place of B0BMY0, therefore, it was necessary to analyze sample B0BMY0 by itself. The analysis of B0BMY0 proceeded as intended and the results are accepted and reported. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Co-57 was detected in both of the LCSs (L054481S and L054482S), however, the Co-57 is not confirmed by the key line for that isotope. The Co-57 is determined to be a falsely detected isotope from a Eu-152 energy line (122 KeV) and is not reported for the LCSs. K-40 was detected in sample B0BMW8 but the result is not reported because the value is less than 2 times the error for the isotope. K-40 and Pb-212 were detected in sample B0BMX2 but the results are not reported because the values are less than 2 times the error for the isotopes. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
Sample B0BMY0 and the duplicate of B0BMY0 were recounted due to results outside of the 3 sigma control limit on the initial count. The recount is accepted and reported. The LCS, batch blank, sample and sample duplicate results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

Liquid Scintillation Counting

Carbon-14 by method ITAS-RD-3247
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMZ8) results are within contractual requirements.

Tritium by method ITAS-RD-3205
SDG W0068 was batched and analyzed with SDG W0069. Quality Control Samples were prepared and analyzed for each SDG. The LCS (L054481S and L054481M), batch blank (L054481X), sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Suzanne Gaines

Suzanne Gaines
Project Manager

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40544801	**MATRIX:**	WATER
CLIENT ID:	B0BMW8	**DATE RECEIVED:**	5/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-1.43E-02	1.65E-02	1.67E-02	2.98E-01	pCi/L	60.90%	RD3302
PU-238	0.00E+00	0.00E+00	1.61E-01	1.45E-01	pCi/L	77.90%	RD3209
PU239/40	0.00E+00	0.00E+00	1.61E-01	1.45E-01	pCi/L	77.90%	RD3209
U-234	2.82E-01	2.63E-01	2.65E-01	3.55E-01	pCi/L	78.10%	RD3234
U-235	4.48E-02	1.07E-01	1.08E-01	2.44E-01	pCi/L	78.10%	RD3234
U-238DA	3.12E-01	2.62E-01	2.65E-01	2.44E-01	pCi/L	78.10%	RD3234
CO-58	1.85E-01	5.63E+00	5.63E+00	1.05E+01	pCi/L	N/A	RD3219
CO-60	-6.57E+00	4.92E+00	4.97E+00	6.43E+00	pCi/L	N/A	RD3219
CS-137DA	4.11E+00	4.74E+00	4.76E+00	9.69E+00	pCi/L	N/A	RD3219
EU-152	-3.08E+00	1.07E+01	1.07E+01	1.85E+01	pCi/L	N/A	RD3219
EU-154	8.05E+00	1.40E+01	1.41E+01	3.03E+01	pCi/L	N/A	RD3219
EU-155	-1.92E+00	9.42E+00	9.43E+00	1.47E+01	pCi/L	N/A	RD3219
FE-59	-1.18E+01	1.65E+01	1.66E+01	2.62E+01	pCi/L	N/A	RD3219
ALPHA	1.36E+01	3.87E+00	4.13E+00	3.30E+00	pCi/L	100.00%	RD3214
BETA	7.97E+01	4.74E+00	7.31E+00	3.16E+00	pCi/L	100.00%	RD3214
STRONTIUM	-1.37E-01	3.69E-01	3.71E-01	1.01E+00	pCi/L	70.40%	RD3204
C-14	2.52E+02	3.80E+00	1.36E+01	4.72E+00	pCi/L	100.00%	RD3263
TC-99	3.97E+00	9.92E-01	4.47E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	9.83E+04	8.56E+02	7.29E+03	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40544802	**MATRIX:**	WATER
CLIENT ID:	B0BMY0	**DATE RECEIVED:**	5/20/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	4.31E-02	1.28E-01	1.29E-01	3.38E-01	pCi/L	57.30%	RD3302
PU-238	0.00E+00	0.00E+00	1.99E-01	1.80E-01	pCi/L	62.80%	RD3209
PU239/40	2.52E-01	2.67E-01	2.70E-01	3.18E-01	pCi/L	62.80%	RD3209
U-234	7.66E+00	1.22E+00	1.56E+00	2.88E-01	pCi/L	85.70%	RD3234
U-235	1.30E-01	1.69E-01	1.70E-01	2.60E-01	pCi/L	85.70%	RD3234
U-238DA	5.91E+00	1.07E+00	1.31E+00	3.01E-01	pCi/L	85.70%	RD3234
CO-58	4.98E+00	4.87E+00	4.89E+00	1.10E+01	pCi/L	N/A	RD3219
CO-60	-9.24E-01	4.10E+00	4.10E+00	7.45E+00	pCi/L	N/A	RD3219
CS-137DA	8.04E-01	3.63E+00	3.63E+00	6.93E+00	pCi/L	N/A	RD3219
EU-152	-6.08E-01	9.34E+00	9.34E+00	1.69E+01	pCi/L	N/A	RD3219
EU-154	-5.98E+00	1.47E+01	1.47E+01	2.59E+01	pCi/L	N/A	RD3219
EU-155	-3.43E+00	8.41E+00	8.41E+00	1.32E+01	pCi/L	N/A	RD3219
FE-59	9.62E+00	1.09E+01	1.09E+01	2.51E+01	pCi/L	N/A	RD3219
ALPHA	1.37E+00	6.97E-01	7.26E-01	7.88E-01	pCi/L	100.00%	RD3214
BETA	3.62E+01	3.20E+00	4.09E+00	3.13E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.74E+01	1.20E+00	4.79E+00	7.57E-01	pCi/L	100.00%	RD3204
C-14	1.13E-01	1.51E+00	3.15E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	-4.26E-01	9.33E-01	4.14E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	8.38E+01	1.05E+02	1.98E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550901	**MATRIX:**	WATER
CLIENT ID:	B0BMP0	**DATE RECEIVED:**	5/24/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-1.91E-02	1.91E-02	1.93E-02	3.18E-01	pCi/L	61.00%	RD3302
PU-238	0.00E+00	0.00E+00	1.76E-01	1.59E-01	pCi/L	71.20%	RD3209
PU239/40	4.69E-02	1.19E-01	1.20E-01	2.80E-01	pCi/L	71.20%	RD3209
U-234	2.73E+00	8.24E-01	9.04E-01	3.64E-01	pCi/L	67.90%	RD3234
U-235	1.13E-01	1.74E-01	1.75E-01	2.81E-01	pCi/L	67.90%	RD3234
U-238DA	1.63E+00	6.39E-01	6.76E-01	3.47E-01	pCi/L	67.90%	RD3234
CO-58	4.41E+00	4.70E+00	4.72E+00	1.02E+01	pCi/L	N/A	RD3219
CO-60	9.45E-01	3.29E+00	3.29E+00	7.27E+00	pCi/L	N/A	RD3219
CS-137DA	5.85E-01	4.34E+00	4.34E+00	8.02E+00	pCi/L	N/A	RD3219
EU-152	-3.30E+00	1.07E+01	1.07E+01	1.75E+01	pCi/L	N/A	RD3219
EU-154	6.26E+00	1.51E+01	1.51E+01	2.99E+01	pCi/L	N/A	RD3219
EU-155	3.69E-01	9.25E+00	9.25E+00	1.57E+01	pCi/L	N/A	RD3219
FE-59	-1.88E+00	1.53E+01	1.53E+01	2.77E+01	pCi/L	N/A	RD3219
ALPHA	2.62E+00	1.18E+00	1.21E+00	1.29E+00	pCi/L	100.00%	RD3214
BETA	8.55E+00	1.96E+00	2.05E+00	3.02E+00	pCi/L	100.00%	RD3214
STRONTIUM	2.48E-01	3.35E-01	3.41E-01	7.90E-01	pCi/L	97.30%	RD3204
C-14	1.49E+00	1.53E+00	3.18E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	-8.34E-01	9.13E-01	4.11E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	1.82E+02	1.08E+02	2.03E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550902	**MATRIX:**	WATER
CLIENT ID:	B0BMX2	**DATE RECEIVED:**	5/24/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	6.73E-02	1.47E-01	1.47E-01	2.94E-01	pCi/L	49.60%	RD3302
PU-238	-2.59E-02	3.66E-02	3.68E-02	3.66E-01	pCi/L	64.50%	RD3209
PU239/40	1.16E-01	1.85E-01	1.86E-01	3.09E-01	pCi/L	64.50%	RD3209
U-234	5.80E+00	1.05E+00	1.28E+00	1.93E-01	pCi/L	86.90%	RD3234
U-235	1.36E-01	1.66E-01	1.67E-01	2.19E-01	pCi/L	86.90%	RD3234
U-238DA	3.63E+00	8.36E-01	9.53E-01	2.39E-01	pCi/L	86.90%	RD3234
CO-58	1.15E+00	5.17E+00	5.17E+00	9.92E+00	pCi/L	N/A	RD3219
CO-60	2.86E+00	3.97E+00	3.98E+00	8.78E+00	pCi/L	N/A	RD3219
CS-137DA	1.84E+00	3.82E+00	3.82E+00	7.35E+00	pCi/L	N/A	RD3219
EU-152	-2.13E+00	9.53E+00	9.53E+00	1.67E+01	pCi/L	N/A	RD3219
EU-154	-3.73E+00	1.29E+01	1.29E+01	2.36E+01	pCi/L	N/A	RD3219
EU-155	-5.03E+00	8.24E+00	8.25E+00	1.22E+01	pCi/L	N/A	RD3219
FE-59	-4.12E+00	9.11E+00	9.12E+00	1.65E+01	pCi/L	N/A	RD3219
ALPHA	8.87E+00	2.30E+00	2.46E+00	1.61E+00	pCi/L	100.00%	RD3214
BETA	1.03E+01	2.09E+00	2.22E+00	3.07E+00	pCi/L	100.00%	RD3214
STRONTIUM	-1.23E-01	3.70E-01	3.71E-01	1.02E+00	pCi/L	67.00%	RD3204
C-14	4.55E+00	1.58E+00	3.27E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	-4.93E-01	9.30E-01	4.14E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	1.15E+04	3.06E+02	9.78E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550903	**MATRIX:**	WATER
CLIENT ID:	B0BMZ2	**DATE RECEIVED:**	5/24/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	1.12E-01	1.65E-01	1.66E-01	2.34E-01	pCi/L	62.50%	RD3302
PU-238	0.00E+00	0.00E+00	2.17E-01	1.96E-01	pCi/L	57.60%	RD3209
PU239/40	-1.45E-02	2.89E-02	2.90E-02	3.46E-01	pCi/L	57.60%	RD3209
U-234	1.39E-01	1.80E-01	1.81E-01	2.76E-01	pCi/L	80.60%	RD3234
U-235	3.10E-02	1.05E-01	1.05E-01	2.92E-01	pCi/L	80.60%	RD3234
U-238DA	-8.27E-03	1.17E-02	1.18E-02	2.36E-01	pCi/L	80.60%	RD3234
CO-58	-3.57E+00	5.00E+00	5.01E+00	8.04E+00	pCi/L	N/A	RD3219
CO-60	3.43E-01	4.29E+00	4.29E+00	8.58E+00	pCi/L	N/A	RD3219
CS-137DA	7.98E-01	2.96E+00	2.96E+00	5.96E+00	pCi/L	N/A	RD3219
EU-152	7.79E+00	1.08E+01	1.08E+01	1.95E+01	pCi/L	N/A	RD3219
EU-154	9.50E+00	1.08E+01	1.09E+01	2.52E+01	pCi/L	N/A	RD3219
EU-155	5.31E+00	8.39E+00	8.40E+00	1.49E+01	pCi/L	N/A	RD3219
FE-59	9.66E+00	1.04E+01	1.04E+01	2.45E+01	pCi/L	N/A	RD3219
ALPHA	-1.01E-01	2.02E-01	2.03E-01	6.61E-01	pCi/L	100.00%	RD3214
BETA	5.04E-01	1.27E+00	1.27E+00	2.76E+00	pCi/L	100.00%	RD3214
STRONTIUM	1.76E-01	3.24E-01	3.27E-01	7.90E-01	pCi/L	95.60%	RD3204
C-14	9.01E-02	1.51E+00	3.15E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	-1.16E+00	9.13E-01	4.09E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	5.58E+01	1.04E+02	1.97E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40557301	**MATRIX:**	WATER
CLIENT ID:	B0BMZ8	**DATE RECEIVED:**	5/26/94

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	5.16E-02	1.13E-01	1.13E-01	2.26E-01	pCi/L	64.70%	RD3302
PU-238	0.00E+00	0.00E+00	2.13E-01	1.92E-01	pCi/L	58.80%	RD3209
PU239/40	0.00E+00	0.00E+00	2.13E-01	1.92E-01	pCi/L	58.80%	RD3209
U-234	-3.31E-02	2.34E-02	2.38E-02	3.33E-01	pCi/L	80.50%	RD3234
U-235	-8.28E-03	1.17E-02	1.18E-02	2.36E-01	pCi/L	80.50%	RD3234
U-238DA	1.99E-01	2.07E-01	2.09E-01	2.36E-01	pCi/L	80.50%	RD3234
CO-58	5.60E+00	5.07E+00	5.10E+00	1.14E+01	pCi/L	N/A	RD3219
CO-60	-5.96E+00	5.06E+00	5.09E+00	7.15E+00	pCi/L	N/A	RD3219
CS-137DA	-2.46E+00	5.06E+00	5.06E+00	8.71E+00	pCi/L	N/A	RD3219
EU-152	-3.54E+00	9.79E+00	9.80E+00	1.70E+01	pCi/L	N/A	RD3219
EU-154	-1.61E+00	1.16E+01	1.16E+01	2.15E+01	pCi/L	N/A	RD3219
EU-155	1.37E+00	9.78E+00	9.78E+00	1.62E+01	pCi/L	N/A	RD3219
FE-59	-1.08E+01	1.51E+01	1.51E+01	2.36E+01	pCi/L	N/A	RD3219
ALPHA	3.96E-02	2.63E-01	2.63E-01	6.59E-01	pCi/L	100.00%	RD3214
BETA	7.55E-01	1.27E+00	1.27E+00	2.70E+00	pCi/L	100.00%	RD3214
STRONTIUM	3.77E-01	3.41E-01	3.55E-01	7.74E-01	pCi/L	100.00%	RD3204
C-14	1.42E+00	1.53E+00	3.18E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	-9.09E-01	9.10E-01	4.10E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
TRITIUM	7.07E+01	1.04E+02	1.97E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

9613479.1518

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER:_____ DATE INITIATED: 5/26/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/26/94 1210

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOBMZ8		Screen

Samples were received with the following deficiencies:

☐ 1. Not enough sample received for proper analysis.
☐ 2. Sample received without proper preservative.
☐ 3. No sample received in container.
☐ 4. Sample received without a RFA/COC form.
☐ 5. No sample ID on container.
☐ 6. Sample received broken or leaking.
☐ 7. Holding time exceeded at receipt.
☐ 8. Custody tape broken.
☐ 9. COC not relinquished by client.
☒ 10. Sample information on container does not match sample information on the paper work (Explain below).
☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  ☐ RFA/COC received
  ☐ RFA/COC not received
☒ 12. Other (Explain below).

NOTES: Container id BOBMP8, COC id BOBMZ8.

SUPERVISOR REVIEW: Tami Heidelberg

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

9613479.1519

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 7-8-94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS Uuo

NAME/DATE mmm / 7-4-94

CUSTOMER WHC

SAMPLE DELIVERY GROUP _____

MATRIX water

BATCH NUMBER _____

ITAS ID	CUSTOMER ID	COMMENTS
1) ~~F0544802~~ MLK 7/8/94		sample dropped
2) 40544902		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK L054482B

ITAS ID - SPIKE L054482S

CLIENT CODE _____

ACTIONS (Initial & Date)

PREP LAB RECEIVED JW 7-5-94

SAMPLE REMAINDER RETURNED TO SCG ☒ (CHECK ONE)

NO SAMPLE REMAINING ☐

SEPARATION LAB 7/6/94 Eve

COUNTING/MEASUREMENT ~~RH~~ 7/9/94

DATA REVIEWED mmm 7-13-94

ANALYTICAL PREP STORED mmm 7/13/94

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT _____

DATA REVIEWED _____

ANALYTICAL PREP STORED _____

ADDITIONAL COMMENTS:

EXT 7/7/94 MLK
ED 7/8/94 MLK

RC-048 12/92 REV 2

0091

9613479.1520

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 7-8-94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ~~ANALYSIS~~ RECORD

ANALYSIS Alpha

NAME/DATE JTK, 7/1/94

CUSTOMER WHC

SAMPLE DELIVERY GROUP W0068

MATRIX Water

BATCH NUMBER _____

ITAS ID	CUSTOMER ID	COMMENTS
1) 405 44802		
2) F05 44802		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		

REANALYSIS

REFERENCED QC

ITAS ID - BLANK _____

ITAS ID - SPIKE _____

CLIENT CODE _____

ACTIONS (Initial & Date)

PREP LAB RECEIVED _____

SAMPLE REMAINDER
RETURNED TO SCG ☐ (CHECK ONE)
NO SAMPLE REMAINING ☐

SEPARATION LAB _____

COUNTING/MEASUREMENT _____

DATA REVIEWED _____

ANALYTICAL PREP STORED _____

JTK 7-1-94

RECOUNT

ACTIONS (Initial & Date) 7/1/94

COUNTING/MEASUREMENT JTK 7-1-94

DATA REVIEWED JTK 7-5-94 7/2/94

ANALYTICAL PREP STORED _____

ADDITIONAL COMMENTS:

RC-048 12/92 REV 2

0097

Los Alamos Technical Associates, Inc.

8633 Gage Blvd. / Kennewick, WA 99336 / Telephone (509) 783-4369 / FAX (509) 783-9661

September 19, 1994

Connie Simiele
Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

Dear Connie,

Attached is the data validation report for analytical results for 100-FR-3 Groundwater Operable Unit (SDG W0068-ITC-079). The package was received by Los Alamos Technical Associates on August 8, 1994. Validation of this package began on August 29, and was completed on September 12, 1994.

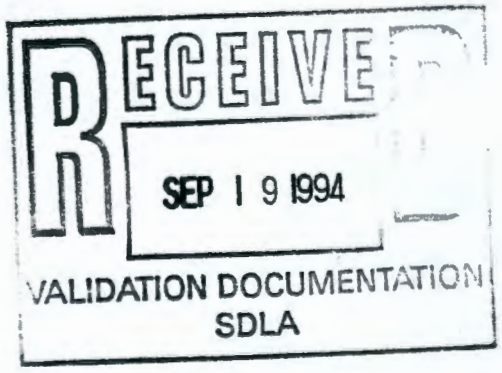
If you have any questions, please let me know.

Sincerely,

Donald J. Smith
Project Manager

cc: Chris Haecker, LATA
VW402.72

DATA VALIDATION REPORT
for
100-FR-3 Groundwater Operable Unit
SDG #W0068-ITC-079
LATA VW402.72



Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352

September 16, 1994

Table of Contents

100-FR-3 Groundwater Operable Unit
Data Validation Narrative

INTRODUCTION

All samples in Sample Delivery Group (SDG) W0068-ITC-079 were validated at level "D" as defined in the Data Validation Procedures for Chemical Analysis (WHC-SD-EN-SPP-002) and/or Data Validation Procedures for Radiochemical Analyses (WHC-SD-EN-SPP-001).

The data package was received by Los Alamos Technical Associates (LATA) on August 8, 1994. Validation began on August 29, 1994 and was completed on September 21, 1994.

The chemical and radiochemical analyses were performed by ITC.

ANALYSES REQUESTED

Eighteen (18) water samples numbered BOBMW8, BOBMW9, BOBMX0, BOBMY0, BOBMY1, BOBMY2, BOBMP0, BOBMP1, BOBMP2, BOBMX2, BOBMX3, BOBMX4, BOBMZ2, BOBMZ3, BOBMZ6, BOBMZ8, BOBMZ9 and BOBN00 were collected by WHC and transferred to ITC for analysis. The following determinations were conducted on the samples in this SDG:

Corresponding List of Analyses Requested

1	Volatile Organics		Method CLP
2	Semivolatile Organics		Method CLP
3	Pesticides/PCBs		Method CLP
4	Anions (F, Cl, PO_4 & SO_4)		Method 300.0
	Conductivity		Method 120.1
	pH		Method 9040
5	Nitrate+Nitrite		Method 353.2
6	Alkalinity		Method 310.1
7	Total Dissolved Solids		Method 160.1
8	Sulfides		Method 376.1
9	Ammonia		Method 350.2
	Chemical Oxygen Demand		Method HACH or 410.2
10	Metals:	ICP	Method CLP
		Arsenic	Method CLP
		Lead	Method CLP
		Selenium	Method CLP
		Thallium	Method CLP
		Mercury	Method CLP
11	Cyanide		Method CLP
12	Total Organic Carbon		Method 9040

ANALYSES REQUESTED (cont.)

13	Total Organic Halogens		Method 9020A
14	Gross Alpha/Beta		Method ITAS-RD-3222
	Gamma Spec		Method ITAS-RD-3219
	Uranium-234, -235, -238		Method ITAS-RD-3234
	Plutonium-238,-239/240		Method ITAS-RD-3209
	Americium-241		Method ITAS-RD-3302
	Strontium-90		Method ITAS-RD-3204
15	Technetium-99		Method ITAS-IT-RS-0001
16	Tritium		Method ITAS-RD-3205
	Carbon-14		Method ITAS-RD-3247
17	Metals:	ICP	Method CLP Filtered
		Arsenic	Method CLP Filtered
		Lead	Method CLP Filtered
		Selenium	Method CLP Filtered
		Thallium	Method CLP Filtered
		Mercury	Method CLP Filtered

A WHC ROD included in this package instructed the lab not to perform the TDS, sulfides, semivolatiles, and pesticides/PCBs analyses for which holding times were missed. Since these analyses were reported, the results were included in the validation.

Analyses Requested (Cont.)

Sample vs. Analysis Requested

Sample ID	Date Collected by WHC	Date Rec'd by Lab	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
BOBMW8	5/19/94	5/20/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMW9	5/19/94	5/20/94																	X
BOBMX0	5/19/94	5/20/94	X																
BOBMY0	5/18/94	5/20/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMY1	5/18/94	5/20/94																	X
BOBMY2	5/18/94	5/20/94	X																
BOBMP0	5/17/94	5/24/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMP1	5/17/94	5/24/94																	X
BOBMP2	5/17/94	5/24/94	X																
BOBMX2	5/23/94	5/24/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMX3	5/23/94	5/24/94																	X
BOBMX4	5/23/94	5/24/94	X																
BOBMZ2	5/20/94	5/24/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMZ3	5/20/94	5/24/94																	X
BOBMZ6	5/20/94	5/24/94	X																
BOBMZ8	5/25/94	5/26/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
BOBMZ9	5/25/94	5/26/94																	X
BOBN00	5/25/94	5/26/94	X																

DATA QUALITY OBJECTIVES

The data quality objectives for 100-FR-3 Groundwater Operable Unit are specified in the *Remedial Investigation/Feasibility Study Work Plan for the 100-FR-3 Operable Unit*, (DOE/RL-91-53, Rev 0). The primary objective of the data validation effort was to ensure these data quality objectives were met, and that the data are usable and defensible. This was accomplished through a detailed examination of the data package to recreate the analytical process and verify that proper and acceptable analytical techniques had been applied. The data package was checked for correct submission of required deliverables, correct transcription of raw data to the summary forms, and for proper calculation of a number of parameters.

Precision.	Goals for precision were met with the exception of U-234, 235, and 238. For more information see the "**DATA QUALIFICATION SUMMARY TABLE**".
Accuracy:	Goals for accuracy were met with the exception of selenium, thallium, U-235, 2,4-dinitrophenol, 2-nitrophenol and 4-nitrophenol. For more information see the "**DATA QUALIFICATION SUMMARY TABLE**".
Sample Result Verification:	All sample results were supported in the raw.
Detection Limits:	Detection limits goals were met with the exception of TOX. For more information see "**COMMENTS**".
Completeness:	The data package was 99% complete for the requested analyses.

Data qualifiers are assigned to any results that have been determined to be deficient. These are discussed below.

MAJOR DEFICIENCIES (REJECTED DATA)

The following major deficiencies resulted in the qualification of the results as unusable.

GENERAL CHEMISTRY

- The holding time was grossly exceeded for the pH measurement for sample BOBMY0. The pH result was qualifed unusable (R).
- The holding time for phosphate was exceeded for all samples. The phosphate results were qualified as non-detect, unusable (UR).

MINOR DEFICIENCIES

The following minor deficiencies were discovered. These minor shortcomings are not expected to significantly affect the overall quality of the data.

VOLATILES

- The holding times for BOBMP0 and BOBMP2 were exceeded. All results for these samples were qualified as estimated (J/UJ).

- The continuing calibration criteria was exceeded for Vinyl Chloride and 1,1,2,2-Tetrachloroethane. The results for samples BOBMZ6, BOBMZ2, BOBMX4, BOBMX2, BOBMP2 and BOBMP0 were qualified as estimated (UJ). Results for samples BOBMW8, BOBMX0, B0BMY0, and B0BMY2 were qualified as estimated (UJ) for Vinyl Chloride only.

- The continuing calibration criteria was exceeded by Carbon Tetrachloride and 1,1,1-Trichloroethane. The results for these compounds in samples BOBN00 and BOBMZ8 were qualified as estimated (UJ).

- The method blank for BOBMZ8 and BOBN00 contained Methylene Chloride and Acetone. The sample results for these compounds were qualified as non-detect (U).

SEMIVOLATILES

- The holding time for sample BOBMP0 was exceeded. The results were qualified as estimated (UJ).

- The initial calibration criteria was exceeded for 4-Methylphenol. The results for this compound for all samples were qualified as estimated (UJ).

- The continuing calibration criteria for Pyrene and Chrysene was exceeded for all samples except BOBMZ8. The results for these compounds for all samples except BOBMZ8 were qualified as estimated (UJ).

SEMIVOLATILES

- The continuing calibration criteria for N-Nitroso-di-n-Propylamine was exceeded for BOBMZ8. The sample results were qualified as estimated (UJ).

- The matrix spike and matrix spike duplicate recoveries of 4-Nitrophenol exceeded the QC limits (10-80%). The results for 4-Nitrophenol and the associated compounds 2-Nitrophenol and 2,4-Dinitrophenol were qualified as estimated (UJ) for all samples.

MINOR DEFICIENCIES (Cont.)

PESTICIDES/PCBS

- The extraction for BOBMP0 was performed after the acceptable holding time. The results for BOBMP0 were qualified as estimated (UJ).

- The initial calibration criteria was exceeded for Heptachlor, Heptachlor Epoxide, and 4,4'-DDD. The results for these compounds for samples BOBMP0, BOBMW8, BOBMX2, BOBMY0, and BOBMZ2 were qualified as estimated (UJ).

- The initial calibration criteria was exceeded by Heptachlor, Heptachlor Epoxide, Dieldrin, 4,4'-DDD, and Endrin Ketone. The results for these compounds for sample BOBMZ8 were qualified as estimated (UJ).

METALS

- The prep blank data was outside acceptance criteria for zinc in samples BOBMY0 and BOBMW8. The zinc results for these samples were qualified as non-detect (U).

- The prep blank data was outside acceptance criteria for calcium in samples BOBMZ2, BOBMZ3, BOBMZ8, and BOBMZ9. The calcium results for these samples were qualified as non-detect (U).

- The prep blank data was outside acceptance criteria for sodium in samples BOBMZ8 and BOBMZ9. The sodium results for these samples were qualified as non-detect (U).

- The prep blank data was outside acceptance criteria for iron in samples BOBMW9, BOBMY0, BOBMY1, BOBMP0, BOBMP1, BOBMX2, BOBMX3, BOBMZ2, and BOBMZ3. The iron results for these samples were qualified as non-detect (U).

- The prep blank data was outside acceptance criteria for aluminum in samples BOBMW9, BOBMY0 and BOBMY1. The aluminum results for these samples were qualified as estimated (BJ).

- The continuing calibration blank was outside acceptance criteria for copper in samples BOBMW8, BOBMW9, BOBMY0, and BOBMY1. The copper results for these samples were qualified as estimated (UJ).

- The prep blank data was outside acceptance criteria for lead in samples BOBMP0, BOBMP1, BOBMX2, BOBMX3, and BOBMZ3. The lead results for these samples were qualified as non-detect (U).

MINOR DEFICIENCIES (cont.)

METALS

- The continuing calibration blank was outside acceptance criteria for potassium in samples BOBMY0 and BOBMY1. The potassium results for these samples were qualified as estimated (UJ).

- The analytical spike recoveries for thallium were outside acceptance criteria for samples BOBMP0, BOBMP1, BOBMX2, and BOBMX3. The thallium results for these samples were qualified as estimated (UJ).

- The analytical spike recovery for selenium was outside acceptance criteria for sample BOBMP1. The selenium result for this sample was qualified as estimated (BJ).

GENERAL CHEMISTRY

- The holding time for pH was exceeded for all samples. The pH results for all samples were qualified as estimated (J).

- The holding time for total dissolved solids was exceeded for samples BOBMP0 and BOBMY0. The total dissolved solids results for these samples were qualified as estimated (J).

- The holding time for sulfide was exceeded for sample BOBMP0. The sulfide result for this sample were qualified as estimated (J).

- The analytical balance check was not conducted prior to the total dissolved solids analysis. The total dissolved solids results for all samples were qualified as estimated (J).

- The matrix spike recovery for total organic halogens was outside acceptance criteria for samples BOBMY0 and BOBMZ8. The total organic halogens results for these samples were qualified as estimated (J).

- Technetium-99 was detected in the method blank. The technetium-99 result for sample BOBMW8 was qualified as non-detect (U).

- The uranium-235 LCS recovery (first analysis) was less than 75% (QAPjP). The uranium-235 results for all samples except BOBMY0 were qualified as estimated (J/UJ).

MINOR DEFICIENCIES (cont.)

RADIOCHEMISTRY

- A duplicate analysis was not done for the original U-iso batch (BOBMW8, MP0, MX2, MZ2, MZ8), nor the reanalysis of BOBMY0. All results for U-234, U-235 and U-238 are qualified estimated (J/UJ).

COMMENTS

Volatiles

- Acetone was incorrectly reported as non-detect for sample BOBMP0. The corrected result was 5 J.

- BOBMY0 and BOBMY2 were identified as field duplicates of BOBMP4 and BOBMP6, respectively. The precision comparisons will be made in the summary report for the 100-FR-3 project.

- Trip blank analyses were performed on BOBMY2, BOBMP2 and BOBN00. BOBMY2 contained Acetone at 11 µg/L and Methylene Chloride at 3 µg/L, while BOBMP2 contained Acetone at 8 µg/L. No contaminants were found in BOBN00.

- BOBMZ2, BOBMZ6, BOBMZ8 and BOBN00 were identified as equipment blanks. BOBMZ8 and BOBN00 had estimated non-detects for Carbon Tetrachloride and 1,1,1-Trichloroethane. BOBMZ2 contained Methylene Chloride at 1 µg/L and acetone at 7 µg/L. BOBMZ6 contained Methylene Chloride at 1 µg/L and Acetone at 12 µg/L.

Semivolatiles

- The sample BOBMY0 was a field duplicate of BOBMP4. The precision comparisons will be made in the summary report for the 100-FR-3 project.

- Samples BOBMZ8 and BOBMZ2 were identified as equipment blanks. No target compounds were detected.

- TICs were detected in BOBMW8 and BOBMX2. The results were determined to be valid and the samples were qualified presumptive and valid (JN).

COMMENTS (cont.)

Pesticides/PCBs

- The sample BOBMY0 was a field duplicate of BOBMP4. The precision comparisons will be made in the summary report for the 100-FR-3 project.
- The samples BOBMZ2 and BOBMZ8 were identified as equipment blanks. No target compounds were detected.

Metals

- The sample BOBMY0 was a field duplicate of BOBMP4. The precision comparisons will be made in the summary report for the 100-FR-3 project.
- The samples BOBMZ2 and BOBMZ8 were identified as equipment blanks.
- The samples BOBMW8, BOBMY0, BOBMP0, BOBMX2 and BOBMZ2 were received without proper preservative for the cyanide analysis. This could lead to low biased sample results.

General Chemistry

- Results for the COD analyses were submitted from IT-Knoxville and IT-St. Louis. The IT-Knoxville data was used for validation because it met the hold time requirement.
- The CRDL for total organic halogens was 5µg/L; however, the laboratory used 20µg/L.
- The sample BOBMY0 was a field duplicate of BOBMP4. The precision comparisons will be made in the summary report for the 100-FR-3 project.
- The samples BOBMW8, BOBMP0 and BOBMZ2 were received without proper preservative for the sulfide, TOC and nitrate/nitrite analyses. This could lead to low biased sample results.

Radiochemistry

- The reanalysis results for uranium (isotopic) of sample BOBMY0 were added to the Form 1 by the validator. This avoids putting the package "on hold". The reanalysis data was included in the data package. The original analysis of BOBMY0, which was reported on the Form 1s, are qualified unusable (R/UR).

COMMENTS (cont.)

Radiochemistry

- Samples BOBMZ2 and BOBMZ8 were identified as equipment blanks. Both samples had no activity detected for all analyses.

- The sample BOBMY0 was a field duplicate of BOBMP4. The precision comparisons will be made in the summary report for the 100-FR-3 project.

- The expected value for the uranium-235 LCS was not entered correctly. The correct LCS expected and the % recovery was listed on the LCS Form 1 by the validator.

REFERENCES

EPA July 1992, *Test Methods for Evaluating Solid Waste (SW-846),* Third Edition; U.S. Environmental Protection Agency, Washington, D.C.

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

WHC 1993, *Data Validation Procedures for Radiochemical Analyses,* WHC-SD-EN-SPP-001, Rev. 1, Westinghouse Hanford Company, Richland, Washington.

DOE 1992, *Remedial Investigation/Feasibility Study Work Plan for the 100-FR-3 Operable Unit,* DOE/RL-91-53, Rev 0, Department of Energy, Hanford Site, Richland, Washington.

And as result Contype D. Sack low.

Adding (Alum BJ) to Checklist

DATA VALIDATION APPLIED QUALIFIERS

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows.

U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ- Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a QC deficiency identified during data validation, the associated quantitation limit is an estimate.

J- Indicates the compound or analyte was analyzed for and detected. The associated concentration is an estimate, but the data are usable for decision making purposes.

BJ- Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R- Indicates the compound or analyte was analyzed for, detected, and due to an identified QC deficiency the data are unusable.

UR- Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data are unusable due to an identified QC deficiency.

JN- Indicates a tentatively identified compound (TIC) that has been determined to be valid in terms of identification and quantitation.

UJN- Indicates a tentatively identified compound (TIC) that has been determined to be presumptive and valid (JN) in terms of identification and quantitation and has been qualified as undetected (U) due to associated blank contamination.

NJ- Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific application (i.e., usable for decision making purposes).

N- Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision making purposes).

LABORATORY APPLIED QUALIFIERS

Qualifiers which may be applied by the laboratory in compliance with applicable requirements are as follows.

Organic Data Qualifiers

U- Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

J- Indicates an estimated value. This flag is used when estimating concentrations of tentatively identified compounds (TICs) or when the presence of a TCL compound is confirmed at a concentration of less than the CRQL but greater than the IDL.

N- Indicates presumptive evidence of a compound. This flag is used only by the laboratory for TIC results when the identification is based on a mass spectral library search.

P- This flag is used for pesticide/Aroclor target analytes when there is greater than 25% difference for detected values between the quantitation and confirmation GC columns. The lower of the two concentrations is reported on the report form and the result is flagged with a "P".

C- This flag applies to pesticide results where the identification has been confirmed by GC/MS. This flag should not be used by the laboratory if GC/MS confirmation was attempted but unsuccessful, in which case, the laboratory should use an "X" flag as defined below. The "X" flag is then defined in the SDG narrative.

B- This flag applies to results in which the analyte was detected in both the sample and the associated blank. The combination of the "B" flag with the "U" flag ("BU" or "UB") is expressly prohibited in the analytical SOW.

E- This flag identifies compounds whose concentrations exceed the calibrated range of the GC/MS instrument.

D- This flag identifies compounds identified in an analysis at a secondary dilution factor.

A- Indicates a TIC which is a suspected aldol-condensate product.

X- This is a non-specific flag used to properly define the results. If used, this flag must be properly defined within the body of the SDG.

LABORATORY APPLIED QUALIFIERS

Inorganic Qualifiers

U- Indicates the analyte was analyzed for but not detected in the sample.

B- Indicates the analyte concentration is less than the CRDL but greater than the IDL.

E- Indicates the value reported is estimated due to the presence of interference.

M- Indicates duplicate injection precision criteria were not met during graphite furnace (GFAA) analysis.

N- Indicates spiked sample recovery was not within the control limits.

S- Indicates the reported value was determined by the Method of Standard Additions (MSA).

W- Indicates post-digestion spike for GFAA analysis is outside control limits and the sample absorbance is less than 50% of the spike absorbance.

*- Indicates duplicate analysis was not within control limits.

+- Indicates the correlation coefficient (r) for the MSA was less than 0.995.

Data Qualification Summary

VOLATILES QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
Acetone	MINOR	U	MZ8,N00	BLANKS	The method blank had positive values with associated sample results less than the blank criteria. Where sample results were less than the CRQL, an upward adjustment was made.
Methylene Chloride	MINOR	10U	MZ8,N00	BLANKS	The method blank had positive values with associated sample results less than the blank criteria. Where sample results were less than the CRQL, an upward adjustment was made.
All reported analytes	MINOR	J/UJ	MP0,MP2	HOLD TIME	The holding times were exceeded by less than two times.
1,1,1-Trichloroethane	MINOR	UJ	MZ8,N00	OTHER	The %D between the initial and continuing calibration exceeded 25%.
1,1,2,2-Tetrachloroethane	MINOR	UJ	MZ6,MZ2,MX4,MX2 ,MP2,MP0	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Acetone	MINOR	5J	MP0	OTHER	The value was incorrectly reported as non-detect.
Carbon Tetrachloride	MINOR	UJ	MZ8,N00	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Vinyl Chloride	MINOR	UJ	MW8,MX0,MY0, MY2,MZ6,MZ2, MX4,MX2,MP2,MP0	OTHER	The %D between the initial and continuing calibration exceeded 25%.

SEMIVOLATILES QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
2,4-dinitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
2-Nitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
4-Nitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
All reported analytes	MINOR	UJ	MP0	HOLD TIME	The holding times were exceeded by less than two times.
4-Methlyphenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	OTHER	The initial calibration RSD exceeded 20.5%
Chrysene	MINOR	UJ	MW8, MY0, MP0, MX2, MZ2,	OTHER	The %D between the initial and continuing calibration exceeded 25%.
N-Nitroso-Di-n-propylamin	MINOR	UJ	MZ8	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Pyrene	MINOR	UJ	MW8, MY0, MP0, MX2, MZ2,	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Unknown @ RT 11.92, 14.63 and 19.35	N/A	JN	MW8	N/A	Identified as a valid result based upon data validation procedures

entered by: BM
date: 9-27-94

checked by: gm
date: 9/29/9

9613479.1540

PESTICIDES/PCBS QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
All reported analytes	MINOR	UJ	MP0	HOLD TIME	The holding times were exceeded by less than two times.
4,4'-DDD	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%
Dieldrin	MINOR	UJ	MZ8	OTHER	The % RSD for the initial calibration verification was greater than 10%
Endrin Ketone	MINOR	UJ	MZ8	OTHER	The % RSD for the initial calibration verification was greater than 10%
Heptachlor	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%
Heptachlor epoxide	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%

entered by: BM
date: 9-20-94

40272QLS.XLT, Qualification Summary

checked by: BM
date: 9-20-94

INORGANICS QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
Selenium	MINOR	BJ	MP1	ACCURACY	The analytical spikes for graphite furnace were outside the acceptance criteria.
Thallium	MINOR	UJ	MP0,MP1,MX2,MX3	ACCURACY	The analytical spikes for graphite furnace were outside the acceptance criteria.
Aluminum	MINOR	BJ	MY0,MY1,MW9	BLANKS	The absolute value of the preparation blank was between the IDL and CRDL with associated sample results less than 2x the highest blank concentration.
Calcium	MINOR	U	MZ2,MZ3,MZ8,MZ9	BLANKS	The preparation blank values were between the IDL and the CRDL with associated sample results less than 5x the highest blank concentration.
Copper	MINOR	UJ	MW8,MW9,MY0, MY1	BLANKS	The absolute value of the calibration blank was between the IDL and CRDL with associated sample results less than 2x the highest blank concentration.
Iron	MINOR	U	MW9, MY0, MY1, MP0, MP1, MX2, MX3, MZ2, MZ3	BLANKS	The preparation blank values were between the IDL and the CRDL with associated sample results less than 5x the highest blank concentration.
Lead	MINOR	U	MP0, MP1, MX2, MX3, MZ3	BLANKS	The preparation blank values were between the IDL and the CRDL with associated sample results less than 5x the highest blank concentration.
Potassium	MINOR	UJ	MY0,MY1	BLANKS	The absolute value of the calibration blank was between the IDL and CRDL with associated sample results less than 2x the highest blank concentration.
Sodium	MINOR	U	MZ8,MZ9	BLANKS	The preparation blank values were between the IDL and the CRDL with associated sample results less than 5x the highest blank concentration.
Zinc	MINOR	U	MW8,MY0,	BLANKS	The preparation blank values were between the IDL and the CRDL with associated sample results less than 5x the highest blank concentration.

entered by: DM
date: 9-28-94

40272QTB.XLS, Qualification Summary

checked by: JM
date: 9/29/9

9613479.1542

GENERAL CHEMISTRY QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
pH	**MAJOR**	**R**	MY0	HOLD TIME	The holding times were grossly exceeded.
Phosphate	**MAJOR**	**UR**	MW8,MYO,MZ2, MP0,MX2,MZ8	HOLD TIME	The holding times were exceeded by greater than two times.
TOX	MINOR	J	MY0,MZ8	ACCURACY	The MS/MSD spike recoveries for accuracy were greater than 125% .
pH	MINOR	J	MZ2,MP0,MX2,MZ8 MW8	HOLD TIME	The holding times were exceeded by less than two times.
Sulfide	MINOR	J	MP0	HOLD TIME	The holding times were exceeded by less than two times.
TDS	MINOR	J	MP0,MY0	HOLD TIME	The holding time was exceeded.
TDS	MINOR	J	MW8,MYO,MZ2, MP0,MX2,MZ8	OTHER	No balance check performed.

RADIOCHEMISTRY QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
Uranium-235	MINOR	J/UJ	MW8,MP0,MX2, MZ2,MZ8	ACCURACY	The LCS spike recoveries for accuracy were less than 75% (QAPjP).
Technetium-99	MINOR	U	MW8	BLANKS	Tc99 was detected in the method blank.
Uranium-234 Uranium-235 Uranium-238	MINOR	J/UJ	MW8, MP0, MX2,MZ2,MZ8	PRECISION	No duplicate performed in batch.

Data Summary Tables

9613479.1544

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.72		HEIS #:	B0BMP0		B0BMP2		B0BMW8	
		Date:	17-May-94		17-May-94		19-May-94	
Constituent		Matrix:	WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	10	UJ	10	UJ	10	U
Bromomethane	74-83-9	µg/L	10	UJ	10	UJ	10	U
Vinyl Chloride	75-01-4	µg/L	10	UJ	10	UJ	10	UJ
Chloroethane	75-00-3	µg/L	10	UJ	10	UJ	10	U
Methylene Chloride	75-09-2	µg/L	10	UJ	1	J	2	J
Acetone	67-64-1	µg/L	5	J	12	J	11	
Carbon Disulfide	75-15-0	µg/L	10	UJ	10	UJ	10	U
1,1-Dichloroethene	75-35-4	µg/L	10	UJ	10	UJ	10	U
1,1-Dichloroethane	75-34-3	µg/L	10	UJ	10	UJ	10	U
1,2-Dichloroethene (total)	40-59-0	µg/L	10	UJ	10	UJ	10	U
Chloroform	67-66-3	µg/L	10	UJ	10	UJ	10	U
1,2-Dichloroethane	07-06-2	µg/L	10	UJ	10	UJ	10	U
2-Butanone	78-93-3	µg/L	10	UJ	10	UJ	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	10	UJ	10	UJ	10	U
Carbon Tetrachloride	56-23-5	µg/L	10	UJ	10	UJ	10	U
Bromodichloromethane	75-27-4	µg/L	10	UJ	10	UJ	10	U
1,2-Dichloropropane	78-87-5	µg/L	10	UJ	10	UJ	10	U
cis-1,3-Dichloropropene	61-01-5	µg/L	10	UJ	10	UJ	10	U
Trichloroethene	79-01-6	µg/L	10	UJ	10	UJ	10	U
Dibromochloromethane	24-48-1	µg/L	10	UJ	10	UJ	10	U
1,1,2-Trichloroethane	79-00-5	µg/L	10	UJ	10	UJ	10	U
Benzene	71-43-2	µg/L	10	UJ	10	UJ	10	U
trans-1,3-Dichloropropene	61-02-6	µg/L	10	UJ	10	UJ	10	U
Bromoform	75-25-2	µg/L	10	UJ	10	UJ	10	U
4-Methyl-2-pentanone	08-10-1	µg/L	10	UJ	10	UJ	10	U
2-Hexanone	91-78-6	µg/L	10	UJ	10	UJ	10	U
Tetrachloroethene	27-18-4	µg/L	10	UJ	10	UJ	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	UJ	10	UJ	10	U
Toluene	08-88-3	µg/L	10	UJ	10	UJ	10	U
Chlorobenzene	08-90-7	µg/L	10	UJ	10	UJ	10	U
Ethylbenzene	00-41-4	µg/L	10	UJ	10	UJ	10	U
Styrene	00-42-5	µg/L	10	UJ	10	UJ	10	U
Xylene (Total)	30-20-7	µg/L	10	UJ	10	UJ	10	U

entered by: BM
date: 9.16.94

shaded areas show changes by validator
ITC079.XLS

checked by: [illegible]
date: 7-19-9

9613479.1545

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.72		HEIS #:	B0BMX0		B0BMX2		B0BMX4	
		Date:	19-May-94		23-May-94		23-May-94	
Constituent		Matrix:	WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	10	U	10	U	10	U
Bromomethane	74-83-9	µg/L	10	U	10	U	10	U
Vinyl Chloride	75-01-4	µg/L	10	UJ	10	UJ	10	UJ
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	2	J	10	U	1	J
Acetone	67-64-1	µg/L	18		10		14	
Carbon Disulfide	75-15-0	µg/L	10	U	10	U	10	U
1,1-Dichloroethene	75-35-4	µg/L	10	U	10	U	10	U
1,1-Dichloroethane	75-34-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethene (total)	40-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethane	07-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	10	U	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	µg/L	10	U	10	U	10	U
Bromodichloromethane	75-27-4	µg/L	10	U	10	U	10	U
1,2-Dichloropropane	78-87-5	µg/L	10	U	10	U	10	U
cis-1,3-Dichloropropene	61-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	2	J	10	U
Dibromochloromethane	24-48-1	µg/L	10	U	10	U	10	U
1,1,2-Trichloroethane	79-00-5	µg/L	10	U	10	U	10	U
Benzene	71-43-2	µg/L	10	U	10	U	10	U
trans-1,3-Dichloropropene	61-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyl-2-pentanone	08-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	91-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	27-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	UJ	10	UJ
Toluene	08-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	08-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	00-41-4	µg/L	10	U	10	U	10	U
Styrene	00-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	30-20-7	µg/L	10	U	10	U	10	U

entered by: BM
date: 9.15.94

shaded areas show changes by validator
ITC079.XLS

checked by: Rad
date: 9-19-

9613479.1546

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.72		HEIS #:	B0BMY0		B0BMZ6		B0BMY2	
		Date:	18-May-94		20-May-94		18-May-94	
Constituent		Matrix:	WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	10	U	10	U	10	U
Bromomethane	74-83-9	µg/L	10	U	10	U	10	U
Vinyl Chloride	75-01-4	µg/L	10	UJ	10	UJ	10	UJ
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	3	J	1	J	3	J
Acetone	67-64-1	µg/L	17		12		15	
Carbon Disulfide	75-15-0	µg/L	10	U	10	U	10	U
1,1-Dichloroethene	75-35-4	µg/L	10	U	10	U	10	U
1,1-Dichloroethane	75-34-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethene (total)	40-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethane	07-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	10	U	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	µg/L	10	U	10	U	10	U
Bromodichloromethane	75-27-4	µg/L	10	U	10	U	10	U
1,2-Dichloropropane	78-87-5	µg/L	10	U	10	U	10	U
cis-1,3-Dichloropropene	61-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	10	U	10	U
Dibromochloromethane	24-48-1	µg/L	10	U	10	U	10	U
1,1,2-Trichloroethane	79-00-5	µg/L	10	U	10	U	10	U
Benzene	71-43-2	µg/L	10	U	10	U	10	U
trans-1,3-Dichloropropene	61-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyl-2-pentanone	08-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	91-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	27-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	UJ	10	U
Toluene	08-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	08-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	00-41-4	µg/L	10	U	10	U	10	U
Styrene	00-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	30-20-7	µg/L	10	U	10	U	10	U

entered by: BM
date: 9-15-94

shaded areas show changes by validator
ITC079.XLS

checked by: md
date: 9-19-94

9613479.1547

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.72		HEIS #:	B0BMZ2		B0BMZ8		B0BNO0	
		Date:	20-May-94		27-May-94		27-May-94	
Constituent		Matrix:	WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	10	U	10	U	10	U
Bromomethane	74-83-9	µg/L	10	U	10	U	10	U
Vinyl Chloride	75-01-4	µg/L	10	UJ	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	1	J	10	U	10	U
Acetone	67-64-1	µg/L	7	J	14	U	14	U
Carbon Disulfide	75-15-0	µg/L	10	U	10	U	10	U
1,1-Dichloroethene	75-35-4	µg/L	10	U	10	U	10	U
1,1-Dichloroethane	75-34-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethene (total)	40-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	10	U	10	U	10	U
1,2-Dichloroethane	07-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	10	U	10	U
1,1,1-Trichloroethane	71-55-6	µg/L	10	U	10	UJ	10	UJ
Carbon Tetrachloride	56-23-5	µg/L	10	U	10	UJ	10	UJ
Bromodichloromethane	75-27-4	µg/L	10	U	10	U	10	U
1,2-Dichloropropane	78-87-5	µg/L	10	U	10	U	10	U
cis-1,3-Dichloropropene	61-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	10	U	10	U
Dibromochloromethane	24-48-1	µg/L	10	U	10	U	10	U
1,1,2-Trichloroethane	79-00-5	µg/L	10	U	10	U	10	U
Benzene	71-43-2	µg/L	10	U	10	U	10	U
trans-1,3-Dichloropropene	61-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyl-2-pentanone	08-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	91-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	27-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	UJ	10	U	10	U
Toluene	08-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	08-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	00-41-4	µg/L	10	U	10	U	10	U
Styrene	00-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	30-20-7	µg/L	10	U	10	U	10	U

entered by: BM
date: 9-15-94

shaded areas show changes by validator
ITC079.XLS

checked by: KJ
date: 9-19-94

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW401.72		HEIS #:	B0BMP0		B0BMW8		B0BMX2		B0BMY0		B0BMZ2		B0BMZ8	
		Date:	17-May-94		19-May-94		23-May-94		18-May-94		20-May-94		25-May-94	
Constituent		Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Phenol	108-95-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Bis (2-Chloroethyl) ether	111-44-4	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	95-57-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	541-73-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	106-46-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	95-50-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	95-48-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis (1-Chloropropane)	108-60-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	106-44-5	µg/L	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
N-Nitroso-Di-n-propylamine	621-64-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	UJ
Hexachloroethane	97-72-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	98-95-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Isophorone	78-59-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	88-75-5	µg/L	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
2,4-Dimethylphenol	105-67-9	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Bis (2-chloroethoxy) methane	111-91-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	120-83-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene	120-82-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Naphthalene	91-20-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline	106-47-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene	87-68-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	59-50-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	91-57-6	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene	77-47-4	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	88-06-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	95-95-4	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
2-Chloronaphthalene	91-58-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	88-74-4	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
Dimethylphthalate	131-11-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	208-96-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	606-20-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	99-09-2	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
Acenaphthene	83-39-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	51-28-5	µg/L	25	UJ	25	UJ	25	UJ	25	UJ	25	UJ	25	UJ
4-Nitrophenol	100-02-7	µg/L	25	UJ	25	UJ	25	UJ	25	UJ	25	UJ	25	UJ
Dibenzofuran	132-64-9	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	121-14-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	84-66-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	005-72-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Fluorene	86-73-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	100-01-6	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
4,6-Dinitro-2-Methylphenol	534-52-1	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
N-Nitrosodiphenylamine (1)	86-30-6	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
4-Bromophyl-phenylether	101-55-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	118-74-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	87-86-5	µg/L	25	UJ	25	U	25	U	25	U	25	U	25	U
Phenanthrene	85-01-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Anthracene	120-12-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Carbazole	85-74-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Di-n-Butylphthalate	84-74-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Fluroanthene	206-44-0	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Pyrene	129-00-0	µg/L	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	U
Butylebenzylphthalate	85-68-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	91-94-1	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Benzo (a) Anthracene	56-55-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U

entered by: BM date: 9.15.94

shaded areas indicates changes by validator
ITC079.XLS

checked by: MCS date: 9-19-9

9613479.1549

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW401.72		HEIS #:	B0BMP0		B0BMW8		B0BMX2		B0BMY0		B0BMZ2		B0BMZ8	
		Date:	17-May-94		19-May-94		23-May-94		18-May-94		20-May-94		25-May-94	
Constituent		Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Chrysene	218-01-9	µg/L	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	U
Bis (2-Ethylhexyl) Phthalate	117-81-7	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Di-n-Octyle Phthalate	117-84-0	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Benzo (b) Fluoranthene	205-99-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Benzo (k) Fluoranthene	207-08-9	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Benzo (a) Pyrene	50-32-8	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Indeno (1,2,3-cd) Pyrene	193-39-5	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Dibenze (a,h) Anthracene	53-70-3	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U
Benzo (g,h,i) Perylene	91-247-2	µg/L	10	UJ	10	U	10	U	10	U	10	U	10	U

entered by: BM date: 9.15.94

shaded areas indicates changes by validator
ITC079.XLS

checked by: [illegible] date: 9-19-

9613479.1550

PESTICIDE/PCB ANALYSIS RESULTS TABLE

FILE #:VW402.72		HEIS #:	BOBMP0		BOBMW8		BOBMX2		BOBMY0		BOBMZ2	
		Date:	17-May-94		19-May-94		23-May-94		18-May-94		20-May-94	
Constituent		Matrix:	WATER		WATER		WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Result	Q
alpha-BHC	319-84-6	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	319-85-7	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	319-86-8	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	58-89-9	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor	76-44-8	µg/L	0.050	UJ	0.050	UJ	0.050	UJ	0.050	UJ	0.050	UJ
Aldrin	309-00-2	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor Epoxide	1024-57-3	µg/L	0.050	UJ	0.050	UJ	0.050	UJ	0.050	UJ	0.050	UJ
Endosulfan I	959-98-8	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	60-57-1	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDE	72-55-9	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	72-20-8	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan II	3213-65-9	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	72-54-8	µg/L	0.10	UJ	0.10	UJ	0.10	UJ	0.10	UJ	0.10	UJ
Endosulfan Sulfate	1031-07-8	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	50-29-3	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
Methoxychlor	72-43-5	µg/L	0.50	UJ	0.50	U	0.50	U	0.50	U	0.50	U
Endrin Ketone	3494-70-5	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
Endrin Aldehyde	7421-93-4	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	5103-71-9	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	5103-74-2	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	8001-35-2	µg/L	5.0	UJ	5.0	U	5.0	U	5.0	U	5.0	U
Aroclor-1016	2674-11-2	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	1104-28-2	µg/L	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U
Aroclor-1232	1141-16-5	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	3469-21-9	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	2672-29-6	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1097-69-1	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1096-82-5	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U

shaded areas show changes by validator

entered by: BM date: 9.15.94 ITC079.XLS checked by: MCS date: 9-19-9

9613479.1551

PESTICIDE/PCB ANALYSIS RESULTS TABLE

FILE #:VW402.72		HEIS #:	BOBMZ8	
		Date:	25-May-94	
Constituent		Matrix:	WATER	
	CAS #	Units	Results	Q
alpha-BHC	319-84-6	µg/L	0.050	U
beta-BHC	319-85-7	µg/L	0.050	U
delta-BHC	319-86-8	µg/L	0.050	U
gamma-BHC (Lindane)	58-89-9	µg/L	0.050	U
Heptachlor	76-44-8	µg/L	0.050	UJ
Aldrin	309-00-2	µg/L	0.050	U
Heptachlor Epoxide	1024-57-3	µg/L	0.050	UJ
Endosulfan I	959-98-8	µg/L	0.050	U
Dieldrin	60-57-1	µg/L	0.10	UJ
4,4'-DDE	72-55-9	µg/L	0.10	U
Endrin	72-20-8	µg/L	0.10	U
Endosulfan II	3213-65-9	µg/L	0.10	U
4,4'-DDD	72-54-8	µg/L	0.10	UJ
Endosulfan Sulfate	1031-07-8	µg/L	0.10	U
4,4'-DDT	50-29-3	µg/L	0.10	U
Methoxychlor	72-43-5	µg/L	0.50	U
Endrin Ketone	3494-70-5	µg/L	0.10	UJ
Endrin Aldehyde	7421-93-4	µg/L	0.10	U
alpha-Chlordane	5103-71-9	µg/L	0.050	U
gamma-Chlordane	5103-74-2	µg/L	0.050	U
Toxaphene	8001-35-2	µg/L	5.0	U
Aroclor-1016	2674-11-2	µg/L	1.0	U
Aroclor-1221	1104-28-2	µg/L	2.0	U
Aroclor-1232	1141-16-5	µg/L	1.0	U
Aroclor-1242	3469-21-9	µg/L	1.0	U
Aroclor-1248	2672-29-6	µg/L	1.0	U
Aroclor-1254	1097-69-1	µg/L	1.0	U
Aroclor-1260	1096-82-5	µg/L	1.0	U

shaded areas show changes by validator

entered by: BM date: 9.15.94 ITC079.XLS checked by: [illegible] date: 9-19-

9613479.1552

METALS/CYANIDE DATA SUMMARY TABLE

FILE#:VW402.72		HEIS #:	B0BMW8		B0BMW9		B0BMY0		B0BMY1		B0BMP0		B0BMP1	
		Date:	19-May-94		19-May-94		18-May-94		18-May-94		17-May-94		17-May-94	
Constituent		Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aluminum	429-90-5	ug/L	475		121	BJ	67.1	BJ	73.4	BJ	40.0	U	43.6	B
Antimony	440-36-0	ug/L	50	U	50	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	440-38-2	ug/L	2.6	B	2.1	B	2.0	U	2.0	U	10.3		10.9	
Barium	440-39-3	ug/L	112	B	112	B	22.8	B	21.1	B	27.6	B	28.3	B
Beryllium	440-41-7	ug/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	440-43-9	ug/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Calcium	440-70-2	ug/L	135000		134000		26100		24000		33000		34800	
Chromium	440-47-3	ug/L	270		82.4		53.5		45.8		10.0	U	10.0	U
Cobalt	440-48-4	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Copper	440-50-8	ug/L	10.0	UJ	10.0	UJ	10.0	UJ	10.0	UJ	10.0	U	10.0	U
Iron	439-89-6	ug/L	889		235	U	246	U	132	U	36.6	U	24.1	U
Lead	439-92-1	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	5.0	U	3.8	U
Magnesium	439-95-4	ug/L	37300		37100		4420	B	4040	B	10800		11300	
Manganese	439-96-5	ug/L	17.1		4.7	B	4.8	B	3.3	B	2.0	U	2.0	U
Mercury	439-97-6	ug/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	440-02-0	ug/L	86.8		24.0	B	20.0	U	20.0	U	20.0	U	20.0	U
Potassium	440-09-7	ug/L	7000		6170		1000	UJ	1000	UJ	3490	B	4040	B
Selenium	782-49-2	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.1	BJ
Silver	440-22-4	ug/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sodium	440-23-5	ug/L	59200		59100		3040	B	2730	B	44900		47200	
Thallium	440-28-0	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	UJ
Vanadium	440-62-2	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	19.9	B	22.4	B
Zinc	440-66-6	ug/L	6.0	U	5.0	U	6.5	U	5.0	U	18.2	B	17.1	B
Cyanide	955-70-0	ug/L	10.0	U			10.0	U			10.0	U		

shaded areas show changes by validator

entered by: BM date: 9-28-94 ITC079.XLS checked by: JM date: 9/29/94

9613479.1553

METALS/CYANIDE DATA SUMMARY TABLE

FILE#:VW402.72		HEIS #:	BOBMX2		BOBMX3		BOBMZ2		BOBMZ3		BOBMZ8		BOBMZ9	
		Date:	23-May-94		23-May-94		20-May-94		20-May-94		25-May-94		25-May-94	
Constituent		Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aluminum	429-90-5	ug/L	40.0	U	40.0	U	42.8	B	42.3	B	40.0	U	40.0	U
Antimony	440-36-0	ug/L	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	440-38-2	ug/L	5.7	B	4.9	B	2.0	U	2.0		2.0	U	2.0	U
Barium	440-39-3	ug/L	32.1	B	33.4	B	2.0	U	2.0	U	2.0	U	2.0	U
Beryllium	440-41-7	ug/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	440-43-9	ug/L	5.0	U	5.0	U	5.0	U	6.2		5.0	U	5.0	U
Calcium	440-70-2	ug/L	64600		64400		93.9	U	89.4	U	94.8	U	88.3	U
Chromium	440-47-3	ug/L	19.4		17.2		10.0	U	10.0	U	10.0	U	10.0	U
Cobalt	440-48-4	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Copper	440-50-8	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Iron	439-89-6	ug/L	34.2	U	26.2	U	21.0	U	18.6	U	16.8	B	26.9	B
Lead	439-92-1	ug/L	3.2	U	2.7	U	35.0		5.0	U	6.4		2.0	U
Magnesium	439-95-4	ug/L	16500		16400	U	30.0	U	30.0	U	30.0	U	30.0	U
Manganese	439-96-5	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Mercury	439-97-6	ug/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	440-02-0	ug/L	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Potassium	440-09-7	ug/L	5090		5720		1000	U	1000	U	1000	U	1000	U
Selenium	782-49-2	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Silver	440-22-4	ug/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sodium	440-23-5	ug/L	45100		45300		161	B	149	B	185	U	244	U
Thallium	440-28-0	ug/L	2.0	UJ	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	440-62-2	ug/L	10.0	U	11.4	B	10.0	U	10.0	U	10.0	U	10.0	U
Zinc	440-66-6	ug/L	5.0	U	9.1	B	5.0	U	8.3	B	5.0	U	5.0	U
Cyanide	955-70-0	ug/L	10.0	U			10.0	U			10.0	U		

shaded areas show changes by validator

entered by: BM date: 9.15.94 ITC079.XLS checked by: [illegible] date: 9-19-9

9613479.1554

GENERAL CHEMISTRY DATA SUMMARY TABLE

FILE #: VW 402.72		HEIS #:	B0BMW8		B0BMY0		B0BMZ2	
		Date:	19-May-94		18-May-94		20-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloride by IC	ANIONS	mg/L	6		1.4		0.4	U
Fluoride by IC	ANIONS	mg/L	0.4	U	0.4	U	0.4	U
Phosphate by IC	ANIONS	mg/L	1	UR	1	UR	1	UR
Sulfate by IC	ANIONS	mg/L	73		17		1.5	U
Sulfide	18496-25-8	mg/L	8		5		3	
Nitrite + Nitrate	NO2 + NO3-N	mg/L	0.88		0.63		0.06	
Total Organic Carbon (TOC)	TOC	mg/L	5		1	U	1	U
pH	207	PH UNITS	7.18	J	7.4	R	4.88	J
Alkalinity	ALKALINITY	mg/L	482		78		2	U
Ammonia	7664-41-7	mg/L	0.1	U	0.1	U	0.1	U
Chemical Oxygen Demand	COD	mg/L	14		1	U	1	U
Conductivity	191	umhos/cm	1200		202		4	
Total Dissolved Solids	TDS	mg/L	811	J	136	J	3	J
Total Organic Halogens	C68	ug/L	20	U	48	J	20	U

FILE #: VW 402.72		HEIS #:	B0BMP0		B0BMX2		B0BMZ8	
		Date:	17-May-94		27-May-94		25-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Chloride by IC	ANIONS	mg/L	11		12		0.4	U
Fluoride by IC	ANIONS	mg/L	0.76		0.5		0.4	U
Phosphate by IC	ANIONS	mg/L	1	UR	1	UR	1	UR
Sulfate by IC	ANIONS	mg/L	57		65		1.5	U
Sulfide	18496-25-8	mg/L	40	J	19		4	
Nitrite + Nitrate	NO2 + NO3-N	mg/L	4.14		21.2		0.02	U
Total Organic Carbon (TOC)	TOC	mg/L	1	U	2		1	U
pH	207	PH UNITS	7.65	J	7.82	J	4.65	J
Alkalinity	ALKALINITY	mg/L	150		194		4	
Ammonia	7664-41-7	mg/L	0.1	U	0.1	U	0.1	U
Chemical Oxygen Demand	COD	mg/L	5		5		10	
Conductivity	191	umhos/cm	488		702		3	
Total Dissolved Solids	TDS	mg/L	292	J	517	J	81	J
Total Organic Halogens	C68	ug/L	20	U	20	U	22	J

entered by: BM date: 10-5-94

shaded area means a change by the validator
40272TB2.XLS

checked by: [illegible] date: 10-6-94

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9613479.1555

RADIOCHEMISTRY ANALYSIS RESULTS TABLE

FILE #:VW402.72		HEIS #:	B0BMW8			B0BMY0			B0BMZ2		
		Date:	20-May-94			20-May-94			24-May-94		
Constituent		Matrix:	WATER			WATER			WATER		
	CAS #	Units	Results	Q	MDA	Results	Q	MDA	Results	Q	MDA
Gross Alpha	ALPHA	pCi/L	13.6		3.30	1.37		0.788	-0.101	U	0.661
Gross Beta	BETA	pCi/L	79.7		3.16	36.2		3.13	0.504	U	2.76
Tritium	10028-17-	pCi/L	98300		238	83.8	U	238	55.8	U	238
Carbon-14	14762-75-	pCi/L	252		4.72	0.113	U	4.72	0.0901	U	4.72
Strontium-90	0098-97-2	pCi/L	-0.137	U	1.01	17.4		0.757	0.176	U	0.790
Uranium 234	U-233/234	pCi/L	0.282	UJ	0.355	7.66	R	0.288	0.139	UJ	0.276
Uranium 235	5117-96-1	pCi/L	0.0448	UJ	0.244	0.130	UR	0.260	310	UJ	0.292
Uranium 238	U-238	pCi/L	0.312	J	0.244	5.91	R	0.301	-0.00827	UJ	0.236
Plutonium-238	3981-16-3	pCi/L	0.00	U	0.145	0.00	U	0.180	0.00	U	0.196
Plutonium-239/240	U-239/240	pCi/L	0.00	U	0.145	0.252	U	0.318	-145	U	0.346
Americium-241	4596-10-2	pCi/L	-0.0143	U	0.298	0.0431	U	0.338	0.112	U	0.234
Technetium-99	4133-76-7	pCi/L	3.97	U	2.16	-0.426	U	2.16	-1.16	U	2.16
GAMMA SCAN											
Iron-59	4596-12-4	pCi/L	-11.8	U	26.2	9.62	U	25.1	9.66	U	24.5
Cobalt-58	3981-38-9	pCi/L	0.185	U	10.5	4.98	U	11.0	-3.57	U	8.04
Cobalt-60	0198-40-0	pCi/L	-6.57	U	6.43	-0.924	U	7.45	0.343	U	8.58
Cesium-137	0045-97-3	pCi/L	4.11	U	9.69	0.804	U	6.93	0.798	U	5.96
Europium-152	4683-23-9	pCi/L	-3.08	U	18.5	-0.608	U	16.9	7.79	U	19.5
Europium-154	5585-10-1	pCi/L	8.05	U	30.3	-5.98	U	25.9	9.50	U	25.2
Europium-155	4391-16-3	pCi/L	-1.92	U	14.7	-3.43	U	13.2	5.31	U	14.9
REANALYSIS RESULTS											
Uranium 234	U-233/234	pCi/L				0.496	J	0.292			
Uranium 235	5117-96-1	pCi/L				0.0910	UJ	0.258			
Uranium 238	U-238	pCi/L				0.480	J	0.344			

FILE #:VW402.72		HEIS #:	B0BMX2			B0BMP0			B0BMZ8		
		Date:	20-May-94			20-May-94			20-May-94		
Constituent		Matrix:	WATER			WATER			WATER		
	CAS #	Units	Results	Q	MDA	Results	Q	MDA	Results	Q	MDA
Gross Alpha	ALPHA	pCi/L	8.87		1.61	2.62		1.29	396	U	0.659
Gross Beta	BETA	pCi/L	10.3		3.07	8.55		3.02	7.55	U	2.70
Tritium	10028-17-	pCi/L	15000		238	182	U	238	70.7	U	238
Carbon-14	14762-75-	pCi/L	4.55	U	4.72	1.49	U	4.72	1.42	U	4.72
Strontium-90	0098-97-2	pCi/L	-0.123	U	1.02	0.248	U	0.790	0.377	U	0.774
Uranium 234	U-233/234	pCi/L	5.80	J	0.193	2.73	J	0.364	-0.0331	UJ	0.333
Uranium 235	5117-96-1	pCi/L	0.136	UJ	0.219	0.113	UJ	0.281	-0.00828	UJ	0.236
Uranium 238	U-238	pCi/L	3.63	J	0.239	1.63	J	0.347	0.199	UJ	0.236
Plutonium-238	3981-16-3	pCi/L	-259	U	0.366	0.00	U	0.159	0.00	U	0.192
Plutonium-239/240	U-239/240	pCi/L	0.116	U	0.309	0.0469	U	0.280	0.00	U	0.192
Americium-241	4596-10-2	pCi/L	0.0673	U	0.294	-0.0191	U	0.318	0.0516	U	0.226
Technetium-99	4133-76-7	pCi/L	-0.493	U	2.16	-0.0834	U	2.16	-0.909	U	2.16
GAMMA SCAN											
Iron-59	4596-12-4	pCi/L	-4.12	U	16.5	-1.88	U	27.7	-10.8	U	23.6
Cobalt-58	3981-38-9	pCi/L	1.15	U	9.92	4.41	U	10.2	5.60	U	11.4
Cobalt-60	0198-40-0	pCi/L	2.86	U	8.78	94.5	U	7.27	-5.96	U	7.15
Cesium-137	0045-97-3	pCi/L	1.84	U	7.35	0.585	U	8.02	-2.46	U	8.71
Europium-152	4683-23-9	pCi/L	-2.13	U	16.7	-3.30	U	17.5	-3.54	U	17.0
Europium-154	5585-10-1	pCi/L	-3.73	U	23.6	6.26	U	29.9	-1.61	U	21.5
Europium-155	4391-16-3	pCi/L	-5.03	U	12.2	0.369	U	15.7	1.37	U	16.2

entered by: BM date: 10-5-94 shaded areas show changes by validator 40272TB4.XLS checked by: [illegible] date: 10-6-

Sample Results (Form I's)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9702

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9702

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5 ~~10~~	~~U~~ J
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	10	U
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

UJ
J
UJ

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9702

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9702

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

BM 8-30-94 ~~3/90~~ CMP 9/19/94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9716

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9716

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	12	
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	10	U
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

UJ
J
UJ

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMP2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9716

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9716

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I VOA-TIC

BM
8-30-94

3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9609

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9609

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	~~U~~ UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	11	
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	10	U
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

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9609

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9609

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BM
8-30-94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9622

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9622

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	~~U~~ UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	18	
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	10	U
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

BM 8/30/94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9622

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9622

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9718

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9718

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	10	U	
67-64-1	Acetone	10		
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	2	J	
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	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	~~U~~	UJ
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	

DM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9718

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9718

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BM
8-30-94

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9733

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9733

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	1	J	
67-64-1	Acetone	14		
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	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	~~U~~	UJ
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	

BM
8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9733

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9733

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9623

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9623

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	~~U~~ UJ
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	3	J
67-64-1	Acetone	17	
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	10	U
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

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1E

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9623

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9623

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9735

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9735

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	1	J	
67-64-1	Acetone	7	J	
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	10	U	
591-78-6	2-Hexanone	10	U	
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	~~U~~	UJ
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	

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9735

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9735

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9636

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9636

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	3	J	
67-64-1	Acetone	15		
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	10	U	
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	

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMY2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9636

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9636

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
BOBMZ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9752

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9752

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	~~U~~	UJ
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	1	J	
67-64-1	Acetone	12		
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	10	U	
591-78-6	2-Hexanone	10	U	BM 9-17-94
127-18-4	Tetrachloroethene	10	U	
79-34-5	1,1,2,2-Tetrachloroethane	10	~~U~~	UJ
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	

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9752

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9752

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9923

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9923

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	~~2~~	~~BJ~~	10U
67-64-1	Acetone	14	~~B~~	U
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~~	UJ
56-23-5	Carbon Tetrachloride	10	~~U~~	UJ
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~~ U	UJ BM 8.30.94
71-43-2	Benzene	10	U BM 9.27.94	
10061-02-6	trans-1,3-Dichloropropene	10	U	
75-25-2	Bromoform	10	U	
108-10-1	4-Methyl-2-Pentanone	10	U	
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	

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9923

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9923

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBN00

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9952

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9952

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	2	~~BJ~~	10U
67-64-1	Acetone	14	~~B~~	U
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~~	UJ
56-23-5	Carbon Tetrachloride	10	~~U~~	UJ
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	10	U	
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	

BM
8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBNO0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9952

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9952

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	25	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	25	U
131-11-3	Dimethylphthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
99-09-2	3-Nitroaniline	25	U
83-32-9	Acenaphthene	10	U

UJ

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: decanted: (Y/N) Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH:

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
51-28-5	2,4-Dinitrophenol	25	U
100-02-7	4-Nitrophenol	25	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	25	U
534-52-1	4,6-Dinitro-2-Methylphenol	25	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	25	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
86-74-8	Carbazole	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	10	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

UJ

(1) - Cannot be separated from Diphenylamine

8-31-94

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9703

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BM 8-31-94

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	10	U	
541-73-1	1,3-Dichlorobenzene	10	U	
106-46-7	1,4-Dichlorobenzene	10	U	
95-50-1	1,2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	
106-44-5	4-Methylphenol	10	~~U~~	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	~~U~~	UJ
105-67-9	2,4-Dimethylphenol	10	U	
111-91-1	bis(2-Chloroethoxy)Methane	10	U	
120-83-2	2,4-Dichlorophenol	10	U	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

BM 8-31-94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	~~U~~	UJ
100-02-7	4-Nitrophenol	25	~~U~~	UJ
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~	UJ
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	~~U~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

BM 8-31-94

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9610

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	11.92	2	~~J~~ JN
2.	UNKNOWN	14.63	13	~~J~~ JN
3. 314-40-9	BROMACIL	17.62	35	JN
4.	UNKNOWN	19.35	6	~~J~~ JN

FORM I SV-TIC

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	10	U	
541-73-1	1,3-Dichlorobenzene	10	U	
106-46-7	1,4-Dichlorobenzene	10	U	
95-50-1	1,2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	
106-44-5	4-Methylphenol	10	~~U~~	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	~~U~~	UJ
105-67-9	2,4-Dimethylphenol	10	U	
111-91-1	bis(2-Chloroethoxy)Methane	10	U	
120-83-2	2,4-Dichlorophenol	10	U	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

8-31-94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	~~U~~	UJ
100-02-7	4-Nitrophenol	25	~~U~~	UJ
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~	UJ
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	~~U~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9719

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 314-40-9	BROMACIL	17.55	26	JN

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	10	U	
541-73-1	1,3-Dichlorobenzene	10	U	
106-46-7	1,4-Dichlorobenzene	10	U	
95-50-1	1,2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	
106-44-5	4-Methylphenol	10	~~U~~	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	~~U~~	UJ
105-67-9	2,4-Dimethylphenol	10	U	
111-91-1	bis(2-Chloroethoxy)Methane	10	U	
120-83-2	2,4-Dichlorophenol	10	U	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

BM 8-31-94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	~~U~~	UJ
100-02-7	4-Nitrophenol	25	~~U~~	UJ
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~	UJ
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	~~U~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

BM 8-31-94

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMY0

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9624

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/24/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I SV-TIC

3/90

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	10	U	
541-73-1	1,3-Dichlorobenzene	10	U	
106-46-7	1,4-Dichlorobenzene	10	U	
95-50-1	1,2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	
106-44-5	4-Methylphenol	10	~~U~~	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	10	U	
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	~~U~~	UJ
105-67-9	2,4-Dimethylphenol	10	U	
111-91-1	bis(2-Chloroethoxy)Methane	10	U	
120-83-2	2,4-Dichlorophenol	10	U	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

BM 8-31-94

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	~~U~~	UJ
100-02-7	4-Nitrophenol	25	~~U~~	UJ
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~	UJ
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3,3'-Dichlorobenzidine	10	U	
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	~~U~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

8-31-94

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9736

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/26/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/07/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

FORM I SV-TIC

BM 8-31-94

3/90

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
108-95-2	Phenol	10	U	
111-44-4	bis(2-Chloroethyl)Ether	10	U	
95-57-8	2-Chlorophenol	10	U	
541-73-1	1,3-Dichlorobenzene	10	U	
106-46-7	1,4-Dichlorobenzene	10	U	
95-50-1	1,2-Dichlorobenzene	10	U	
95-48-7	2-Methylphenol	10	U	
108-60-1	2,2'-oxybis(1-Chloropropane)	10	U	
106-44-5	4-Methylphenol	10	~~U~~	UJ
621-64-7	N-Nitroso-Di-n-Propylamine	10	~~U~~	UJ
67-72-1	Hexachloroethane	10	U	
98-95-3	Nitrobenzene	10	U	
78-59-1	Isophorone	10	U	
88-75-5	2-Nitrophenol	10	~~U~~	UJ
105-67-9	2,4-Dimethylphenol	10	U	
111-91-1	bis(2-Chloroethoxy)Methane	10	U	
120-83-2	2,4-Dichlorophenol	10	U	
120-82-1	1,2,4-Trichlorobenzene	10	U	
91-20-3	Naphthalene	10	U	
106-47-8	4-Chloroaniline	10	U	
87-68-3	Hexachlorobutadiene	10	U	
59-50-7	4-Chloro-3-Methylphenol	10	U	
91-57-6	2-Methylnaphthalene	10	U	
77-47-4	Hexachlorocyclopentadiene	10	U	
88-06-2	2,4,6-Trichlorophenol	10	U	
95-95-4	2,4,5-Trichlorophenol	25	U	
91-58-7	2-Chloronaphthalene	10	U	
88-74-4	2-Nitroaniline	25	U	
131-11-3	Dimethylphthalate	10	U	
208-96-8	Acenaphthylene	10	U	
606-20-2	2,6-Dinitrotoluene	10	U	
99-09-2	3-Nitroaniline	25	U	
83-32-9	Acenaphthene	10	U	

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
51-28-5	2,4-Dinitrophenol	25	~~U~~	UJ
100-02-7	4-Nitrophenol	25	~~U~~	UJ
132-64-9	Dibenzofuran	10	U	
121-14-2	2,4-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	U	
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	25	U	
534-52-1	4,6-Dinitro-2-Methylphenol	25	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	25	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
86-74-8	Carbazole	10	U	
84-74-2	Di-n-Butylphthalate	10	U	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	~~U~~ u	UJ
85-68-7	Butylbenzylphthalate	10	U	BM 9-27-94
91-94-1	3,3'-Dichlorobenzidine	10	U	BM 8-31-94
56-55-3	Benzo(a)Anthracene	10	U	
218-01-9	Chrysene	10	~~U~~ u	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U	
53-70-3	Dibenz(a,h)Anthracene	10	U	
191-24-2	Benzo(g,h,i)Perylene	10	U	

(1) - Cannot be separated from Diphenylamine

BM 8-31-94

1F

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA9924

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/31/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/08/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 0

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BM
8.31.94

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9703

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/27/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
319-84-6	alpha-BHC	0.050	U	UJ
319-85-7	beta-BHC	0.050	U	UJ
319-86-8	delta-BHC	0.050	U	UJ
58-89-9	gamma-BHC (Lindane)	0.050	U	UJ
76-44-8	Heptachlor	0.050	U	UJ
309-00-2	Aldrin	0.050	U	UJ
1024-57-3	Heptachlor epoxide	0.050	U	UJ
959-98-8	Endosulfan I	0.050	U	UJ
60-57-1	Dieldrin	0.10	U	UJ
72-55-9	4,4'-DDE	0.10	U	UJ
72-20-8	Endrin	0.10	U	UJ
33213-65-9	Endosulfan II	0.10	U	UJ
72-54-8	4,4'-DDD	0.10	U	UJ
1031-07-8	Endosulfan sulfate	0.10	U	UJ
50-29-3	4,4'-DDT	0.10	U	UJ
72-43-5	Methoxychlor	0.50	U	UJ
53494-70-5	Endrin ketone	0.10	U	UJ
7421-93-4	Endrin aldehyde	0.10	U	UJ
5103-71-9	alpha-Chlordane	0.050	U	UJ
5103-74-2	gamma-Chlordane	0.050	U	UJ
8001-35-2	Toxaphene	5.0	U	UJ
12674-11-2	Aroclor-1016	1.0	U	UJ
11104-28-2	Aroclor-1221	2.0	U	UJ
11141-16-5	Aroclor-1232	1.0	U	UJ
53469-21-9	Aroclor-1242	1.0	U	UJ
12672-29-6	Aroclor-1248	1.0	U	UJ
11097-69-1	Aroclor-1254	1.0	U	UJ
11096-82-5	Aroclor-1260	1.0	U	UJ

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9610

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/21/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/24/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/26/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
319-84-6	alpha-BHC	0.050	U	
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	
58-89-9	gamma-BHC (Lindane)	0.050	U	
76-44-8	Heptachlor	0.050	~~U~~	UJ
309-00-2	Aldrin	0.050	U	
1024-57-3	Heptachlor epoxide	0.050	~~U~~	UJ
959-98-8	Endosulfan I	0.050	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	~~U~~	UJ
1031-07-8	Endosulfan sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin ketone	0.10	U	
7421-93-4	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.050	U	
5103-74-2	gamma-Chlordane	0.050	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

BM
8-30-94

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9719

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/28/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
319-84-6	alpha-BHC	0.050	U	
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	
58-89-9	gamma-BHC (Lindane)	0.050	U	
76-44-8	Heptachlor	0.050	~~U~~	UJ
309-00-2	Aldrin	0.050	U	
1024-57-3	Heptachlor epoxide	0.050	~~U~~	UJ
959-98-8	Endosulfan I	0.050	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	~~U~~	UJ
1031-07-8	Endosulfan sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin ketone	0.10	U	
7421-93-4	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.050	U	
5103-74-2	gamma-Chlordane	0.050	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

BM 8-30-94

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMYO

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9624

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/21/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/24/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/26/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
319-84-6	alpha-BHC	0.050	U	
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	
58-89-9	gamma-BHC (Lindane)	0.050	U	
76-44-8	Heptachlor	0.050	~~U~~	UJ
309-00-2	Aldrin	0.050	U	
1024-57-3	Heptachlor epoxide	0.050	~~U~~	UJ
959-98-8	Endosulfan I	0.050	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	~~U~~	UJ
1031-07-8	Endosulfan sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin ketone	0.10	U	
7421-93-4	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.050	U	
5103-74-2	gamma-Chlordane	0.050	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

BM 8-30-94

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9736

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/25/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/26/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/28/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 5.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
319-84-6	alpha-BHC	0.050	U	
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	
58-89-9	gamma-BHC (Lindane)	0.050	U	
76-44-8	Heptachlor	0.050	~~U~~	UJ
309-00-2	Aldrin	0.050	U	
1024-57-3	Heptachlor epoxide	0.050	~~U~~	UJ
959-98-8	Endosulfan I	0.050	U	
60-57-1	Dieldrin	0.10	U	
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	~~U~~	UJ
1031-07-8	Endosulfan sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin ketone	0.10	U	
7421-93-4	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.050	U	
5103-74-2	gamma-Chlordane	0.050	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

RM 6-8-94

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/27/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 06/01/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 06/13/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L		Q
319-84-6	alpha-BHC	0.050	U	
319-85-7	beta-BHC	0.050	U	
319-86-8	delta-BHC	0.050	U	
58-89-9	gamma-BHC (Lindane)	0.050	U	
76-44-8	Heptachlor	0.050	~~U~~	UJ
309-00-2	Aldrin	0.050	U	
1024-57-3	Heptachlor epoxide	0.050	~~U~~	UJ
959-98-8	Endosulfan I	0.050	U	
60-57-1	Dieldrin	0.10	~~U~~	UJ
72-55-9	4,4'-DDE	0.10	U	
72-20-8	Endrin	0.10	U	
33213-65-9	Endosulfan II	0.10	U	
72-54-8	4,4'-DDD	0.10	~~U~~	UJ
1031-07-8	Endosulfan sulfate	0.10	U	
50-29-3	4,4'-DDT	0.10	U	
72-43-5	Methoxychlor	0.50	U	
53494-70-5	Endrin ketone	0.10	~~U~~	UJ
7421-93-4	Endrin aldehyde	0.10	U	
5103-71-9	alpha-Chlordane	0.050	U	
5103-74-2	gamma-Chlordane	0.050	U	
8001-35-2	Toxaphene	5.0	U	
12674-11-2	Aroclor-1016	1.0	U	
11104-28-2	Aroclor-1221	2.0	U	
11141-16-5	Aroclor-1232	1.0	U	
53469-21-9	Aroclor-1242	1.0	U	
12672-29-6	Aroclor-1248	1.0	U	
11097-69-1	Aroclor-1254	1.0	U	
11096-82-5	Aroclor-1260	1.0	U	

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9616
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	475			P	
7440-36-0	Antimony	50.0	U		P	
7440-38-2	Arsenic	2.6	B		F	
7440-39-3	Barium	112	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	135000			P	
7440-47-3	Chromium	270			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U	uJ	P	uJ
7439-89-6	Iron	889			P	
7439-92-1	Lead	2.0	U		F	
7439-95-4	Magnesium	37300			P	
7439-96-5	Manganese	17.1			P	
7439-97-6	Mercury	0.20	U		CV	
7440-02-0	Nickel	86.8			P	
7440-09-7	Potassium	7000			P	
7782-49-2	Selenium	2.0	U		F	
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	59200			P	
7440-28-0	Thallium	2.0	U		F	
7440-62-2	Vanadium	10.0	U		P	
7440-66-6	Zinc	6.0	~~B~~	u	P	u
5955-70-0	Cyanide				NR	

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW8

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9617

Level (low/med): LOW__ Date Received: 05/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	U N	AS

no Qual BM 9-2-94 Val

Lab UCK MW 9-10-94

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW9

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9621

Level (low/med): LOW Date Received: 05/21/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	121	~~B~~	~~BJ~~ BJ	P
7440-36-0	Antimony	50.0	U	BM 9-27-94	P
7440-38-2	Arsenic	2.1	B		F
7440-39-3	Barium	112	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	134000			P
7440-47-3	Chromium	82.4			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	~~U~~	UJ	P
7439-89-6	Iron	235		U	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	37100			P
7439-96-5	Manganese	4.7	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	24.0	B		P
7440-09-7	Potassium	6170			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	59100			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

No qualifier intended BM 9-16-94 BM 9-27-94

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9630
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	67.1	~~B~~	BJ	P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	22.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	26100			P
7440-47-3	Chromium	53.5			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	~~U~~	UJ	P
7439-89-6	Iron	246		J	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	4420	B		P
7439-96-5	Manganese	4.8	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	~~U~~	UJ	P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	3040	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	6.5	~~B~~	J	P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY0

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9631

Level (low/med): LOW__ Date Received: 05/21/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_		_		NR
7440-38-2	Arsenic__		_		NR
7440-39-3	Barium___		_		NR
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__		_		NR
7440-70-2	Calcium__		_		NR
7440-47-3	Chromium_		_		NR
7440-48-4	Cobalt___		_		NR
7440-50-8	Copper___		_		NR
7439-89-6	Iron____		_		NR
7439-92-1	Lead____		_		NR
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__		_		NR
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_		_		NR
7440-22-4	Silver___		_		NR
7440-23-5	Sodium___		_		NR
7440-28-0	Thallium_		_		NR
7440-62-2	Vanadium_		_		NR
7440-66-6	Zinc____		_		NR
5955-70-0	Cyanide__	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMY1

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO579 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9635
Level (low/med): LOW Date Received: 05/21/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	73.4	~~B~~	BJ	P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	21.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	24000			P
7440-47-3	Chromium	45.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	~~U~~	UJ	P
7439-89-6	Iron	132		U	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	4040	B		P
7439-96-5	Manganese	3.3	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	~~U~~	UJ	P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2730	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9710

Level (low/med): LOW Date Received: 05/25/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	10.3			F
7440-39-3	Barium	27.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	33000			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	~~U~~ U BM 9-2		P
7439-89-6	Iron	36.6	~~B~~ U		P
7439-92-1	Lead	5.0	U		F
7439-95-4	Magnesium	10800			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	3490	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	44900			P
7440-28-0	Thallium	2.0	~~U~~ U	W	F
7440-62-2	Vanadium	19.9	B		P
7440-66-6	Zinc	18.2	B		P
5955-70-0	Cyanide				NR

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Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMP0

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9711

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_				NR
7440-36-0	Antimony_				NR
7440-38-2	Arsenic__				NR
7440-39-3	Barium___				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium__				NR
7440-70-2	Calcium__				NR
7440-47-3	Chromium_				NR
7440-48-4	Cobalt___				NR
7440-50-8	Copper___				NR
7439-89-6	Iron_____				NR
7439-92-1	Lead_____				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury__				NR
7440-02-0	Nickel___				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium_				NR
7440-22-4	Silver___				NR
7440-23-5	Sodium___				NR
7440-28-0	Thallium_				NR
7440-62-2	Vanadium_				NR
7440-66-6	Zinc_____				NR
5955-70-0	Cyanide__	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMP1

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9715
Level (low/med): LOW Date Received: 05/25/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	43.6	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	10.9			F
7440-39-3	Barium	28.3	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	34800			P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	24.1	~~B~~	U	P
7439-92-1	Lead	3.8		U	F
7439-95-4	Magnesium	11300			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	4040	B		P
7782-49-2	Selenium	2.1	~~B~~	UJ W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	47200			P
7440-28-0	Thallium	2.0	~~U~~	UJ W	F
7440-62-2	Vanadium	22.4	B		P
7440-66-6	Zinc	17.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9726

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	5.7	B		F
7440-39-3	Barium	32.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64600			P
7440-47-3	Chromium	19.4			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	34.2	B	U	P
7439-92-1	Lead	3.2		U	F
7439-95-4	Magnesium	16500			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5090			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	45100			P
7440-28-0	Thallium	2.0	U	UJW	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___

Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:

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U.S. EPA - CLP

1.

INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMX2

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9727

Level (low/med): LOW Date Received: 05/25/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CYANIDE_ONLY.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMX3

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9731
Level (low/med): LOW Date Received: 05/25/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	4.9	B		F
7440-39-3	Barium	33.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	64400			P
7440-47-3	Chromium	17.2			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	26.2	~~B~~	U	P
7439-92-1	Lead	2.7	~~B~~	U	F
7439-95-4	Magnesium	16400			P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	5720			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	45300			P
7440-28-0	Thallium	2.0	~~U~~	UJ W	F
7440-62-2	Vanadium	11.4	B		P
7440-66-6	Zinc	9.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ2
~~BOBM22~~ JAR 7/13/94

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9743
Level (low/med): LOW Date Received: 05/25/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	42.8	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	93.9	~~B~~	U	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	21.0	~~B~~	U	P
7439-92-1	Lead	35.0			F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	161	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBM22
~~BOBM22-JOA~~ 7/7/94

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Matrix (soil/water): WATER Lab Sample ID: AA9745

Level (low/med): LOW__ Date Received: 05/25/94

% Solids: __0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L_

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum_		_		NR
7440-36-0	Antimony_		_		NR
7440-38-2	Arsenic__		_		NR
7440-39-3	Barium___		_		NR
7440-41-7	Beryllium		_		NR
7440-43-9	Cadmium__		_		NR
7440-70-2	Calcium__		_		NR
7440-47-3	Chromium_		_		NR
7440-48-4	Cobalt___		_		NR
7440-50-8	Copper___		_		NR
7439-89-6	Iron_____		_		NR
7439-92-1	Lead_____		_		NR
7439-95-4	Magnesium		_		NR
7439-96-5	Manganese		_		NR
7439-97-6	Mercury__		_		NR
7440-02-0	Nickel___		_		NR
7440-09-7	Potassium		_		NR
7782-49-2	Selenium_		_		NR
7440-22-4	Silver___		_		NR
7440-23-5	Sodium___		_		NR
7440-28-0	Thallium_		_		NR
7440-62-2	Vanadium_		_		NR
7440-66-6	Zinc_____		_		NR
5955-70-0	Cyanide__	10.0	U	N	AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBM23
~~BOBM23~~ JOA
7/1/97

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO583 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9749
Level (low/med): LOW Date Received: 05/25/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	42.3	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	6.2			P
7440-70-2	Calcium	89.4	~~B~~	U	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	18.6	~~B~~	U	P
7439-92-1	Lead	5.0		~~U~~ U	F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	149	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	8.3	B		P
5955-70-0	Cyanide				NR

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Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO602 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9929
Level (low/med): LOW Date Received: 05/27/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	94.8	~~B~~ U	u	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	16.8	B		P
7439-92-1	Lead	6.4			F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	185	~~B~~ U	u	P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ8

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO602 SAS No.: SDG No.: W0068

Matrix (soil/water): WATER Lab Sample ID: AA9930

Level (low/med): LOW Date Received: 05/27/94

% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony				NR
7440-38-2	Arsenic				NR
7440-39-3	Barium				NR
7440-41-7	Beryllium				NR
7440-43-9	Cadmium				NR
7440-70-2	Calcium				NR
7440-47-3	Chromium				NR
7440-48-4	Cobalt				NR
7440-50-8	Copper				NR
7439-89-6	Iron				NR
7439-92-1	Lead				NR
7439-95-4	Magnesium				NR
7439-96-5	Manganese				NR
7439-97-6	Mercury				NR
7440-02-0	Nickel				NR
7440-09-7	Potassium				NR
7782-49-2	Selenium				NR
7440-22-4	Silver				NR
7440-23-5	Sodium				NR
7440-28-0	Thallium				NR
7440-62-2	Vanadium				NR
7440-66-6	Zinc				NR
5955-70-0	Cyanide	10.0	U	N	AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CYANIDE_ONLY.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMZ9

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO602 SAS No.: SDG No.: W0068
Matrix (soil/water): WATER Lab Sample ID: AA9951
Level (low/med): LOW Date Received: 05/27/94
% Solids: 0.0

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

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	40.0	U		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	2.0	U		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	88.3	B	u	P
7440-47-3	Chromium	10.0	U		P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	26.9	B		P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	30.0	U		P
7439-96-5	Manganese	2.0	U		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	1000	U		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	244	B	u	P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.0	U		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture: N/A
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED.

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Client Sample ID:	BOBMW8	Preparation Date:	06/13/94
Lab Sample ID:	AA9611	Analysis Date:	06/13/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	6.0	+	2.0
phosphate	1.0	~~U~~ UR	1.0
sulfate	73	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Client Sample ID:	BOBMY0	Preparation Date:	06/13/94
Lab Sample ID:	AA9625	Analysis Date:	06/13/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	1.4	+	0.4
phosphate	1.0	JUR	1.0
sulfate	17	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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9-7-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMZ2	Preparation Date:	06/06/94
Lab Sample ID:	AA9737	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.4	U	0.4
chloride	0.4	U	0.4
phosphate	1.0	U UR	1.0
sulfate	1.5	U	1.5

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMP0	Preparation Date:	06/06/94
Lab Sample ID:	AA9704	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.76	+	0.4
chloride	11	+	2.0
phosphate	1.0	UR	1.0
sulfate	57	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Client Sample ID:	BOBMX2	Preparation Date:	06/06/94
Lab Sample ID:	AA9720	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.5	+	0.4
chloride	12	+	2.0
phosphate	1.0	UR	1.0
sulfate	65	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Client Sample ID:	BOBMZ8	Preparation Date:	06/06/94
Lab Sample ID:	AA9925	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	0.40	U	0.40
phosphate	1.0	JUR	1.0
sulfate	1.5	U	1.5

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/15/94, 06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6330	20	U
BOBMW8	AA9619	20	U
BOBMY0	AA9633	48	+ J

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6330	20	U
BOBMP0	AA9713	20	U
BOBMX2	AA9729	20	U
BOBMZ2	AA9747	20	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/22/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6340	20	U
BOBMZ8	AA9942	22	* J

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMZ8	AA9931	1	U

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U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMP0	AA9712	1	U
BOBMX2	AA9728	2	+
BOBMZ2	AA9746	1	U

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6328	1	U
BOBMW8	AA9618	5	+
BOBMY0	AA9632	1	U

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6274	1	U
BOBMZ8	AA9939	81	+ J

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6271	1	U
BOBMX2	AA9723	517	+ J
BOBMZ2	AA9740	3	+ J
BOBMP0	AA9707	292	+ J

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 6-1-94

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6270	1	U
BOBMW8	AA9620	811	+ J
BOBMY0	AA9634	136	+ J

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6277	1	U
BOBMZ8	AA9927	4	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6265	1	U
BOBMP0	AA9708	40	J
BOBMX2	AA9724	19	+
BOBMZ2	AA9741	3	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/25/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6263	1	U
BOBMW8	AA9614	8	+
BOBMY0	AA9628	5	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMZ8	AA9925	3	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-7-94

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMP0	AA9704	488	+
BOBMX2	AA9720	702	+
BOBMZ2	AA9737	4	+

BM 6-7-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SPECIFIC CONDUCTIVITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	06/10/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6308	1	U
BOBMW8	AA9611	1200	+
BOBMY0	AA9625	202	+

BM 9-7-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/31/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMZ8	AA9925	4.65	J

BM
6-7-94

* - A method blank is not applicable for this analysis.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/26/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMP0	AA9704	7.65	J
BOBMZ2	AA9737	4.88	J
BOBMX2	AA9720	7.82	J
BOBMY0		7.44	R
BOBMW8		7.18	J

* - A method blank is not applicable for this analysis.

BM 91-94

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/25/94, 07/06/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	*	-		-
BOBMW8	AA9611	7.18	J	-
BOBMY0	AA9625	7.44	J	-

* - A method blank is not applicable for this analysis.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMZ8	AA9926	0.02	U

BM 9-7-94

Note: CCB subtracted from sample result.

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMP0	AA9705	4.14	+
BOBMX2	AA9721	21.2	+
BOBMZ2	AA9738	0.06	+

BM 9-7-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

NITRATE/NITRITE-ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6280	0.02	U
BOBMW8	AA9612	0.88	+
BOBMY0	AA9626	0.63	+

BM 9-7-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-St. Louis	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579, 583 & 602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/15/94 & 06/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
BOBMY0	5329-011	5	U
BOBMW8	5329-010	15	+
BOBMZ2	5329-017	5	U
BOBMP0	5329-018	5	U
BOBMX2	5329-019	5	U
BOBMZ8	5329-020	10	+

BM 9-7-94 use ITAS - Knox

Sample BOBMY0 was analyzed on June 15, 1994.

Samples BOBMW8, BOBMZ2, BOBMP0, BOBMX2 and BOBMZ8 were analyzed on June 16, 1994.

BM 9-7-94

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMX2	AA9725	5	+
BOBMP0	AA9709	5	+
BOBMZ2	AA9742	1	U

BM 9-1-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
* - A method blank is not applicable for this analysis.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/06/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMY0	AA9629	1	U
BOBMW8	AA9615	14	+

BM 6-7-94

+ - Positive result.
* - A method blank is not applicable for this analysis.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6334	0.1	U
BOBMZ8	AA9928	0.1	U

BM 6-7-94

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6315	0.1	U
BOBMP0	AA9709	0.1	U
BOBMZ2	AA9742	0.1	U
BOBMX2	AA9725	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/14/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6315	0.1	U
BOBMY0	AA9629	0.1	U
BOBMW8	AA9615	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	602
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/08/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6294	2	U
BOBMZ8	AA9937	4	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	583
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/27/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6268	2	U
BOBMZ2	AA9739	2	U
BOBMP0	AA9706	150	+
BOBMX2	AA9722	194	+

BM 9-7-94

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0068
Contract Name:	Westinghouse Hanford	Job Number:	579
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/27/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6268	2	U
BOBMW8	AA9613	482	+
BOBMY0	AA9627	78	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-7-94

9613479.1659

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	SDG:	W0068
LAB SAMPLE ID:	40544802	MATRIX:	WATER
CLIENT ID:	B0BMY0	DATE RECEIVED:	5/20/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	4.31E-02	1.28E-01	1.29E-01	3.38E-01	pCi/L	57.30%	RD3302
	PU-238	U	0.00E+00	0.00E+00	1.99E-01	1.80E-01	pCi/L	62.80%	RD3209
	PU239/40	U	2.52E-01	2.67E-01	2.70E-01	3.18E-01	pCi/L	62.80%	RD3209
R	U-234		7.66E+00	1.22E+00	1.56E+00	2.88E-01	pCi/L	85.70%	RD3234
UR	U-235		1.30E-01	1.69E-01	1.70E-01	2.60E-01	pCi/L	85.70%	RD3234
R	U-238DA		5.91E+00	1.07E+00	1.31E+00	3.01E-01	pCi/L	85.70%	RD3234
	CO-58	U	4.98E+00	4.87E+00	4.89E+00	1.10E+01	pCi/L	N/A	RD3219
	CO-60	U	-9.24E-01	4.10E+00	4.10E+00	7.45E+00	pCi/L	N/A	RD3219
	CS-137DA	U	8.04E-01	3.63E+00	3.63E+00	6.93E+00	pCi/L	N/A	RD3219
	EU-152	U	-6.08E-01	9.34E+00	9.34E+00	1.69E+01	pCi/L	N/A	RD3219
	EU-154	U	-5.98E+00	1.47E+01	1.47E+01	2.59E+01	pCi/L	N/A	RD3219
	EU-155	U	-3.43E+00	8.41E+00	8.41E+00	1.32E+01	pCi/L	N/A	RD3219
	FE-59	U	9.62E+00	1.09E+01	1.09E+01	2.51E+01	pCi/L	N/A	RD3219
	ALPHA		1.37E+00	6.97E-01	7.26E-01	7.88E-01	pCi/L	100.00%	RD3214
	BETA		3.62E+01	3.20E+00	4.09E+00	3.13E+00	pCi/L	100.00%	RD3214
	STRONTIUM		1.74E+01	1.20E+00	4.79E+00	7.57E-01	pCi/L	100.00%	RD3204
	C-14	U	1.13E-01	1.51E+00	3.15E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-4.26E-01	9.33E-01	4.14E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	U	8.38E+01	1.05E+02	1.98E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

Recalculated Results

U234	.4963		.292	J
U235	.0910	U	.258	UJ
U238	.4797		.344	J

000135

9613479.1660

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550903	**MATRIX:**	WATER
CLIENT ID:	B0BMZ2	**DATE RECEIVED:**	5/24/94

Validated Q	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	1.12E-01	1.65E-01	1.66E-01	2.34E-01	pCi/L	62.50%	RD3302
	PU-238	U	0.00E+00	0.00E+00	2.17E-01	1.96E-01	pCi/L	57.60%	RD3209
	PU239/40	U	-1.45E-02	2.89E-02	2.90E-02	3.46E-01	pCi/L	57.60%	RD3209
UJ	U-234	U	1.39E-01	1.80E-01	1.81E-01	2.76E-01	pCi/L	80.60%	RD3234
UJ	U-235	U	3.10E-02	1.05E-01	1.05E-01	2.92E-01	pCi/L	80.60%	RD3234
UJ	U-238DA	U	-8.27E-03	1.17E-02	1.18E-02	2.36E-01	pCi/L	80.60%	RD3234
	CO-58	U	-3.57E+00	5.00E+00	5.01E+00	8.04E+00	pCi/L	N/A	RD3219
	CO-60	U	3.43E-01	4.29E+00	4.29E+00	8.58E+00	pCi/L	N/A	RD3219
	CS-137DA	U	7.98E-01	2.96E+00	2.96E+00	5.96E+00	pCi/L	N/A	RD3219
	EU-152	U	7.79E+00	1.08E+01	1.08E+01	1.95E+01	pCi/L	N/A	RD3219
	EU-154	U	9.50E+00	1.08E+01	1.09E+01	2.52E+01	pCi/L	N/A	RD3219
	EU-155	U	5.31E+00	8.39E+00	8.40E+00	1.49E+01	pCi/L	N/A	RD3219
	FE-59	U	9.66E+00	1.04E+01	1.04E+01	2.45E+01	pCi/L	N/A	RD3219
	ALPHA	U	-1.01E-01	2.02E-01	2.03E-01	6.61E-01	pCi/L	100.00%	RD3214
	BETA	U	5.04E-01	1.27E+00	1.27E+00	2.76E+00	pCi/L	100.00%	RD3214
	STRONTIUM	U	1.76E-01	3.24E-01	3.27E-01	7.90E-01	pCi/L	95.60%	RD3204
	C-14	U	9.01E-02	1.51E+00	3.15E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-1.16E+00	9.13E-01	4.09E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	U	5.58E+01	1.04E+02	1.97E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

CMO 7/14/94

~~0013~~

000134

CMO 8-27-94

682A-6-93

9613479.1661

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40544802	**MATRIX:**	WATER
CLIENT ID:	B0BMY0	**DATE RECEIVED:**	5/20/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	4.31E-02	1.28E-01	1.29E-01	3.38E-01	pCi/L	57.30%	RD3302
	PU-238	U	0.00E+00	0.00E+00	1.99E-01	1.80E-01	pCi/L	62.80%	RD3209
	PU239/40	U	2.52E-01	2.67E-01	2.70E-01	3.18E-01	pCi/L	62.80%	RD3209
R	U-234		7.66E+00	1.22E+00	1.56E+00	2.88E-01	pCi/L	85.70%	RD3234
UR	U-235		1.30E-01	1.69E-01	1.70E-01	2.60E-01	pCi/L	85.70%	RD3234
R	U-238DA		5.91E+00	1.07E+00	1.31E+00	3.01E-01	pCi/L	85.70%	RD3234
MW 8.28.94	CO-58	U	4.98E+00	4.87E+00	4.89E+00	1.10E+01	pCi/L	N/A	RD3219
	CO-60	U	-9.24E-01	4.10E+00	4.10E+00	7.45E+00	pCi/L	N/A	RD3219
	CS-137DA	U	8.04E-01	3.63E+00	3.63E+00	6.93E+00	pCi/L	N/A	RD3219
	EU-152	U	-6.08E-01	9.34E+00	9.34E+00	1.69E+01	pCi/L	N/A	RD3219
	EU-154	U	-5.98E+00	1.47E+01	1.47E+01	2.59E+01	pCi/L	N/A	RD3219
	EU-155	U	-3.43E+00	8.41E+00	8.41E+00	1.32E+01	pCi/L	N/A	RD3219
	FE-59	U	9.62E+00	1.09E+01	1.09E+01	2.51E+01	pCi/L	N/A	RD3219
	ALPHA		1.37E+00	6.97E-01	7.26E-01	7.88E-01	pCi/L	100.00%	RD3214
	BETA		3.62E+01	3.20E+00	4.09E+00	3.13E+00	pCi/L	100.00%	RD3214
	STRONTIUM		1.74E+01	1.20E+00	4.79E+00	7.57E-01	pCi/L	100.00%	RD3204
	C-14	U	1.13E-01	1.51E+00	3.15E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-4.26E-01	9.33E-01	4.14E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	U	8.38E+01	1.05E+02	1.98E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

Recalculated Results

			MDA	MW 8.29.94
U234	.4963		.1292	UJ
U235	.0910	U	.1258	UJ
U238	.4797		.1344	J

~~0010~~ CMK 9/1

MW 8.27.94 000135

9613479.1662

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40544801	**MATRIX:**	WATER
CLIENT ID:	B0BMW8	**DATE RECEIVED:**	5/20/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	-1.43E-02	1.65E-02	1.67E-02	2.98E-01	pCi/L	60.90%	RD3302
	PU-238	U	0.00E+00	0.00E+00	1.61E-01	1.45E-01	pCi/L	77.90%	RD3209
	PU239/40	U	0.00E+00	0.00E+00	1.61E-01	1.45E-01	pCi/L	77.90%	RD3209
UJ	U-234	J	2.82E-01	2.63E-01	2.65E-01	3.55E-01	pCi/L	78.10%	RD3234
UJ	U-235	J	4.48E-02	1.07E-01	1.08E-01	2.44E-01	pCi/L	78.10%	RD3234
J	U-238DA		3.12E-01	2.62E-01	2.65E-01	2.44E-01	pCi/L	78.10%	RD3234
	CO-58	U	1.85E-01	5.63E+00	5.63E+00	1.05E+01	pCi/L	N/A	RD3219
	CO-60	U	-6.57E+00	4.92E+00	4.97E+00	6.43E+00	pCi/L	N/A	RD3219
	CS-137DA	U	4.11E+00	4.74E+00	4.76E+00	9.69E+00	pCi/L	N/A	RD3219
	EU-152	U	-3.08E+00	1.07E+01	1.07E+01	1.85E+01	pCi/L	N/A	RD3219
	EU-154	U	8.05E+00	1.40E+01	1.41E+01	3.03E+01	pCi/L	N/A	RD3219
	EU-155	U	-1.92E+00	9.42E+00	9.43E+00	1.47E+01	pCi/L	N/A	RD3219
	FE-59	U	-1.18E+01	1.65E+01	1.66E+01	2.62E+01	pCi/L	N/A	RD3219
	ALPHA		1.36E+01	3.87E+00	4.13E+00	3.30E+00	pCi/L	100.00%	RD3214
	BETA		7.97E+01	4.74E+00	7.31E+00	3.16E+00	pCi/L	100.00%	RD3214
	STRONTIUM	U	-1.37E-01	3.69E-01	3.71E-01	1.01E+00	pCi/L	70.40%	RD3204
	C-14	no U final	2.52E+02	3.80E+00	1.36E+01	4.72E+00	pCi/L	100.00%	RD3263
U	TC-99	J	3.97E+00	9.92E-01	4.47E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	8-25-94	9.83E+04	8.56E+02	7.29E+03	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

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682A-6-93

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550902	**MATRIX:**	WATER
CLIENT ID:	B0BMX2	**DATE RECEIVED:**	5/24/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	6.73E-02	1.47E-01	1.47E-01	2.94E-01	pCi/L	49.60%	RD3302
	PU-238	U	-2.59E-02	3.66E-02	3.68E-02	3.66E-01	pCi/L	64.50%	RD3209
	PU239/40	U	1.16E-01	1.85E-01	1.86E-01	3.09E-01	pCi/L	64.50%	RD3209
J	U-234		5.80E+00	1.05E+00	1.28E+00	1.93E-01	pCi/L	86.90%	RD3234
UJ	U-235	U	1.36E-01	1.66E-01	1.67E-01	2.19E-01	pCi/L	86.90%	RD3234
J	U-238DA		3.63E+00	8.36E-01	9.53E-01	2.39E-01	pCi/L	86.90%	RD3234
	CO-58	U	1.15E+00	5.17E+00	5.17E+00	9.92E+00	pCi/L	N/A	RD3219
	CO-60	U	2.86E+00	3.97E+00	3.98E+00	8.78E+00	pCi/L	N/A	RD3219
	CS-137DA	U	1.84E+00	3.82E+00	3.82E+00	7.35E+00	pCi/L	N/A	RD3219
	EU-152	U	-2.13E+00	9.53E+00	9.53E+00	1.67E+01	pCi/L	N/A	RD3219
	EU-154	U	-3.73E+00	1.29E+01	1.29E+01	2.36E+01	pCi/L	N/A	RD3219
	EU-155	U	-5.03E+00	8.24E+00	8.25E+00	1.22E+01	pCi/L	N/A	RD3219
	FE-59	U	-4.12E+00	9.11E+00	9.12E+00	1.65E+01	pCi/L	N/A	RD3219
	ALPHA		8.87E+00	2.30E+00	2.46E+00	1.61E+00	pCi/L	100.00%	RD3214
	BETA		1.03E+01	2.09E+00	2.22E+00	3.07E+00	pCi/L	100.00%	RD3214
	STRONTIUM	U	-1.23E-01	3.70E-01	3.71E-01	1.02E+00	pCi/L	67.00%	RD3204
	C-14	U	4.55E+00	1.58E+00	3.27E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-4.93E-01	9.30E-01	4.14E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM		1.15E+04	3.06E+02	9.78E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40550901	**MATRIX:**	WATER
CLIENT ID:	B0BMP0	**DATE RECEIVED:**	5/24/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	-1.91E-02	1.91E-02	1.93E-02	3.18E-01	pCi/L	61.00%	RD3302
	PU-238	U	0.00E+00	0.00E+00	1.76E-01	1.59E-01	pCi/L	71.20%	RD3209
	PU239/40	U	4.69E-02	1.19E-01	1.20E-01	2.80E-01	pCi/L	71.20%	RD3209
J	U-234		2.73E+00	8.24E-01	9.04E-01	3.64E-01	pCi/L	67.90%	RD3234
UJ	U-235	U	1.13E-01	1.74E-01	1.75E-01	2.81E-01	pCi/L	67.90%	RD3234
J	U-238DA		1.63E+00	6.39E-01	6.76E-01	3.47E-01	pCi/L	67.90%	RD3234
	CO-58	U	4.41E+00	4.70E+00	4.72E+00	1.02E+01	pCi/L	N/A	RD3219
	CO-60	U	9.45E-01	3.29E+00	3.29E+00	7.27E+00	pCi/L	N/A	RD3219
	CS-137DA	U	5.85E-01	4.34E+00	4.34E+00	8.02E+00	pCi/L	N/A	RD3219
	EU-152	U	-3.30E+00	1.07E+01	1.07E+01	1.75E+01	pCi/L	N/A	RD3219
	EU-154	U	6.26E+00	1.51E+01	1.51E+01	2.99E+01	pCi/L	N/A	RD3219
	EU-155	U	3.69E-01	9.25E+00	9.25E+00	1.57E+01	pCi/L	N/A	RD3219
	FE-59	U	-1.88E+00	1.53E+01	1.53E+01	2.77E+01	pCi/L	N/A	RD3219
	ALPHA		2.62E+00	1.18E+00	1.21E+00	1.29E+00	pCi/L	100.00%	RD3214
	BETA		8.55E+00	1.96E+00	2.05E+00	3.02E+00	pCi/L	100.00%	RD3214
	STRONTIUM	U	2.48E-01	3.35E-01	3.41E-01	7.90E-01	pCi/L	97.30%	RD3204
	C-14		1.49E+00	1.53E+00	3.18E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-8.34E-01	9.13E-01	4.11E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	U	1.82E+02	1.08E+02	2.03E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

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682A-6-93

8-27-94

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	40557301	**MATRIX:**	WATER
CLIENT ID:	B0BMZ8	**DATE RECEIVED:**	5/26/94

	ISOTOPE		RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
	AM-241	U	5.16E-02	1.13E-01	1.13E-01	2.26E-01	pCi/L	64.70%	RD3302
	PU-238	U	0.00E+00	0.00E+00	2.13E-01	1.92E-01	pCi/L	58.80%	RD3209
	PU239/40	U	0.00E+00	0.00E+00	2.13E-01	1.92E-01	pCi/L	58.80%	RD3209
UJ	U-234	U	-3.31E-02	2.34E-02	2.38E-02	3.33E-01	pCi/L	80.50%	RD3234
UJ	U-235	U	-8.28E-03	1.17E-02	1.18E-02	2.36E-01	pCi/L	80.50%	RD3234
UJ	U-238DA	U	1.99E-01	2.07E-01	2.09E-01	2.36E-01	pCi/L	80.50%	RD3234
	CO-58	U	5.60E+00	5.07E+00	5.10E+00	1.14E+01	pCi/L	N/A	RD3219
	CO-60	U	-5.96E+00	5.06E+00	5.09E+00	7.15E+00	pCi/L	N/A	RD3219
	CS-137DA	U	-2.46E+00	5.06E+00	5.06E+00	8.71E+00	pCi/L	N/A	RD3219
	EU-152	U	-3.54E+00	9.79E+00	9.80E+00	1.70E+01	pCi/L	N/A	RD3219
	EU-154	U	-1.61E+00	1.16E+01	1.16E+01	2.15E+01	pCi/L	N/A	RD3219
	EU-155	U	1.37E+00	9.78E+00	9.78E+00	1.62E+01	pCi/L	N/A	RD3219
	FE-59	U	-1.08E+01	1.51E+01	1.51E+01	2.36E+01	pCi/L	N/A	RD3219
	ALPHA	U	3.96E-02	2.63E-01	2.63E-01	6.59E-01	pCi/L	100.00%	RD3214
	BETA	U	7.55E-01	1.27E+00	1.27E+00	2.70E+00	pCi/L	100.00%	RD3214
	STRONTIUM	U	3.77E-01	3.41E-01	3.55E-01	7.74E-01	pCi/L	100.00%	RD3204
	C-14	U	1.42E+00	1.53E+00	3.18E+00	4.72E+00	pCi/L	100.00%	RD3263
	TC-99	U	-9.09E-01	9.10E-01	4.10E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001
	TRITIUM	U	7.07E+01	1.04E+02	1.97E+02	2.38E+02	pCi/L	97.30%	RD3205

Number of Results: 19

Checklists

9613479.1667

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: W0068-ITC-079	
VALIDATOR: B. MORRIS	LATA NO.: VW401.72	DATE: 8-29-94
SAF NO.:	LAB: IT	CASE:
QAPP REFERENCE:	SAP REFERENCE:	

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☒ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (pac column)	☐ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 8270 (pac column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX B0BMW8, B0BMX0, B0BMY0, B0BM42, B0BMP0, B0BMP2, B0BMX2, B0BMX4, B0BMZ2, B0BMZ6, B0BMZ8, B0BN00

ALL WATER

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments:

2. HOLDING TIMES *(see HOLDING TIME SUMMARY form)*

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

Comments: B0BMP0 and B0BMP2 were analysed 15d after sampling. Samples qualified J/UJ.

Mw 9-9-94 Peer Review

3. INSTRUMENT TUNING AND CALIBRATION *(see CALIBRATION DATA SUMMARY form)*

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

★ **VOA:** Verify the calculation of the mass abundance percentages for the 95/96, 176/177 and 174/176 ratios.

★ **SVOA:** Verify the calculation of the mass abundance percentages for the 199/198 and 443/442 ratios.

Are initial calibrations acceptable? . . . . . (Yes) No N/A

★ Verify the RRF and %RSD values and recalculate the individual and average RRF values and RSD values for two TCL compounds for Volatiles (V) and Semivolatiles (S).

★

Relative Response Factor

$$RRF = \frac{A_x C_{is}}{A_{is} C_x}$$

where:
A_x (V/S) = area of the characteristic ion measured for the sample
A_{is} (V/S) = area of the characteristic ion measured for the internal standard
C_x (V/S) = concentration [(VOA ng) (SVOA ng/µL)] of the compound of interest
C_{is} (V/S) = concentration [(VOA ng) (SVOA ng/µL)] of the associated internal standard

★

Relative Standard Deviation

$$\%RSD = \frac{STDEV}{MEAN} \times 100$$

where:
MEAN = mean of the initial five relative response factors
STDEV = standard deviation of the initial five RRFs per compound

$$= \sqrt{\sum_{i=1}^{n} \frac{(RRF_i - RRF)^2}{n-1}}$$

BM 9-20-94

Are continuing calibrations acceptable? . . . . . (Yes) (No) N/A

★ Verify that the RRF and %D values are within the required limits and recalculate the individual RRF and %D values for at least two TCL compounds for Volatiles (V) and Semivolatiles (S).

★

Percent Difference

$$\%D = \frac{(RRF_i - RRF_s)}{RRF_i} \times 100$$

where:
RRF_i (V/S) = initial calibration average relative response factor
RRF_s (V/S) = continuing calibration average relative response factor

%D

Comments: Vinyl chloride (29.3%) and 1,1,2,2-tetrachloroethane (33.5%) are est. in BOBMZ6, BOBMZ2 BOBMX4, BOBMX2, BOBMP2, BOBMP0 and ~~BOBMP2-trip blank~~ BM 9-20-94

Carbon Tet. and 1,1,1-trichloroethane are est. in BOBN00, BOBMZ8 and Vinyl Chloride 33.6%, BOBMX8, MX0, MP2, MY0 [~~BOBN00 trip blank~~ BM 9/20/94]

BM 9/21/94

LATA GC/MS DATA VALIDATION CHECKLIST

4. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

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

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

Comments: Trip Blanks: BOBMY2, Acetone - 11 µg/L

Method Blank for BOBMZ8, BOBNOO ~~and BOBNOO type Blank~~ BM 9-20-96

Contained Methylene Chloride, Acetone, ~~2-Hexanone, Tetrachloroethene~~

and an unknown TIC. The Sample results are not 10x Blank or

5x Blank; qualified undetected.

5. ACCURACY *(see ACCURACY DATA SUMMARY form)*

Were surrogates/System Monitoring Compounds analyzed? ..... (Yes) No N/A

Are all surrogate/System Monitoring Compound recoveries acceptable? ..... (Yes) No N/A

★

Surrogate Recovery

$$\%R = \left(\frac{Q_d}{Q_a}\right) \times 100$$

where:
Q_d (V/S) = quantity of surrogate determined (analysis result)
Q_a (V/S) = quantity of surrogate added (true value)

Were MS/MSD samples analyzed? ..... (Yes) No N/A

Are all MS/MSD recoveries acceptable? ..... (Yes) No N/A

★

Spike Recovery

$$MS\%R = \frac{MS - OS}{SA} \times 100 \quad \text{or} \quad MSD\%R = \frac{MSD - OS}{SA} \times 100$$

where:
MS/MSD (V/S) = spiked sample result
OS (V/S) = sample result
SA (V/S) = spike added

Comments: _____

CMS 9/19/97

LATA GC/MS DATA VALIDATION CHECKLIST

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all MS/MSD RPD values acceptable? ..... (Yes) No N/A

★

$$\text{RPD} = \frac{|\text{MS} - \text{MSD}|}{\left(\frac{\text{MS} + \text{MSD}}{2}\right)} \times 100$$

Relative Percent Difference

where =
MS = MS recovery
MSD = MSD recovery

Comments: _____

7. FIELD QC SAMPLES

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified? (Yes) No N/A

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

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

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

Are performance audit sample results acceptable? ..... Yes No (N/A)

Comments: BOBMY2: Acetone, 11, Meth-Chloride 3
BOBMP2: Acetone 8
BOBV00: undetected
It appears that the trip blanks are contaminated by the method (LAB
Since Method blanks have the same contamination.

8. SYSTEM PERFORMANCE

Were internal standards analyzed? ..... (Yes) No N/A

Are internal standard areas acceptable? ..... (Yes) No N/A

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

Comments: _____

9. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? ..... Yes (No) N/A

Is compound quantitation acceptable? ..... (Yes) No N/A

★

Results Calculations for VOA water (VW) samples

$$\text{Concentration } (\mu g/L) = \frac{(A_x VW)\,(I_s VW)\,(D_f VW)}{(A_{is} VW)\,(RRFVW)\,(V_o VW)}$$

where:

$A_x VW$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VW$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VW$ = amount of internal standard added (ng)
RRFVW = relative response factor (ambient temperature purge of the calibration standard)
$V_o VW$ = volume of water purged (ml)
$D_f VW$ = dilution factor

★

Results Calculations for VOA soil/sediment (VLS) samples (low level)

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x VLS)\,(I_s VLS)}{(A_{is} VLS)\,(RRFVLS)\,(W_s VLS)\,(SVLS)}$$

where:

$A_x VLS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VLS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VLS$ = amount of internal standard added (ng)
RRFVLS = relative response factor (ambient temperature purge of the calibration standard)
$W_s VLS$ = weight of sample added (g)
SVLS = dry weight conversion factor [(100 - %moisture)/100]

★

Results Calculations for VOA soil/sediment (VMS) samples (medium level)

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x VMS)\,(I_s VMS)\,(V_t VMS)\,(1000)\,(D_f VMS)}{(A_{is} VMS)\,(RRFVMS)\,(V_a VMS)\,(W_s VMS)\,(SVMS)}$$

where:

$A_x VMS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VMS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VMS$ = amount of internal standard added (ng)
RRFVMS = relative response factor (ambient temperature purge of the calibration standard)
$W_s VMS$ = weight of sample extracted (g)
$D_f VMS$ = dilution factor
SVMS = dry weight conversion factor [(100 - %moisture)/100]
$V_t VMS$ = total volume methanol extract (ml)
$V_a VMS$ = volume of the aliquot (ml)

9. COMPOUND IDENTIFICATION AND QUANTITATION (continued)

★

Results Calculations for SVOA water (SW) samples

$$\text{Concentration } (\mu g/L) = \frac{(A_x SW)\,(I_s SW)\,(V_t SW)\,(D_f SW)}{(A_{is} SW)\,(RRFSW)\,(V_o SW)\,(V_i SW)}$$

where:
$A_x SW$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} SW$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s SW$ = amount of internal standard added (ng)
RRFSW = relative response factor for the daily calibration standard
$V_o SW$ = volume of water extracted (ml)
$V_i SW$ = volume of extract injected (µL)
$V_t SW$ = volume of concentrated extract (µL)
$D_f SW$ = dilution factor

★

Results Calculations for SVOA soil/sediment (SS) samples

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x SS)\,(I_s SS)\,(V_t SS)\,(D_f SS)}{(A_{is} SS)\,(RRFSS)\,(V_i SS)\,(W_s SS)\,(SSS)}$$

where:
$A_x SS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} SS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s SS$ = amount of internal standard added (ng)
RRFSS = relative response factor for the daily calibration standard
$W_s SS$ = weight of sample extracted (g)
$D_f SS$ = dilution factor
SSS = dry weight conversion factor [(100 - %moisture)/100]
$V_t SS$ = total volume of concentrated extract (µL)
$V_i SS$ = volume of the extract injected (µL)

Comments: BoBMPO -> Acetone SJ, retention times match and Molecular ion.

10. REPORTED RESULTS AND QUANTITATION LIMITS

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

Comments:

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

MINOR → Continuing Calibration criteria for Vinyl Chloride was exceeded. The Sample results for BOBMW8, BOBMX0, BOBMY0, BOBMY2 and ~~BOBMY2 trip Blank~~ are qualified as estimated. BM 9-17-94

MINOR DEFICIENCIES: Holding times for BOBMP0 and BOBMP2 were exceeded. The Sample results are qualified as estimated.

The Continuing Calibration criteria was exceeded by Vinyl Chloride and 1,1,2,2-Tetrachloroethane. The Sample results for BOBMZ6, BOBMZ2, BOBMX4, BOBMX2, BOBMP2, BOBMP0 and ~~BOBMP2 trip~~ BM 9-17-94 are qualified as estimated.

The Continuing Calibration criteria was exceeded by Carbon tetrachloride and 1,1,1-trichloroethane. The Sample results for BOBN00, BOBMZ8 and ~~BOBN00 trip~~ BM 9-17-94 are qualified as estimated. BM 9-12-94

The method blank for BOBMZ8, BOBN00 and ~~BOBN00 trip~~ contained methylene Chloride, acetone, ~~2-Hexanone, tetrachloroethane~~ BM 9-20-94 and an unknown TIC. The Sample results are qualified as undetected.

Acetone was incorrectly reported as undetected in BOBMP0. The Corrected result is 5 J.

COMMENTS: BOBMY0 and BOBMY2 were project identified duplicates. ~~BOBMZ2, BOBMZ6, BOBMZ8 and BOBN00 were project identified equipment blanks.~~ BM 8-30-94

Trip Blank analyses were performed on BOBMY2, BOBMP2 and BOBN00. BOBMY2 contained acetone at 11 µg/L and methylene chloride at 3 µg/L, while BOBMP2 contained acetone at 8 µg/L. ~~and no~~ NO BM 8-30-94 Contaminants were found in BOBN00.

BOBMZ2, BOBMZ6, BOBMZ8 and BOBN00 were project identified equipment blanks. BOBMZ8 and BOBN00 had estimated non-detects for Carbon tetrachloride and 1,1,1-trichloroethane. BOBMZ2 contained Methylene Chloride (1 µg/L) and Acetone (7 µg/L). BOBMZ6 contained Methylene chloride (1 µg/L) and Acetone (12 µg/L).

CMP 9/19/94

HOLDING TIME SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. MORRIS	DATE: 8-30-94	PAGE __ OF __
COMMENTS: GC/MS			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMP0	VOA	5-17-94	N/A	6-1-94	0	15	J/UJ
BOBMP2	VOA	5-17-94	N/A	6-1-94	0	↓	↓
BOBMP2	TRIP BLANK	5-17-94	N/A	6-1-94	0	↓	↓

PNO-DVF-017, R1

000148

96134979.167y

CALIBRATION DATA SUMMARY

SDG: W0068 - ITC - 079	VALIDATOR: B. MORRIS	DATE: 8-30-94	PAGE__OF__
COMMENTS: GC/MS			

CALIB. TYPE:	INITIAL	CONT.	INSTRUMENT:			
CALIB. DATE	COMPOUND		RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
6-1-94	Vinyl Chloride			%D ~~%RSD~~ > 25 (29.3)	BOBMZ6, BOBMZ2, BOBMX4, BOBMX2, BOBMP2, ~~BOBMP2 trip~~, BOBMP0	J/UJ
↓	1,1,2,2-tetraChloroEthane		BM 8-30-94	~~%RSD~~ > 25 (33.5)		
6-3-94	Carbon Tetrachloride			~~%RSD~~ > 25 (31.2)	~~BOBMZ8~~, BOBN00, ~~BOBN00 trip~~	J/UJ
↓	1,1,1-Trichloroethane			~~%RSD~~ > 25 (27.8)	↓	↓
5-27-94	Vinyl Chloride			%D > 25 (33.6)	BOBMW8, MX0, MY0, MY2, ~~BOBMY2 trip~~	UJ

PNO-DVF-017, R1

BLANK AND SAMPLE DATA SUMMARY

BM 8-30-94

SDG: W0068-ITC-079	VALIDATOR: B. Morris	DATE: 8-30-94	PAGE__OF__

COMMENTS: GC/MS

FIELD SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
Method Blank	Methylene Chloride	1	J		ug/L	5	10	B0BMZ8	U
	Acetone	5	J			25	50	B0BN00	
	~~2-Hexanone~~	~~4~~	~~J~~			~~20~~	~~40~~	B0B3N00 TRIP	
	~~1,1,2,2-Tetrachloroethane~~	~~1~~	~~J~~			~~5~~	~~10~~		
				TBM 9-20-94					

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Instrument ID: I500A Calibration date: 06/03/94 Time: 1107

Lab File ID: WS0603 Init. Calib. Date(s): 05/22/94 05/22/94

Heated Purge: (Y/N) N Init. Calib. Times: 1321 1536

GC Column: DB624 ID: 0.530(mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.162	1.264		-8.8	
Bromomethane	1.270	1.481	0.100	-16.6	25.0
Vinyl Chloride	1.095	1.231	0.100	-12.4	25.0
Chloroethane	0.891	0.895		-0.4	
Methylene Chloride	1.143	1.193		-4.4	
Acetone	0.188	0.179		4.8	
Carbon Disulfide	2.650	3.001		-13.2	
1,1-Dichloroethene	0.961	1.065	0.100	-10.8	25.0
1,1-Dichloroethane	2.101	2.182	0.200	-3.9	25.0
1,2-Dichloroethene (total)	1.294	1.220		5.7	
Chloroform	2.435	2.513	0.200	-3.2	25.0
1,2-Dichloroethane	1.388	1.388	0.100	0.0	25.0
2-Butanone	0.409	0.281		31.3	
1,1,1-Trichloroethane	0.507	0.648	0.100	-27.8	25.0
Carbon Tetrachloride	0.477	0.626	0.100	-31.2	25.0
Bromodichloromethane	0.539	0.588	0.200	-9.1	25.0
1,2-Dichloropropane	0.362	0.386		-6.6	
cis-1,3-Dichloropropene	0.432	0.459	0.200	-6.2	25.0
Trichloroethene	0.423	0.459	0.300	-8.5	25.0
Dibromochloromethane	0.514	0.545	0.100	-6.0	25.0
1,1,2-Trichloroethane	0.349	0.352	0.100	-0.9	25.0
Benzene	0.960	1.154	0.500	-20.2	25.0
trans-1,3-Dichloropropene	0.345	0.355	0.100	-2.9	25.0
Bromoform	0.433	0.448	0.100	-3.5	25.0
4-Methyl-2-Pentanone	0.340	0.245		27.9	
2-Hexanone	0.223	0.143		35.9	
Tetrachloroethene	0.493	0.491	0.200	0.4	25.0
1,1,2,2-Tetrachloroethane	0.746	0.608	0.500	18.5	25.0
Toluene	0.971	0.925	0.400	4.7	25.0
Chlorobenzene	0.907	0.893	0.500	1.5	25.0
Ethylbenzene	0.363	0.354	0.100	2.5	25.0
Styrene	0.798	0.792	0.300	0.8	25.0
Xylene (total)	0.464	0.451	0.300	2.8	25.0
Toluene-d8	1.039	0.962		7.4	
4-Bromofluorobenzene	0.915	0.874	0.200	4.5	25.0
1,2-Dichloroethane-d4	1.402	1.351		3.6	

All other compounds must meet a minimum RRF of 0.010.

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Instrument ID: I500A Calibration date: 06/01/94 Time: 1043

Lab File ID: WS06012 Init. Calib. Date(s): 05/22/94 05/22/94

Heated Purge: (Y/N) N Init. Calib. Times: 1321 1536

GC Column: DB-624 ID: 0.530(mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.162	0.682		41.3	
Bromomethane	1.270	1.117	0.100	12.0	25.0
Vinyl Chloride	1.095	0.774	0.100	29.3	25.0
Chloroethane	0.891	0.728		18.3	
Methylene Chloride	1.143	1.077		5.8	
Acetone	0.188	0.151		19.7	
Carbon Disulfide	2.650	2.485		6.2	
1,1-Dichloroethene	0.961	0.962	0.100	-0.1	25.0
1,1-Dichloroethane	2.101	2.014	0.200	4.1	25.0
1,2-Dichloroethene (total)	1.294	1.105		14.6	
Chloroform	2.435	2.436	0.200	0.0	25.0
1,2-Dichloroethane	1.388	1.267	0.100	8.7	25.0
2-Butanone	0.409	0.222		45.7	
1,1,1-Trichloroethane	0.507	0.618	0.100	-21.9	25.0
Carbon Tetrachloride	0.477	0.584	0.100	-22.4	25.0
Bromodichloromethane	0.539	0.541	0.200	-0.4	25.0
1,2-Dichloropropane	0.362	0.349		3.6	
cis-1,3-Dichloropropene	0.432	0.424	0.200	1.9	25.0
Trichloroethene	0.423	0.428	0.300	-1.2	25.0
Dibromochloromethane	0.514	0.507	0.100	1.4	25.0
1,1,2-Trichloroethane	0.349	0.319	0.100	8.6	25.0
Benzene	0.960	1.024	0.500	-6.7	25.0
trans-1,3-Dichloropropene	0.345	0.333	0.100	3.5	25.0
Bromoform	0.433	0.382	0.100	11.8	25.0
4-Methyl-2-Pentanone	0.340	0.192		43.5	
2-Hexanone	0.223	0.115		48.4	
Tetrachloroethene	0.493	0.469	0.200	4.9	25.0
1,1,2,2-Tetrachloroethane	0.746	0.496	0.500	33.5	25.0
Toluene	0.971	0.843	0.400	13.2	25.0
Chlorobenzene	0.907	0.817	0.500	9.9	25.0
Ethylbenzene	0.363	0.331	0.100	8.8	25.0
Styrene	0.798	0.714	0.300	10.5	25.0
Xylene (total)	0.464	0.418	0.300	9.9	25.0
Toluene-d8	1.039	0.888		14.5	
4-Bromofluorobenzene	0.915	0.785	0.200	14.2	25.0
1,2-Dichloroethane-d4	1.402	1.282		8.6	

All other compounds must meet a minimum RRF of 0.010.

BM 8-30-94

7A
VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Instrument ID: I500A Calibration date: 05/27/94 Time: 1452

Lab File ID: WS05272 Init. Calib. Date(s): 05/22/94 05/22/94

Heated Purge: (Y/N) N Init. Calib. Times: 1321 1536

GC Column: DB624 ID: 0.530(mm)

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D
Chloromethane	1.162	0.678		41.6	
Bromomethane	1.270	0.994	0.100	21.7	25.0
Vinyl Chloride	1.095	0.727	0.100	33.6	25.0
Chloroethane	0.891	0.665		25.4	
Methylene Chloride	1.143	1.155		-1.0	
Acetone	0.188	0.139		26.1	
Carbon Disulfide	2.650	2.363		10.8	
1,1-Dichloroethene	0.961	0.936	0.100	2.6	25.0
1,1-Dichloroethane	2.101	2.078	0.200	1.1	25.0
1,2-Dichloroethene (total)	1.294	1.169		9.7	
Chloroform	2.435	2.441	0.200	-0.2	25.0
1,2-Dichloroethane	1.388	1.173	0.100	15.5	25.0
2-Butanone	0.409	0.257		37.2	
1,1,1-Trichloroethane	0.507	0.544	0.100	-7.3	25.0
Carbon Tetrachloride	0.477	0.505	0.100	-5.9	25.0
Bromodichloromethane	0.539	0.542	0.200	-0.6	25.0
1,2-Dichloropropane	0.362	0.369		-1.9	
cis-1,3-Dichloropropene	0.432	0.452	0.200	-4.6	25.0
Trichloroethene	0.423	0.423	0.300	0.0	25.0
Dibromochloromethane	0.514	0.496	0.100	3.5	25.0
1,1,2-Trichloroethane	0.349	0.339	0.100	2.9	25.0
Benzene	0.960	0.877	0.500	8.6	25.0
trans-1,3-Dichloropropene	0.345	0.337	0.100	2.3	25.0
Bromoform	0.433	0.384	0.100	11.3	25.0
4-Methyl-2-Pentanone	0.340	0.229		32.6	
2-Hexanone	0.223	0.128		42.6	
Tetrachloroethene	0.493	0.492	0.200	0.2	25.0
1,1,2,2-Tetrachloroethane	0.746	0.574	0.500	23.1	25.0
Toluene	0.971	0.936	0.400	3.6	25.0
Chlorobenzene	0.907	0.873	0.500	3.7	25.0
Ethylbenzene	0.363	0.351	0.100	3.3	25.0
Styrene	0.798	0.761	0.300	4.6	25.0
Xylene (total)	0.464	0.435	0.300	6.2	25.0
Toluene-d8	1.039	1.003		3.5	
4-Bromofluorobenzene	0.915	0.889	0.200	2.8	25.0
1,2-Dichloroethane-d4	1.402	1.237		11.8	

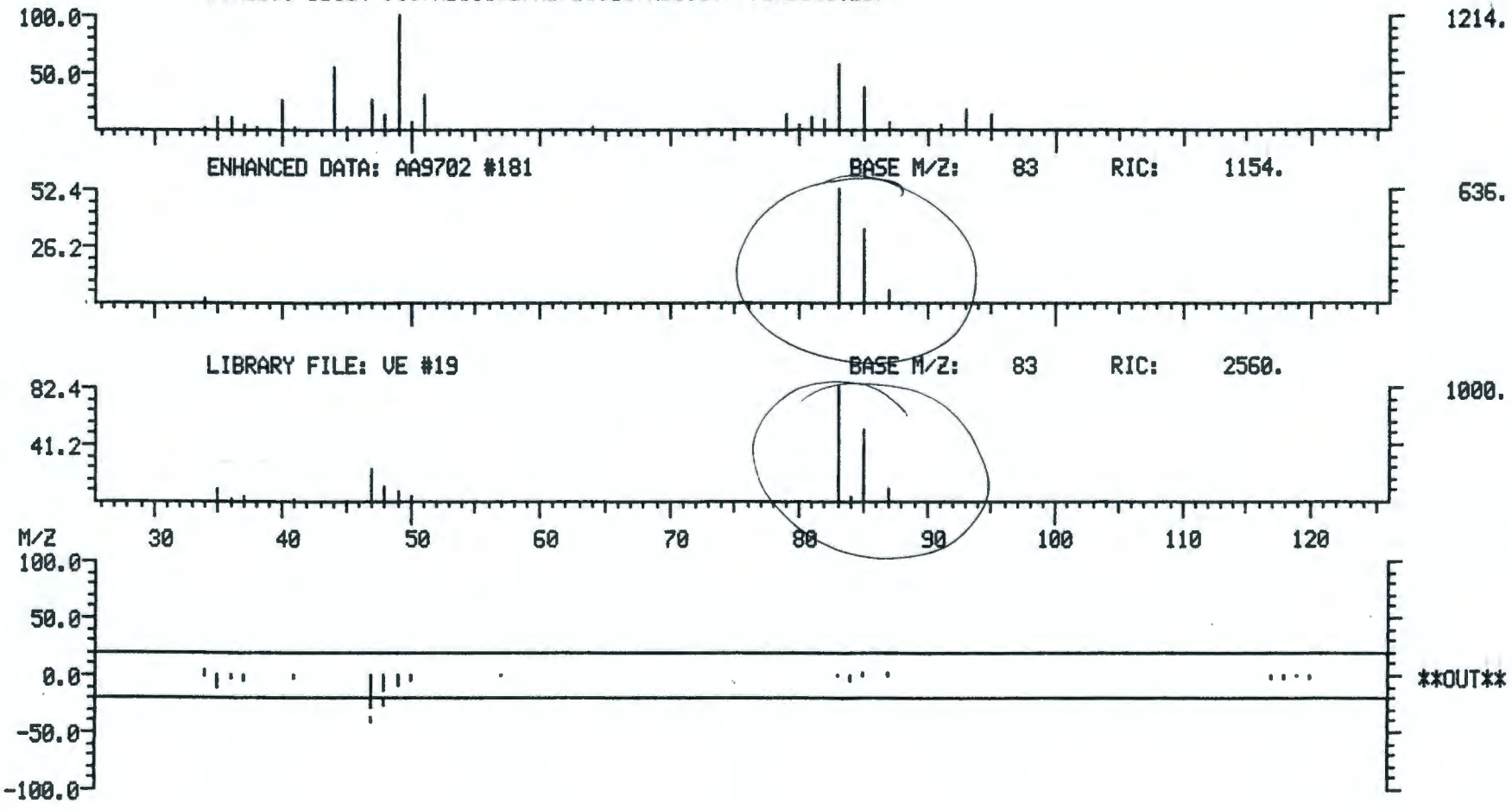
All other compounds must meet a minimum RRF of 0.010.

8/30/94

TARGET COMPOUND COMPARISON

COMPOUND: C060 CHLOROFORM *

RAW DATA: AA9702 #181 BASE M/Z: 49 RIC: 6888.
06/01/94 17:01
SAMPLE: CLP,583,W0068,BOBMP0,L,W,AA9702,V,E,
CONDS.: DB624/.53,WS06012,WBFB0601,WB0601,,,UNDILUTED,



No	m/z	Scan	Time	Ref	RRT	Meth	Area(Hght)	Amount	%Tot
1	128	175	5:50	1	1.000	A BB	29578.	50.000 UG/L	16.13
2	114	222	7:24	2	1.000	A BB	87932.	50.000 UG/L	16.13
3	117	350	11:40	3	1.000	A BB	84282.	50.000 UG/L	16.13
4	65	201	6:42	1	1.149	A BB	31914.	42.083 UG/L	13.58
5	98	286	9:32	3	0.817	A BB	80974.	54.090 UG/L	17.45
6	95	404	13:28	3	1.154	A BB	71368.	53.937 UG/L	17.40
7	50	49	1:38	1	0.280	A BB	35.	0.087 UG/L	0.03
8	NOT FOUND								
9	NOT FOUND								
10	64	62	2:04	1	0.354	A BB	902.	2.096 UG/L	0.68
11	84	105	3:30	1	0.600	A BB	247.	0.388 UG/L	0.13
12	43	90	3:00	1	0.514	A BV	479.	5.367 UG/L	1.73
13	NOT FOUND								
14	NOT FOUND								
15	76	93	3:06	1	0.531	A BB	252.	0.171 UG/L	0.06
16	NOT FOUND								
17	NOT FOUND								
18	NOT FOUND								
19	83	181	6:02	1	1.034	A BB	2359.	1.637 UG/L	0.53
20	NOT FOUND								
21	NOT FOUND								
22	NOT FOUND								
23	NOT FOUND								
24	NOT FOUND								
25	NOT FOUND								
26	NOT FOUND								
27	NOT FOUND								
28	130	232	7:44	2	1.045	A BB	57.	0.076 UG/L	0.02
29	NOT FOUND								
30	NOT FOUND								
31	NOT FOUND								
32	NOT FOUND								
33	NOT FOUND								
34	NOT FOUND								
35	NOT FOUND								
36	NOT FOUND								
37	NOT FOUND								
38	NOT FOUND								
39	91	289	9:38	3	0.826	A BB	135.	0.095 UG/L	0.03
40	NOT FOUND								
41	NOT FOUND								
42	NOT FOUND								
43	NOT FOUND								
44	NOT FOUND								
45	NOT FOUND								
46	NOT FOUND								
47	NOT FOUND								

No	Ret(L)	Ratio	RRT(L)	Ratio	Amnt	Amnt(L)	R.Fac	R.Fac(L)	Ratio
1	5:50	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
2	7:22	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
3	11:38	1.00	1.000	1.00	50.00	50.00	1.000	1.000	1.00
4	6:42	1.00	1.149	1.00	42.08	50.00	1.079	1.282	0.84
5	9:30	1.00	0.817	1.00	54.09	50.00	0.961	0.888	1.08
6	13:26	1.00	1.155	1.00	53.94	50.00	0.847	0.785	1.08
7	1:34	1.04	0.269	1.04	0.09	50.00	0.001	0.682	0.00

BM 8.30-14

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VBLKAB0220

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AB0220

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: WB0603

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

% Moisture: not dec. _____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	1	J
67-64-1	Acetone	5	J
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	10	U
591-78-6	2-Hexanone	4	J
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	1	J
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

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKAB0220

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AB0220

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: WB0603

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

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.97	8	J

FORM I VOA-TIC

BM 8.30.94 3/90

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9637

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9637

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	3	J
67-64-1	Acetone	11	
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	10	U
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

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9637

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9637

Level: (low/med) LOW Date Received: 05/21/94

% Moisture: not dec. ____ Date Analyzed: 05/27/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9755

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9755

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
74-87-3	Chloromethane	10	~~U~~	UJ
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	8	J	
75-15-0	Carbon Disulfide	10	U	UJ
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	10	U	
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	

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9755

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9755

Level: (low/med) LOW Date Received: 05/25/94

% Moisture: not dec. ____ Date Analyzed: 06/01/94

GC Column: DB624 ID: 0.530 (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/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

BM 8-30-94

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9955

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9955

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

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

CAS NO.	COMPOUND		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	8	~~BJ~~	104
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~~	UJ
56-23-5	Carbon Tetrachloride	10	~~U~~	UJ
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	10	U	
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	

BM 8-30-94

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP_BLANK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Matrix: (soil/water) WATER Lab Sample ID: AA9955

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA9955

Level: (low/med) LOW Date Received: 05/27/94

% Moisture: not dec. ____ Date Analyzed: 06/03/94

GC Column: DB624 ID: 0.530 (mm) Dilution Factor: 1.0

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

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	1.97	7	~~BJ~~ U

BM 8-30-94

RELATIVE RESPONSE FACTOR

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: INIT CAL

Date: 30-Aug-94
Validator: B. MORRIS

Constituent	Response for Analyte of Interest AxV	Concentration of Internal Standard CisV	Area of Internal Standard AisV	Concentration of Analyte of Interest CxV	RRF
acetone rrf10	1547.00	50.00	32503.00	10.00	0.238
" rrf20	2532.00	50.00	32097.00	20.00	0.197
" rrf50	6278.00	50.00	32020.00	50.00	0.196
" rrf100	12565.00	50.00	31519.00	100.00	0.199
" rrf200	11646.00	50.00	27017.00	200.00	0.108
toluene rrf10	18775.00	50.00	91761.00	10.00	
" rrf20	34998.00	50.00	93481.00	20.00	
" rrf50	81463.00	50.00	89624.00	50.00	
" rrf100	177691.00	50.00	90843.00	100.00	
" rrf200	357627.00	50.00	88620.00	200.00	

0613479.1690

000164

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: CONT CAL
Date: 30-Aug-94
Validator: B. MORRIS

Constituent: ACETONE

RRF1
0.238
0.197
0.196
0.199
0.108

MEAN	STDEV	RSD
0.188	0.0479	25.5

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: TOLUENE
Date: 30-Aug-94
Validator: B. MORRIS

Constituent: TOLUENE

RRF2
1.023
0.936
0.909
0.978
1.009

MEAN	STDEV	RSD
0.971	0.0481	5.0

1691 '6/4/96

PERCENT DIFFERENCE

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: CONT CAL 5-27-94

Date: 30-Aug-94
Validator: B. MORRIS

Constituent	Initial Calibration Average RRF RRFiV	Continuing Calibration Average RRF RRFsV	%D
ACETONE	0.188	0.139	26.1%
TOLUENE	0.971	0.936	3.6%
CHLOROBENZENE	0.907	0.873	3.7%

SURROGATE RECOVERY

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: BOBMZ2

Date: 30-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined QdV	quantity of surrogate added QaV	%RV
TOLUENE-d8	53.64	50.00	107.3%
BROMOFLUOROBENZ	54.70	50.00	109.4%

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: BOBMY0

Date: 30-Aug-94
Validator: B. MORRIS

Constituent	MS Result MSV	MSD Result MSDV	Sample Result OSV	Spike Added SAV	MSV %R	MSDV %R	RPDV
BENZENE	47.61	50.07	0.00	50.00	95.2%	100.1%	5.0%
TOLUENE	48.98	50.75	0.00	50.00	98.0%	101.5%	3.5%
CHLOROBENZ	49.45	52.18	0.00	50.00	98.9%	104.4%	5.4%

961379.1694

RESULTS CALCULATIONS FOR VOA WATER SAMPLES

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: BOBMZ2

Date: 30-Aug-94
Validator: B. MORRIS

Constituent	Area of the Quant Ion for the Constituent of Interest	Area of the Quant Ion for the Internal Standard	Amount of Internal Standard added (ng)	Relative Response Factor	Volume of Water Purged (ml)	Dilution Factor	Conc (µg/L)
	AxVW	AisVW	IsVW	RRFVW	VoVW	DfVW	
TOLUENE-d8	72875.00	76501.00	50.00	0.89	1.00	1.00	53.64
bromofluoroben	65700.00	76501.00	50.00	0.79	1.00	1.00	54.70
acetone	596.00	27893.00	50.00	0.15	1.00	1.00	7.08

9613479.1695

VOLATILES QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
Acetone	MINOR	U/10U	MZ8,N00	BLANKS	The method blank had positive values with associated sample results less than the blank criteria. Where sample results were less than the CRQL, an upward adjustment was made.
Methylene Chloride	MINOR	10U	MZ8,N00	BLANKS	The method blank had positive values with associated sample results less than the blank criteria. Where sample results were less than the CRQL, an upward adjustment was made.
All reported analytes	MINOR	J/UJ	MP0,MP2	HOLD TIME	The holding times were exceeded by less than two times.
1,1,1-Trichloroethane	MINOR	UJ	MZ8,N00	OTHER	The %D between the initial and continuing calibration exceeded 25%.
1,1,2,2-Tetrachloroethane	MINOR	UJ	MZ6,MZ2,MX4,MX2, MP2,MP0	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Acetone	MINOR	5J	MP0	OTHER	The value was incorrectly reported as non-detect.
Carbon Tetrachloride	MINOR	UJ	MZ8,N00	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Vinyl Chloride	MINOR	UJ	MW8,MX0,MY0, MY2,MZ6,MZ2, MX4,MX2,MP2,MP0	OTHER	The %D between the initial and continuing calibration exceeded 25%.

9613479.1697

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E
PROJECT: 100-FR-3			SDG: W0068-ITC-079		
VALIDATOR: B. Morris		LATA NO.: VW401.72		DATE: 8-31-94	
SAF NO.:		LAB: IT		CASE:	
QAPP REFERENCE:			SAP REFERENCE:		

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☐ CLP Volatiles	☐ SW-846 8240 (cap column)	☐ SW-846 8260 (pac column)	☒ CLP Semivolatiles	☐ SW-846 8270 (cap column)	☐ SW-846 8270 (pac column)
☐	☐	☐	☐	☐	☐

SAMPLES/MATRIX BOBMW8, BOBMY0, BOBMP0, BOBMX2, BOBM72
BOBMZ8

ALL WATER SAMPLES

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments:

2. HOLDING TIMES *(see HOLDING TIME SUMMARY form)*

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

Comments: BOBMP0 was extracted 9 days after sampling.
According to WHC ROD this sample should not have been
analyzed. The sample was rejected.
The sample results for BOBMP0 were qualified estimated (J/UJ).

CMM 9/19/94

Peer Review MW 9-9-94

LATA GC/MS DATA VALIDATION CHECKLIST

3. INSTRUMENT TUNING AND CALIBRATION *(see CALIBRATION DATA SUMMARY form)*

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

★ **VOA:** Verify the calculation of the mass abundance percentages for the 95/96, 176/177 and 174/176 ratios.

★ **SVOA:** Verify the calculation of the mass abundance percentages for the 199/198 and 443/442 ratios.

Are initial calibrations acceptable? . . . . . (Yes) (No) N/A BM 9-28-94

★ Verify the RRF and %RSD values and recalculate the individual and average RRF values and RSD values for two TCL compounds for Volatiles (V) and Semivolatiles (S).

★

Relative Response Factor

$$RRF = \frac{A_x C_{is}}{A_{is} C_x}$$

where:
A_x (V/S) = area of the characteristic ion measured for the sample
A_{is} (V/S) = area of the characteristic ion measured for the internal standard
C_x (V/S) = concentration [(VOA ng) (SVOA ng/µL)] of the compound of interest
C_{is} (V/S) = concentration [(VOA ng) (SVOA ng/µL)] of the associated internal standard

★

Relative Standard Deviation

$$\%RSD = \frac{STDEV}{MEAN} \times 100$$

where:
MEAN = mean of the initial five relative response factors
STDEV = standard deviation of the initial five RRFs per compound

$$= \sqrt{\sum_{i=1}^{n} \frac{(RRF_i - RRF)^2}{n-1}}$$

BM 9-28-94

Are continuing calibrations acceptable? . . . . . (Yes) (No) N/A

★ Verify that the RRF and %D values are within the required limits and recalculate the individual RRF and %D values for at least two TCL compounds for Volatiles (V) and Semivolatiles (S).

★

Percent Difference

$$\%D = \frac{(RRF_i - RRF_s)}{RRF_i} \times 100$$

where:
RRF_i (V/S) = initial calibration average relative response factor
RRF_s (V/S) = continuing calibration average relative response factor

BM 9.30.94

Comments: Missing Init Cal values for several rrf 20, mean RRF20, %RSD and %D should to be recalculated. ~~%RSD for 4-methylphenol was 21%~~

CMP 9/19/9

CC 5-27 had Chrysene %D at 26.5%
CC 6-7 had pyrene (31.8%) and Chrysene (25.9%)
CC 6-8 had 2-Fluorophenol (28.7%) and N-Nitroso-Di-n-propylamine (27.2%)

LATA GC/MS DATA VALIDATION CHECKLIST

4. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

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

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

Comments:

5. ACCURACY *(see ACCURACY DATA SUMMARY form)*

Were surrogates/System Monitoring Compounds analyzed? . . . . . (Yes) No N/A

Are all surrogate/System Monitoring Compound recoveries acceptable? . . . . . (Yes) No N/A

★

Surrogate Recovery

$$\%R = \left(\frac{Q_d}{Q_a}\right) \times 100$$

where:
Q_d (V/S) = quantity of surrogate determined (analysis result)
Q_a (V/S) = quantity of surrogate added (true value)

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are all MS/MSD recoveries acceptable? . . . . . Yes (No) N/A

★

Spike Recovery

$$MS\%R = \frac{MS - OS}{SA} \times 100 \quad \text{or} \quad MSD\%R = \frac{MSD - OS}{SA} \times 100$$

where:
MS/MSD (V/S) = spiked sample result
OS (V/S) = sample result
SA (V/S) = spike added

Comments: The MS recovery of 4-Nitrophenol was 81% (10-80). Samples qualified J/UJ. 2,4-dinitrophenol and 2-Nitrophenol are also affected by this result. (J,UJ)

BW 9-16-94

LATA GC/MS DATA VALIDATION CHECKLIST

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all MS/MSD RPD values acceptable? . . . . . (Yes) No N/A

★

$$RPD = \frac{\text{Relative Percent Difference } |MS - MSD|}{\left(\frac{MS + MSD}{2}\right)} \times 100$$

where =
MS = MS recovery
MSD = MSD recovery

Comments: _____

7. FIELD QC SAMPLES

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified? (Yes) No N/A

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

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

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

Are performance audit sample results acceptable? . . . . . Yes No (N/A)

Comments: BOBM40 is a project identified duplicate.
BOBM72 and BOBM78 are project identified Equipment Blanks

8. SYSTEM PERFORMANCE

Were internal standards analyzed? . . . . . (Yes) No N/A

Are internal standard areas acceptable? . . . . . (Yes) No N/A

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

Comments: _____

9. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? ..... (Yes) No N/A

Is compound quantitation acceptable? ..... (Yes) No N/A

★

Results Calculations for VOA water (VW) samples

$$\text{Concentration } (\mu g/L) = \frac{(A_x VW)\,(I_s VW)\,(D_f VW)}{(A_{is} VW)\,(RRFVW)\,(V_o VW)}$$

where:

$A_x VW$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VW$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VW$ = amount of internal standard added (ng)
RRFVW = relative response factor (ambient temperature purge of the calibration standard)
$V_o VW$ = volume of water purged (ml)
$D_f VW$ = dilution factor

★

Results Calculations for VOA soil/sediment (VLS) samples (low level)

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x VLS)\,(I_s VLS)}{(A_{is} VLS)\,(RRFVLS)\,(W_s VLS)\,(SVLS)}$$

where:

$A_x VLS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VLS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VLS$ = amount of internal standard added (ng)
RRFVLS = relative response factor (ambient temperature purge of the calibration standard)
$W_s VLS$ = weight of sample added (g)
SVLS = dry weight conversion factor [(100 - %moisture)/100]

★

Results Calculations for VOA soil/sediment (VMS) samples (medium level)

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x VMS)\,(I_s VMS)\,(V_t VMS)\,(1000)\,(D_f VMS)}{(A_{is} VMS)\,(RRFVMS)\,(V_a VMS)\,(W_s VMS)\,(SVMS)}$$

where:

$A_x VMS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} VMS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s VMS$ = amount of internal standard added (ng)
RRFVMS = relative response factor (ambient temperature purge of the calibration standard)
$W_s VMS$ = weight of sample extracted (g)
$D_f VMS$ = dilution factor
SVMS = dry weight conversion factor [(100 - %moisture)/100]
$V_t VMS$ = total volume methanol extract (ml)
$V_a VMS$ = volume of the aliquot (ml)

9. COMPOUND IDENTIFICATION AND QUANTITATION (continued)

★

Results Calculations for SVOA water (SW) samples

$$\text{Concentration } (\mu g/L) = \frac{(A_x SW)\,(I_s SW)\,(V_t SW)\,(D_f SW)}{(A_{is} SW)\,(RRFSW)\,(V_o SW)\,(V_i SW)}$$

where:

$A_x SW$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} SW$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s SW$ = amount of internal standard added (ng)
RRFSW = relative response factor for the daily calibration standard
$V_o SW$ = volume of water extracted (ml)
$V_i SW$ = volume of extract injected (µL)
$V_t SW$ = volume of concentrated extract (µL)
$D_f SW$ = dilution factor

★

Results Calculations for SVOA soil/sediment (SS) samples

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x SS)\,(I_s SS)\,(V_t SS)\,(D_f SS)}{(A_{is} SS)\,(RRFSS)\,(V_i SS)\,(W_s SS)\,(SSS)}$$

where:

$A_x SS$ = area of the quantitation ion (EICP) for the compound of interest
$A_{is} SS$ = area of the quantitation ion (EICP) for the specified internal standard
$I_s SS$ = amount of internal standard added (ng)
RRFSS = relative response factor for the daily calibration standard
$W_s SS$ = weight of sample extracted (g)
$D_f SS$ = dilution factor
SSS = dry weight conversion factor [(100 - %moisture)/100]
$V_t SS$ = total volume of concentrated extract (µL)
$V_i SS$ = volume of the extract injected (µL)

Comments:_____

_____

_____

10. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

Do results meet the CRQLs? . . . . . (Yes) No N/A

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

Comments:_____

_____

_____

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

MINOR DEFICIENCIES: The holding time for BOBMP0 was exceeded. The sample results are qualified as estimated.

The initial calibration criteria was exceeded for 4-methylphenol. (%RSD 20.6) The sample results are qualified as estimated.

The continuing calibration criteria for pyrene and chrysene was exceeded in all samples except BOBMZ8. (%D>25) The sample results are qualified as estimated.

The Continuing Calibration criteria for N-Nitroso-Di-n-propylamine was exceeded for BOBMZ8 (%D>25). The sample results are qualified as estimated.

The MS/MSD recoveries of 4-Nitrophenol exceeded QC Limits (10-80%). The sample results are qualified as estimated. This includes 2-Nitrophenol and 2,4-Dinitrophenol. BMg-16-94

COMMENTS: The sample BOBMY0 was a project identified duplicate.

Samples BOBMZ8 and BOBMZ2 were project identified equipment blanks. No target compounds were detected.

HOLDING TIME SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. MORRIS	DATE: 8-31-94	PAGE __ OF __

COMMENTS: GC/MS

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
B0BMP0	SVOA	5-17-94	5-26-94	6-1-94	9	12	UJ

PNO-DVF-017, R1

CALIBRATION DATA SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. MORRIS	DATE: 8-31-94	PAGE__OF__
COMMENTS: GC/MS			

CALIB. TYPE:	INITIAL	CONT.	INSTRUMENT:			
CALIB. DATE	COMPOUND		RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
BCM 8-31-94 6-7-5-26-94	4-Methylphenol			%RSD > 20.5 (21)	ALL	J/UJ
6-7-94	Pyrene			%D > 25 (31.8)	ALL Except BOBM28	J/UJ
	Chrysene			%D > 25 (25.9)	↓	J/UJ
6-8-94	N-Nitroso-Di-n-Propylamine			%D > 25 (27.2)	BOBM28	J/UJ

PNO-DVF-017, R1

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration Date(s): 05/26/94 05/26/94

Calibration Times: 1059 1326

LAB FILE ID: RRF20 = IC05261 RRF50 = IC05262
RRF80 = IC05263 RRF120= IC05264 RRF160= IC05265

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Diethylphthalate	1.552	1.551	1.333	1.387	1.363	1.437	7.4
4-Chlorophenyl-phenylether *	0.650	0.589	0.507	0.509	0.499	0.551	12.1*
Fluorene *	1.368	1.180	0.999	0.994	0.979	1.104	15.3*
4-Nitroaniline	0.296	0.209	0.165	0.199	0.213	~~0.216~~ 0.236	~~11.1~~ 22.3
4,6-Dinitro-2-Methylphenol	0.150	0.165	0.165	0.161	0.153	~~0.161~~ 0.157	~~3.5~~ 4.4
N-Nitrosodiphenylamine (1)	0.666	0.552	0.462	0.425	0.426	0.506	20.4
4-Bromophenyl-phenylether *	0.227	0.229	0.214	0.218	0.212	0.220	3.5*
Hexachlorobenzene *	0.246	0.232	0.227	0.233	0.231	~~0.234~~ 0.230	3.1*
Pentachlorophenol *	0.148	0.154	0.146	0.153	0.151	~~0.151~~	~~2.4~~* 2.2
Phenanthrene *	1.270	1.184	1.037	0.967	0.962	1.084	12.7*
Anthracene *	1.231	1.147	0.969	0.908	0.892	1.029	14.7*
Carbazole	1.162	0.965	0.761	0.686	0.733	0.861	23.1
Di-n-Butylphthalate	1.854	1.880	1.680	1.592	1.558	1.713	8.6
Fluoranthene *	1.241	1.221	1.047	1.001	1.069	1.116	9.7*
Pyrene *	1.559	1.549	1.349	1.346	1.296	1.420	8.8*
Butylbenzylphthalate	1.042	1.140	1.012	0.919	0.831	0.989	12.0
3,3'-Dichlorobenzidine	0.480	0.451	0.386	0.355	0.320	0.398	16.7
Benzo(a)Anthracene *	1.363	1.245	1.085	1.046	0.982	1.144	13.6*
Chrysene *	1.215	1.083	0.945	0.897	0.875	1.003	14.3*
bis(2-Ethylhexyl)Phthalate	1.392	1.370	1.266	1.192	1.113	1.267	9.3
Di-n-Octyl Phthalate	1.990	2.124	1.820	1.755	1.580	1.854	11.4
Benzo(b)Fluoranthene *	1.339	1.280	1.124	1.070	1.076	1.178	10.5*
Benzo(k)Fluoranthene *	1.310	1.223	1.043	1.032	0.861	1.094	16.1*
Benzo(a)Pyrene *	1.061	1.089	0.974	0.929	0.865	0.984	9.4*
Indeno(1,2,3-cd)Pyrene *	1.011	1.059	0.954	0.959	0.893	0.975	6.4*
Dibenz(a,h)Anthracene *	0.803	0.865	0.772	0.765	0.741	0.789	6.1*
Benzo(g,h,i)Perylene *	0.860	0.899	0.820	0.848	0.808	0.847	4.2*
Nitrobenzene-d5 *	0.587	0.565	0.545	0.553	0.520	0.554	4.5*
2-Fluorobiphenyl *	1.527	1.197	1.031	0.982	1.011	1.150	19.7*
Terphenyl-d14 *	1.081	0.950	0.895	0.872	0.890	0.938	9.1*
Phenol-d5 *	2.291	2.503	2.496	2.469	3.130	2.578	12.4*
2-Fluorophenol *	1.915	2.434	2.547	2.721	3.003	2.524	15.9*
2,4,6-Tribromophenol	0.123	0.114	0.111	0.112	0.106	0.113	5.5
2-Chlorophenol-d4 *	1.722	1.642	1.530	1.383	1.317	1.519	11.2*
1,2-Dichlorobenzene-d4 *	0.943	0.874	0.815	0.826	1.071	0.906	11.6*

(1) Cannot be separated from Diphenylamine

* Compounds with required minimum RRF and maximum %RSD values. All other compounds must meet a minimum RRF of 0.010.

BM 6-31-94

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration Date(s): 05/26/94 05/26/94

Calibration Times: 1059 1326

LAB FILE ID: RRF20 = IC05261 RRF50 = IC05262

RRF80 = IC05263 RRF120= IC05264 RRF160= IC05265

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	RRF	% RSD	
Phenol *	2.026	2.370	2.244	2.156	2.693	2.298	11.1*	
bis(2-Chloroethyl)Ether *	1.700	1.957	1.852	1.763	1.916	1.838	5.8*	
2-Chlorophenol *	1.567	1.570	1.402	1.264	1.304	1.421	10.1*	
1,3-Dichlorobenzene *	1.694	1.596	1.534	1.414	1.582	1.564	6.5*	
1,4-Dichlorobenzene *	1.650	1.586	1.416	1.475	1.578	1.541	6.1*	
1,2-Dichlorobenzene *	1.322	1.269	1.205	1.262	1.583	1.328	11.2*	
2-Methylphenol *	1.194	1.218	1.152	1.261	1.617	1.288	14.6*	
2,2'-oxybis(1-Chloropropane	1.566	1.806	1.980	2.417	3.056	2.165	27.1	
4-Methylphenol *	1.212	1.324	1.303	1.479	1.982	1.460	21.0*	
N-Nitroso-Di-n-Propylamine *	0.933	1.067	1.097	1.241	1.594	1.186	21.3*	
Hexachloroethane *	0.753	0.819	0.820	0.850	1.017	0.852	11.6*	
Nitrobenzene *	0.551	0.564	0.518	0.495	0.446	0.515	9.1*	
Isophorone *	0.963	1.030	0.948	0.965	0.871	0.955	5.9*	
2-Nitrophenol *	0.242	0.222	0.216	0.185	0.174	0.208	13.4*	
2,4-Dimethylphenol *	0.453	0.441	0.393	0.374	0.368	0.406	9.6*	
bis(2-Chloroethoxy)Methane *	0.533	0.549	0.509	0.516	0.465	0.514	6.2*	
2,4-Dichlorophenol *	0.329	0.320	0.278	0.272	0.231	0.286	13.9*	
1,2,4-Trichlorobenzene *	0.350	0.327	0.298	0.291	0.286	0.310	8.8*	
Naphthalene *	1.045	1.064	0.929	0.890	0.808	0.947	11.4*	
4-Chloroaniline	0.381	0.361	0.343	0.366	0.345	0.359	4.4	
Hexachlorobutadiene	0.190	0.184	0.174	0.177	0.172	0.179	4.2	
4-Chloro-3-Methylphenol *	0.365	0.394	0.387	0.383	0.365	0.379	3.5*	
2-Methylnaphthalene *	0.779	0.752	0.667	0.618	0.605	0.684	11.4*	
Hexachlorocyclopentadiene	0.365	0.391	0.372	0.406	0.403	0.387	4.7	
2,4,6-Trichlorophenol *	0.397	0.395	0.352	0.349	0.338	~~0.366~~	7.6*	
2,4,5-Trichlorophenol *	0.395	0.389	0.335	0.333	0.301	~~0.357~~ 0.340	~~10.7*~~	11.5
2-Chloronaphthalene *	1.330	1.178	1.037	1.023	1.029	1.119	12.0*	
2-Nitroaniline	0.485	0.528	0.509	0.548	0.522	~~0.516~~ 0.527	~~3.1~~	4.5
Dimethylphthalate	1.508	1.440	1.270	1.256	1.232	1.341	9.3	
Acenaphthylene *	2.101	1.846	1.504	1.435	1.431	1.663	18.0*	
2,6-Dinitrotoluene *	0.338	0.345	0.313	0.304	0.287	0.317	7.6*	
3-Nitroaniline	0.329	0.300	0.244	0.253	0.266	~~0.278~~ 0.266	~~9.2~~	12.7
Acenaphthene *	1.175	1.043	0.896	0.882	0.860	0.971	13.9*	
2,4-Dinitrophenol	0.142	0.172	0.174	0.178	0.162	~~0.166~~ 0.155	~~4.0~~	8.7
4-Nitrophenol	0.258	0.292	0.282	0.292	0.282	~~0.281~~ 0.284	~~2.0~~	4.9
Dibenzofuran *	1.712	1.554	1.339	1.325	1.261	1.438	13.1*	
2,4-Dinitrotoluene *	0.425	0.414	0.370	0.351	0.348	0.382	9.4*	

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

BM 8-30-94

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 05/27/94 Time: 1451

Lab File ID: CC0527 Init. Calib. Date(s): 05/26/94 05/26/94

Init. Calib. Times: 1059 1326

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D	
Phenol	2.298	2.250	0.800	2.1	25.0	
bis(2-Chloroethyl)Ether	1.838	1.794	0.700	2.4	25.0	
2-Chlorophenol	1.421	1.554	0.800	-9.4	25.0	
1,3-Dichlorobenzene	1.564	1.691	0.600	-8.1	25.0	
1,4-Dichlorobenzene	1.541	1.608	0.500	-4.3	25.0	
1,2-Dichlorobenzene	1.328	1.243	0.400	6.4	25.0	
2-Methylphenol	1.288	1.176	0.700	8.7	25.0	
2,2'-oxybis(1-Chloropropane)	2.165	1.699		21.5		
4-Methylphenol	1.460	1.159	0.600	20.6	25.0	
N-Nitroso-Di-n-Propylamine	1.186	0.965	0.500	18.6	25.0	
Hexachloroethane	0.852	0.688	0.300	19.2	25.0	
Nitrobenzene	0.515	0.566	0.200	-9.9	25.0	
Isophorone	0.955	1.020	0.400	-6.8	25.0	
2-Nitrophenol	0.208	0.220	0.100	-5.8	25.0	
2,4-Dimethylphenol	0.406	0.420	0.200	-3.4	25.0	
bis(2-Chloroethoxy)Methane	0.514	0.543	0.300	-5.6	25.0	
2,4-Dichlorophenol	0.286	0.287	0.200	-0.3	25.0	
1,2,4-Trichlorobenzene	0.310	0.298	0.200	3.9	25.0	
Naphthalene	0.947	1.147	0.700	-21.1	25.0	
4-Chloroaniline	0.359	0.346		3.6		
Hexachlorobutadiene	0.179	0.159		11.2		
4-Chloro-3-Methylphenol	0.379	0.368	0.200	2.9	25.0	
2-Methylnaphthalene	0.684	0.796	0.400	-16.4	25.0	
Hexachlorocyclopentadiene	0.387	0.362		6.5		
2,4,6-Trichlorophenol	0.366	0.358	0.200	2.2	25.0	
2,4,5-Trichlorophenol	~~0.340~~ 0.351	0.345	0.200	~~-1.5~~	25.0	1.7
2-Chloronaphthalene	1.119	1.173	0.800	-4.8	25.0	
2-Nitroaniline	~~0.527~~ 0.515	0.490		~~7.0~~		5.4
Dimethylphthalate	1.341	1.430		-6.6		
Acenaphthylene	1.663	1.903	1.300	-14.4	25.0	
2,6-Dinitrotoluene	0.317	0.334	0.200	-5.4	25.0	
3-Nitroaniline	~~0.266~~ 0.278	0.261		~~1.9~~		12.7
Acenaphthene	0.971	1.067	0.800	-9.9	25.0	
2,4-Dinitrophenol	~~0.172~~ 0.166	0.178		~~-3.5~~		-7.2
4-Nitrophenol	~~0.287~~ 0.281	0.284		1.0		-1.1
Dibenzofuran	1.438	1.631	0.800	-13.4	25.0	
2,4-Dinitrotoluene	0.382	0.411	0.200	-7.6	25.0	

All other compounds must meet a minimum RRF of 0.010.

BM 8-31-94

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 583 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 05/27/94 Time: 1451

Lab File ID: CC0527 Init. Calib. Date(s): 05/26/94 05/26/94

Init. Calib. Times: 1059 1326

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D	
Diethylphthalate	1.437	1.587		-10.4		
4-Chlorophenyl-phenylether	0.551	0.604	0.400	-9.6	25.0	
Fluorene	1.104	1.222	0.900	-10.7	25.0	
4-Nitroaniline	~~0.196~~ 0.210	0.190		~~-3.1~~		12.0
4,6-Dinitro-2-Methylphenol	~~0.161~~ 0.159	0.168		~~-4.3~~		-5.7
N-Nitrosodiphenylamine (1)	0.506	0.545		-7.7		
4-Bromophenyl-phenylether	0.220	0.220	0.100	0.0	25.0	
Hexachlorobenzene	0.234	0.213	0.100	9.0	25.0	
Pentachlorophenol	~~0.151~~ 0.150	0.147	0.050	~~2.6~~	25.0	2.0
Phenanthrene	1.084	1.232	0.700	-13.6	25.0	
Anthracene	1.029	1.234	0.700	-19.9	25.0	
Carbazole	0.861	1.021		-18.6		
Di-n-Butylphthalate	1.713	2.061		-20.3		
Fluoranthene	1.116	1.268	0.600	-13.6	25.0	
Pyrene	1.420	1.539	0.600	-8.4	25.0	
Butylbenzylphthalate	0.989	1.190		-20.3		
3,3'-Dichlorobenzidine	0.398	0.452		-13.6		
Benzo(a)Anthracene	1.144	1.269	0.800	-10.9	25.0	
Chrysene	1.003	1.269	0.700	-26.5	25.0	
bis(2-Ethylhexyl)Phthalate	1.267	1.450		-14.4		
Di-n-Octyl Phthalate	1.854	2.283		-23.1		
Benzo(b)Fluoranthene	1.178	1.210	0.700	-2.7	25.0	
Benzo(k)Fluoranthene	1.094	1.267	0.700	-15.8	25.0	
Benzo(a)Pyrene	0.984	1.087	0.700	-10.5	25.0	
Indeno(1,2,3-cd)Pyrene	0.975	1.031	0.500	-5.7	25.0	
Dibenz(a,h)Anthracene	0.789	0.834	0.400	-5.7	25.0	
Benzo(g,h,i)Perylene	0.847	0.880	0.500	-3.9	25.0	
Nitrobenzene-d5	0.554	0.537	0.200	3.1	25.0	
2-Fluorobiphenyl	1.150	1.157	0.700	-0.6	25.0	
Terphenyl-d14	0.938	0.926	0.500	1.3	25.0	
Phenol-d5	2.578	2.362	0.800	8.4	25.0	
2-Fluorophenol	2.524	2.295	0.600	9.1	25.0	
2,4,6-Tribromophenol	0.113	0.103		8.8		
2-Chlorophenol-d4	1.519	1.567	0.800	-3.2	25.0	
1,2-Dichlorobenzene-d4	0.906	0.840	0.400	7.3	25.0	

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

BM 8-31-94

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 06/07/94 Time: 1229

Lab File ID: CC0607 Init. Calib. Date(s): 05/26/94 05/26/94

Init. Calib. Times: 1059 1326

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D	
Phenol	2.298	2.438	0.800	-6.1	25.0	
bis(2-Chloroethyl)Ether	1.838	2.131	0.700	-15.9	25.0	
2-Chlorophenol	1.421	1.623	0.800	-14.2	25.0	
1,3-Dichlorobenzene	1.564	1.652	0.600	-5.6	25.0	
1,4-Dichlorobenzene	1.541	1.594	0.500	-3.4	25.0	
1,2-Dichlorobenzene	1.328	1.292	0.400	2.7	25.0	
2-Methylphenol	1.288	1.195	0.700	7.2	25.0	
2,2'-oxybis(1-Chloropropane)	2.165	1.820		15.9		
4-Methylphenol	1.460	1.341	0.600	8.2	25.0	
N-Nitroso-Di-n-Propylamine	1.186	1.080	0.500	8.9	25.0	
Hexachloroethane	0.852	0.768	0.300	9.9	25.0	
Nitrobenzene	0.515	0.571	0.200	-10.9	25.0	
Isophorone	0.955	1.089	0.400	-14.0	25.0	
2-Nitrophenol	0.208	0.214	0.100	-2.9	25.0	
2,4-Dimethylphenol	0.406	0.378	0.200	6.9	25.0	
bis(2-Chloroethoxy)Methane	0.514	0.547	0.300	-6.4	25.0	
2,4-Dichlorophenol	0.286	0.292	0.200	-2.1	25.0	
1,2,4-Trichlorobenzene	0.310	0.311	0.200	-0.3	25.0	
Naphthalene	0.947	1.101	0.700	-16.3	25.0	
4-Chloroaniline	0.359	0.272		24.2		
Hexachlorobutadiene	0.179	0.169		5.6		
4-Chloro-3-Methylphenol	0.379	0.369	0.200	2.6	25.0	
2-Methylnaphthalene	0.684	0.803	0.400	-17.4	25.0	
Hexachlorocyclopentadiene	0.387	0.373		3.6		
2,4,6-Trichlorophenol	0.366	0.365	0.200	0.3	25.0	
2,4,5-Trichlorophenol	~~0.340~~ 0.351	0.357	0.200	~~-5.0~~	25.0	-1.7
2-Chloronaphthalene	1.119	1.170	0.800	-4.6	25.0	
2-Nitroaniline	~~0.527~~ 0.518	0.481		~~8.7~~		7.1
Dimethylphthalate	1.341	1.445		-7.8		
Acenaphthylene	1.663	1.901	1.300	-14.3	25.0	
2,6-Dinitrotoluene	0.317	0.342	0.200	-7.9	25.0	
3-Nitroaniline	~~0.266~~ 0.278	0.232		~~12.8~~		16.5
Acenaphthene	0.971	1.066	0.800	-9.8	25.0	
2,4-Dinitrophenol	~~0.172~~ 0.166	0.162		~~5.8~~		2.5
4-Nitrophenol	~~0.287~~ 0.281	0.252		~~12.2~~		10.3
Dibenzofuran	1.438	1.597	0.800	-11.1	25.0	
2,4-Dinitrotoluene	0.382	0.401	0.200	-5.0	25.0	

All other compounds must meet a minimum RRF of 0.010.

BM 8-31-94

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 579 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 06/07/94 Time: 1229

Lab File ID: CC0607 Init. Calib. Date(s): 05/26/94 05/26/94

Init. Calib. Times: 1059 1326

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D	
Diethylphthalate	1.437	1.560		-8.6		
4-Chlorophenyl-phenylether	0.551	0.583	0.400	-5.8	25.0	
Fluorene	1.104	1.251	0.900	-13.3	25.0	
4-Nitroaniline	~~0.196~~ 0.216	0.172		~~12.2~~		20.4
4,6-Dinitro-2-Methylphenol	~~0.161~~ 0.159	0.147		~~8.7~~		7.5
N-Nitrosodiphenylamine (1)	0.506	0.496		2.0		
4-Bromophenyl-phenylether	0.220	0.217	0.100	1.4	25.0	
Hexachlorobenzene	0.234	0.230	0.100	1.7	25.0	
Pentachlorophenol	~~0.151~~ 0.240	0.152	0.050	~~-0.7~~	25.0	-1.3
Phenanthrene	1.084	1.184	0.700	-9.2	25.0	
Anthracene	1.029	1.161	0.700	-12.8	25.0	
Carbazole	0.861	0.975		-13.2		
Di-n-Butylphthalate	1.713	1.989		-16.1		
Fluoranthene	1.116	1.354	0.600	-21.3	25.0	
Pyrene	1.420	1.872	0.600	-31.8	25.0	
Butylbenzylphthalate	0.989	1.301		-31.6		
3,3'-Dichlorobenzidine	0.398	0.420		-5.5		
Benzo(a)Anthracene	1.144	1.263	0.800	-10.4	25.0	
Chrysene	1.003	1.263	0.700	-25.9	25.0	
bis(2-Ethylhexyl)Phthalate	1.267	1.524		-20.3		
Di-n-Octyl Phthalate	1.854	2.336		-26.0		
Benzo(b)Fluoranthene	1.178	1.176	0.700	0.2	25.0	
Benzo(k)Fluoranthene	1.094	1.316	0.700	-20.3	25.0	
Benzo(a)Pyrene	0.984	1.047	0.700	-6.4	25.0	
Indeno(1,2,3-cd)Pyrene	0.975	0.911	0.500	6.6	25.0	
Dibenz(a,h)Anthracene	0.789	0.689	0.400	12.7	25.0	
Benzo(g,h,i)Perylene	0.847	0.805	0.500	5.0	25.0	
Nitrobenzene-d5	0.554	0.559	0.200	-0.9	25.0	
2-Fluorobiphenyl	1.150	1.231	0.700	-7.0	25.0	
Terphenyl-d14	0.938	1.110	0.500	-18.3	25.0	
Phenol-d5	2.578	2.479	0.800	3.8	25.0	
2-Fluorophenol	2.524	2.264	0.600	10.3	25.0	
2,4,6-Tribromophenol	0.113	0.098		13.3		
2-Chlorophenol-d4	1.519	1.685	0.800	-10.9	25.0	
1,2-Dichlorobenzene-d4	0.906	0.905	0.400	0.1	25.0	

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

BM 6-31-94

7B
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 06/08/94 Time: 1028

Lab File ID: CC0608 Init. Calib. Date(s): 05/26/94 05/26/94

Init. Calib. Times: 1059 1326

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D	
Phenol	2.298	1.992	0.800	13.3	25.0	
bis(2-Chloroethyl)Ether	1.838	1.714	0.700	6.7	25.0	
2-Chlorophenol	1.421	1.544	0.800	-8.7	25.0	
1,3-Dichlorobenzene	1.564	1.546	0.600	1.2	25.0	
1,4-Dichlorobenzene	1.541	1.660	0.500	-7.7	25.0	
1,2-Dichlorobenzene	1.328	1.251	0.400	5.8	25.0	
2-Methylphenol	1.288	1.123	0.700	12.8	25.0	
2,2'-oxybis(1-Chloropropane)	2.165	1.445		33.3		
4-Methylphenol	1.460	1.096	0.600	24.9	25.0	
N-Nitroso-Di-n-Propylamine	1.186	0.863	0.500	27.2	25.0	
Hexachloroethane	0.852	0.699	0.300	18.0	25.0	
Nitrobenzene	0.515	0.569	0.200	-10.5	25.0	
Isophorone	0.955	1.002	0.400	-4.9	25.0	
2-Nitrophenol	0.208	0.231	0.100	-11.1	25.0	
2,4-Dimethylphenol	0.406	0.424	0.200	-4.4	25.0	
bis(2-Chloroethoxy)Methane	0.514	0.528	0.300	-2.7	25.0	
2,4-Dichlorophenol	0.286	0.332	0.200	-16.1	25.0	
1,2,4-Trichlorobenzene	0.310	0.331	0.200	-6.8	25.0	
Naphthalene	0.947	1.119	0.700	-18.2	25.0	
4-Chloroaniline	0.359	0.309		13.9		
Hexachlorobutadiene	0.179	0.165		7.8		
4-Chloro-3-Methylphenol	0.379	0.329	0.200	13.2	25.0	
2-Methylnaphthalene	0.684	0.771	0.400	-12.7	25.0	
Hexachlorocyclopentadiene	0.387	0.360		7.0		
2,4,6-Trichlorophenol	~~0.366~~ 0.351	0.373	0.200	-1.9	25.0	
2,4,5-Trichlorophenol	~~0.340~~	0.369	0.200	~~-8.5~~	25.0	-5.1
2-Chloronaphthalene	~~1.110~~ 0.516	1.214	0.800	-8.5	25.0	
2-Nitroaniline	~~0.527~~	0.418		~~20.7~~		19.3
Dimethylphthalate	1.341	1.382		-3.1		
Acenaphthylene	1.663	1.913	1.300	-15.0	25.0	
2,6-Dinitrotoluene	~~0.317~~ 0.278	0.325	0.200	-2.5	25.0	
3-Nitroaniline	~~0.266~~	0.231		~~13.2~~		16.9
Acenaphthene	~~0.971~~ 0.766	1.093	0.800	-12.6	25.0	
2,4-Dinitrophenol	~~0.172~~	0.160		~~7.0~~		3.6
4-Nitrophenol	~~0.287~~	0.229		~~20.2~~		18.5
Dibenzofuran	1.438	1.572	0.800	-9.3	25.0	
2,4-Dinitrotoluene	0.382	0.394	0.200	-3.1	25.0	

All other compounds must meet a minimum RRF of 0.010.

BM
8-31-94

7C
SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: ITSTU Case No.: 602 SAS No.: _____ SDG No.: W0068

Instrument ID: FINN Calibration date: 06/08/94 Time: 1028

Lab File ID: CC0608 Init. Calib. Date(s): 05/26/94 05/26/94

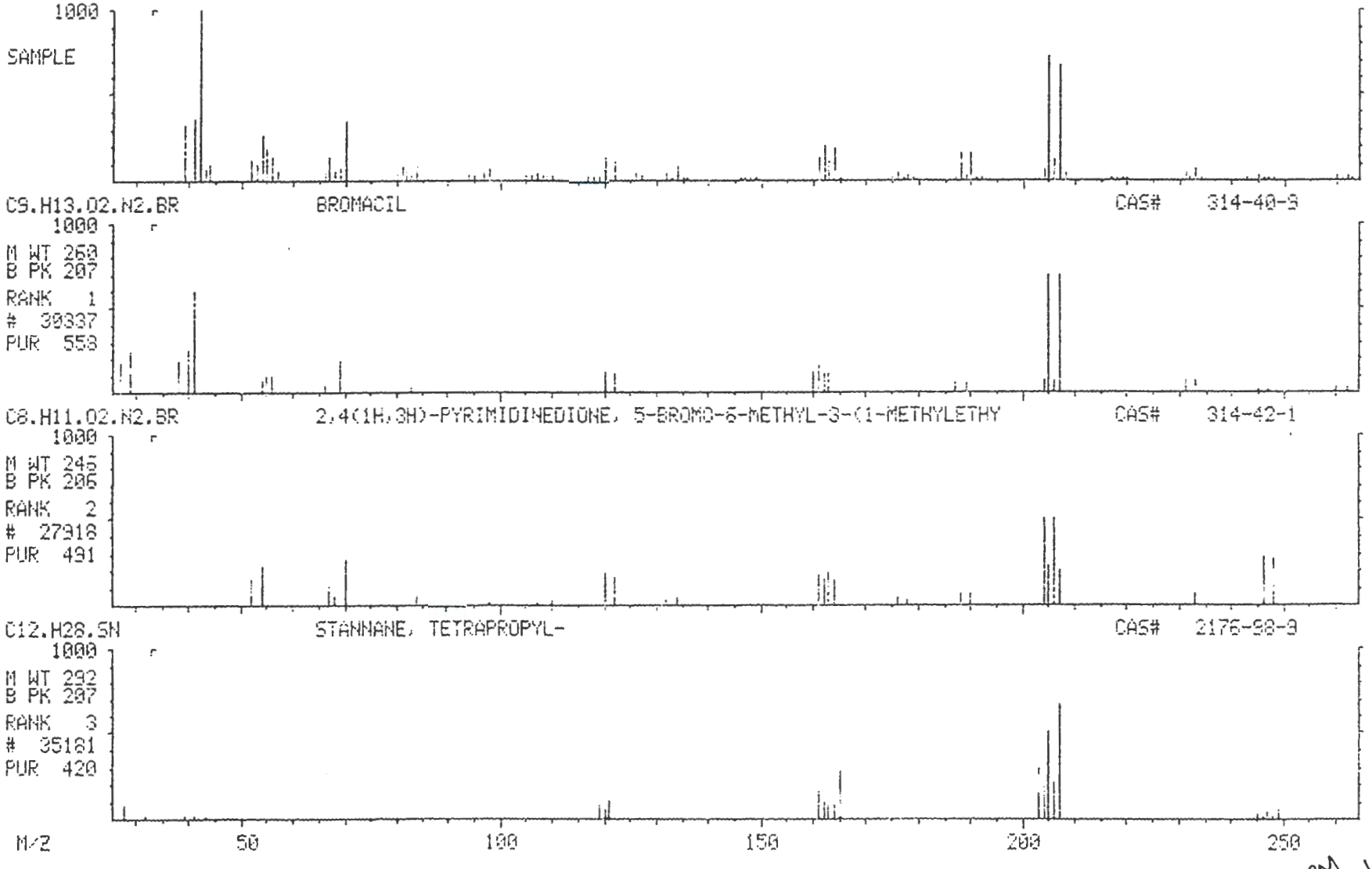
Init. Calib. Times: 1059 1326

COMPOUND	RRF	RRF50	MIN RRF	%D	MAX %D	
Diethylphthalate	1.437	1.423		1.0		
4-Chlorophenyl-phenylether	0.551	0.578	0.400	-4.9	25.0	
Fluorene	1.104	1.226	0.900	-11.0	25.0	
4-Nitroaniline	~~0.196~~ 0.178	0.141		~~28.1~~		34.7
4,6-Dinitro-2-Methylphenol	~~0.161~~ 0.157	0.155		~~3.7~~		-2.6
N-Nitrosodiphenylamine (1)	0.506	0.514		-1.6		
4-Bromophenyl-phenylether	0.220	0.211	0.100	4.1	25.0	
Hexachlorobenzene	0.234	0.212	0.100	9.4	25.0	
Pentachlorophenol	~~0.151~~ 0.150	0.147	0.050	~~2.6~~	25.0	2.0
Phenanthrene	1.084	1.225	0.700	-13.0	25.0	
Anthracene	1.029	1.175	0.700	-14.2	25.0	
Carbazole	0.861	0.896		-4.1		
Di-n-Butylphthalate	1.713	1.835		-7.1		
Fluoranthene	1.116	1.183	0.600	-6.0	25.0	
Pyrene	1.420	1.635	0.600	-15.1	25.0	
Butylbenzylphthalate	0.989	1.074		-8.6		
3,3'-Dichlorobenzidine	0.398	0.397		0.3		
Benzo(a)Anthracene	1.144	1.283	0.800	-12.2	25.0	
Chrysene	1.003	1.109	0.700	-10.6	25.0	
bis(2-Ethylhexyl)Phthalate	1.267	1.454		-14.8		
Di-n-Octyl Phthalate	1.854	2.294		-23.7		
Benzo(b)Fluoranthene	1.178	1.265	0.700	-7.4	25.0	
Benzo(k)Fluoranthene	1.094	1.327	0.700	-21.3	25.0	
Benzo(a)Pyrene	0.984	1.074	0.700	-9.1	25.0	
Indeno(1,2,3-cd)Pyrene	0.975	0.924	0.500	5.2	25.0	
Dibenz(a,h)Anthracene	0.789	0.715	0.400	9.4	25.0	
Benzo(g,h,i)Perylene	0.847	0.803	0.500	5.2	25.0	
Nitrobenzene-d5	0.554	0.548	0.200	1.1	25.0	
2-Fluorobiphenyl	1.150	1.261	0.700	-9.7	25.0	
Terphenyl-d14	0.938	0.942	0.500	-0.4	25.0	
Phenol-d5	2.578	2.016	0.800	21.8	25.0	
2-Fluorophenol	2.524	1.800	0.600	28.7	25.0	
2,4,6-Tribromophenol	0.113	0.094		16.8		
2-Chlorophenol-d4	1.519	1.568	0.800	-3.2	25.0	
1,2-Dichlorobenzene-d4	0.906	0.833	0.400	8.1	25.0	

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

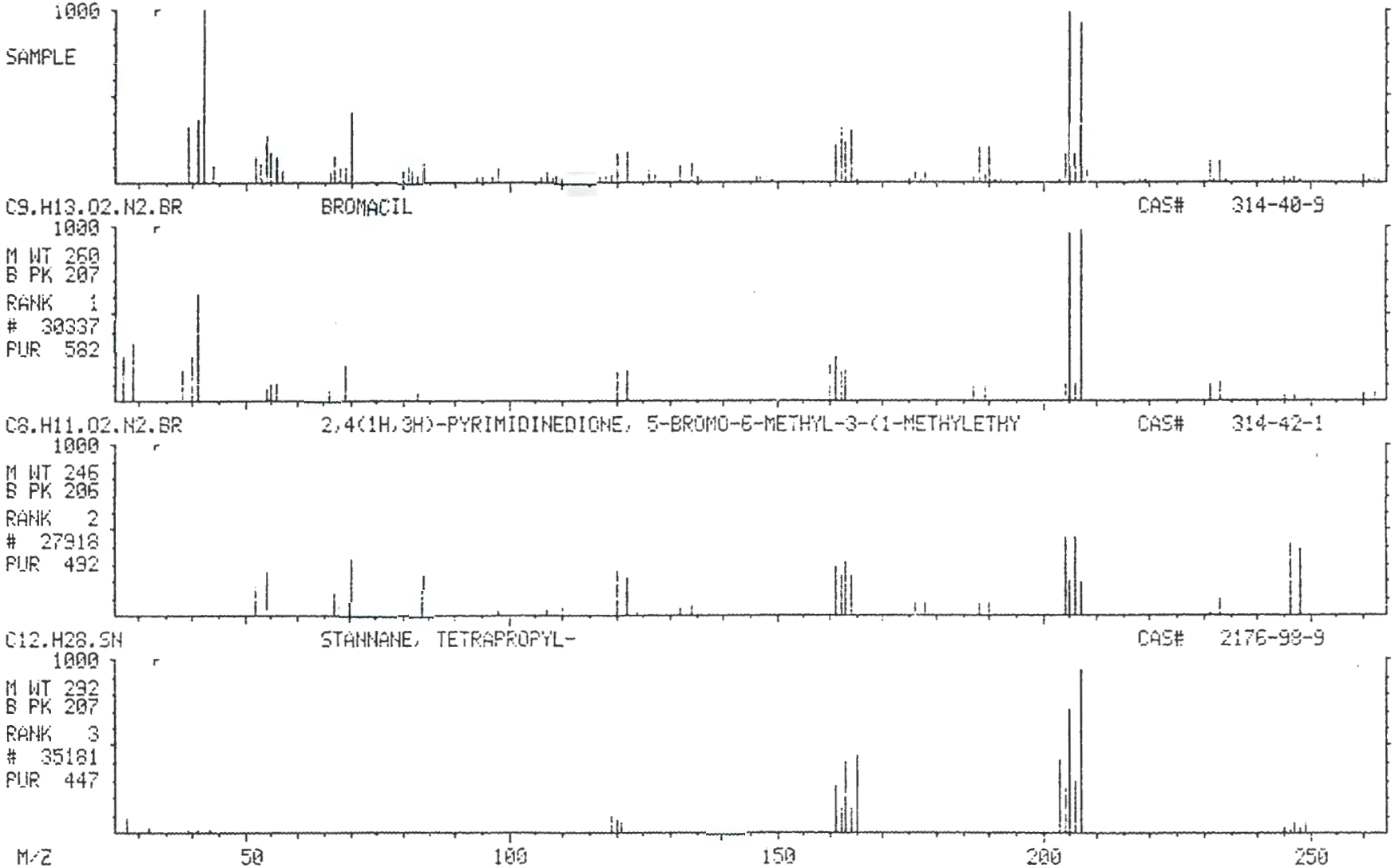
BM 8-31-94

MID LIBRARY SEARCH (LIBRARYNB) DATA: AA9610 #1057 BASE M/Z: 42
06/07/94 17:53:00 + 17:37 CALI: AA9610 # 3 RIC: 107904.
SAMPLE: CLP,579,,B0BMW8,LOW,WATER,AA9610,BNA,EPA,
CONDS.: FINN: XTI-5 30M 50T0150@20D/M: 150T0250@10D/M:250T0330@20D/M
ENHANCED (S 158 2N 0T)



BM 8-31-94

MID LIBRARY SEARCH (LIBRARYNB) DATA: AA9719 #1053 BASE M/Z: 42
06/07/94 20:24:00 + 17:33 CALI: AA9719 # 3 RIC: 73728.
SAMPLE: CLP,583,,BOBMX2,LOW,WATER,AA9719,BNA,EPA,
CONDS.: FINN: XTI-5 30M 50T0150@20D/M: 150T0250@10D/M:250T0330@20D/M
ENHANCED (S 150 2N 0T)



ACCURACY DATA SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. MORRIS	DATE: 8-31-94	PAGE__OF__
COMMENTS: GC/MS			

FIELD SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER
BOBMY0MS	4-Nitrophenol	81 %	ALL	UJ

PNO-DVF-017, R1

RELATIVE RESPONSE FACTOR

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: INIT CAL 5-26-94

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	Response for Analyte of Interest AxV	Concentration of Internal Standard CisV	Area of Internal Standard AisV	Concentration of Analyte of Interest CxV	RRF
phenol rrf20	35638	20.00	35184	10.00	2.026
" rrf50	82546	20.00	27864	25.00	2.370
" rrf80	120040	20.00	26742	40.00	2.244
" rrf120	102598	20.00	24736	60.00	1.383
" rrf160	184508	20.00	17126	80.00	2.693
nitrobenzene rrf20	27854	20.00	101184	10.00	0.551
" rrf50	61610	20.00	87348	25.00	0.564
" rrf80	96003	20.00	92634	40.00	0.518
" rrf120	139562	20.00	94036	60.00	0.495
" rrf160	166052	20.00	93024	80.00	0.446

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Date: 31-Aug-94
Sample ID: INIT CAL 5-26-94
Validator: B. MORRIS

RRF1
Constituent: PHENOL

RRF1
2.026
2.37
2.244
2.156
2.693

MEAN	STDEV	RSD
2.298	0.2541	11.1

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Date: 31-Aug-94
Sample ID: INIT CAL 5-26-94
Validator: B. MORRIS

RRF2
Constituent: NITROBENZENE

RRF2
0.551
0.564
0.518
0.495
0.446

MEAN	STDEV	RSD
0.515	0.0471	9.1

961479.1718

261000192

PERCENT DIFFERENCE

Analysis: GC/MS SVA
SDG: W0068-ITC-079
Sample ID: CONT CAL 5-27-94

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	Initial Calibration Average RRF RRFiV	Continuing Calibration Average RRF RRFsV	%D
2-Nitrophenol	0.208	0.22	5.8%
Nitrobenzene	0.515	0.566	9.9%
Naphthalene	0.947	1.147	21.1%

PERCENT DIFFERENCE

Analysis: GC/MS SVOA
SDG: W0068-ITC-079
Sample ID: CONT CAL 6-7-94

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	Initial Calibration Average RRF RRFiS	Continuing Calibration Average RRF RRFsS	%D
Phenol	2.298	2.438	6.1
Nitrobenzene	0.516	0.571	10.7

SURROGATE RECOVERY

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: BOBMY0

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined QdV	quantity of surrogate added QaV	%RV
NITROBENZENE-d5	37.48	50.00	75%
PHENOL-d5	40.41	75.00	54%
2-FLUOROPHENOL	50.32	75.00	67%

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: GC/MS VOA
SDG: WOO68-ITC-079
Sample ID: BOBMY0MS

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	MS Result MSV	MSD Result MSDV	Sample Result OSV	Spike Added SAV	MSV %R	MSDV %R	RPDV
phenol	48.54	41.46	0.00	75.00	65%	55%	16%
2-chlorophenol	42.37	38.89	0.00	75.00	56%	52%	9%
pyrene	30.32	28.72	0.00	50.00	61%	57%	5%

961679.1721

00195

RESULTS CALCULATIONS FOR SVOA WATER SAMPLES

Analysis: GC/MS SVOA
SDG: WOO68-ITC-079
Sample ID: BOBMY0

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	Area of the Quant Ion for the Constituent of Interest	Area of the Quant Ion for the Internal Standard	Amount of Internal Standard added (ng)	Relative Response Factor	Volume water extracted (mL)	Volume of extract injected (µL)	Volume of concentrated extract (µL)	Dilution Factor	Conc (µg/Kg)
	AxSW	AisSW	IsSW	RRFSW	VoSW	ViSW	VtSW	DfSW	
phenol	150196.00	25388.00	20.00	2.44	1000.00	1.00	1000.00	1.00	48.53
4-nitrophenol	37511.00	48632.00	20.00	0.25	1000.00	1.00	1000.00	1.00	61.22
pentachloroph	25828.00	57448.00	20.00	0.15	1000.00	1.00	1000.00	1.00	59.16

961479.1722

0091396

SEMIVOLATILES QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
2,4-dinitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
2-Nitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
4-Nitrophenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	ACCURACY	The MS/MSD recoveries for accuracy exceeded 80%
All reported analytes	MINOR	UJ	MP0	HOLD TIME	The holding times were exceeded by less than two times.
4-Methlyphenol	MINOR	UJ	MW8,MY0,MP0, MX2,MZ2,MZ8	OTHER	The initial calibration RSD exceeded 20.5%
Chrysene	MINOR	UJ	MW8, MY0, MP0, MX2, MZ2,	OTHER	The %D between the initial and continuing calibration exceeded 25%.
N-Nitroso-Di-n-propylamine	MINOR	UJ	MZ8	OTHER	The %D between the initial and continuing calibration exceeded 25%.
Pyrene	MINOR	UJ	MW8, MY0, MP0, MX2, MZ2,	OTHER	The %D between the initial and continuing calibration exceeded 25%.

9/20/94
dw for
entered by: WJC
date: 9/12/94

40272QLS.XLT, Qualification Summary

9/20/94
dw for
checked by: JMJ
date: 9/13/94

9613479.1724

LATA PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: W0068-ITC-079	
VALIDATOR: B. MORRIS	LATA NO.: VW402.72	DATE: 8-30-94
SAF NO.:	LAB: IT	CASE:
QAPP REFERENCE:	SAP REFERENCE:	

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☒ CLP 3/90	☐ SW-846 8080	☐ SW-846 8081	☐	☐	☐

SAMPLES/MATRIX: BOBMW8, BOBMX2, BOBMY0, BOBMZ2, BOBMZ8 and ~~BOBMY8~~ BOBMP0. BM 9-28-94

ALL WATER

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES *(see HOLDING TIME SUMMARY form)*

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

Comments: BOBMP0 - Sampled 5-17
Rec'd 5-24 >7d for extraction
Extracted 5-26
Anal. 5-27

According to WHC ROD this sample should not have been analysed. The sample was validated.
The sample results for BOBMP0 were qualified estimated (J/UJ).

Peer Review MJ 9-9-94

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS *(see CALIBRATION DATA SUMMARY form)*

3.1 INSTRUMENT PERFORMANCE (METHOD 8080 AND 8081)

Are DDT retention times acceptable . . . . . Yes No (N/A)

Are DBC retention times acceptable? . . . . . Yes No (N/A)

★

$$\%D = \frac{(RT_i - RT_s)}{RT_i} \times 100$$

DBC Retention Time Percent Difference

where:
RT_i = absolute retention time of DBC (initial standard)
RT_s = absolute retention time of DBC (subsequent standards/samples)

Are calibration standard retention times acceptable? . . . . . Yes No (N/A)

★ Recalculate the retention time windows for at least two pesticide compounds. For CLP, see the table in Section 8.4 for retention time windows from the mean retention time value. For SW-846, calculate the mean plus or minus three times the standard deviation as described in Method 8000A.

Are DDT and endrin breakdowns acceptable? . . . . . Yes No (N/A)

★

$$\%\text{breakdown} = \frac{TDA}{TPA} \times 100$$

Percent Breakdown

where:
(TDA) total degradation peak area = the total peak areas of DDE + DDD or endrin aldehyde + endrin ketone
(TPA) total peak area = the total of all associated peak areas for DDE, DDE + DDT or endrin aldehyde, endrin ketone + endrin

For confirmation by GC/MS; is the GC/MS tuning/performance check acceptable (use GC/MS checklist)? . . . . . Yes No (N/A)

Comments: Used 3/90 SOW

CMS 9/19/

3.2 CALIBRATIONS (METHOD 8080 AND 8081)

Are all EVAL standard calibration factors and
%RSD values acceptable? ..... Yes No (N/A)

Are all quantitation column calibration factor
%RSD values acceptable? ..... Yes No (N/A)

★

Relative Standard Deviation

$$\%RSD = \frac{STDEV}{MEAN} \times 100$$

where:
MEAN = mean of the initial five response (calibration) factors
STDEV = standard deviation of the initial five RFs/CFs per compound

$$= \sqrt{\sum_{i=1}^{n} \frac{(RF_i - \overline{RF})^2}{n-1}}$$

Were the analytical sequence requirements met? ..... Yes No (N/A)

Are all continuing calibration %D values acceptable? ..... Yes No (N/A)

★ Recalculate at least two of the %D values from the raw data and compare to the reported results.

★

Percent Difference

$$\%D = \frac{(RF_i - RF_s)}{RF_i} \times 100$$

where:
RF_i = initial calibration response (calibration) factor
RF_s = continuing calibration response (calibration) factor

Comments: Used 3/90 SOW

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

Was the initial calibration sequence performed? ..... (Yes) No N/A

Was the resolution acceptable in the resolution check mix? ..... (Yes) No N/A

Is resolution acceptable in the PEM, INDA and INDB? ..... (Yes) No N/A

★

Resolution

$$\text{resolution} = \frac{P_v}{P_h} \times 100$$

where:

P_v = the peak height of the valley of the larger peak

P_h = the peak height of the smaller peak being resolved

Are DDT and Endrin breakdowns acceptable? ..... (Yes) No N/A

Are all retention times in PEMs and calibration mixes acceptable? ..... (Yes) No N/A

Are all RPD values in the PEMs acceptable? ..... (Yes) No N/A

Are all %RSD values acceptable? ..... Yes (No) N/A

Comments: %RSD Heptachlor (12.2), Heptachlor epoxide (10.3), and 4,4'-DDD (15.5) For all samples except BOBM78 are est.

%RSD Heptachlor (11.5), Hep. Epox (12.4), Dieldrin (10.3), 4,4'-DDD (10.6) and Endrin Ketone (12.3) are est. for BOBM78.

3.4 CALIBRATION VERIFICATION (3/90 SOW)

Were the analytical sequence requirements met? ..... (Yes) No N/A

Is resolution acceptable in the PEMs? ..... (Yes) No N/A

Are initial calibrations acceptable? ..... (Yes) No N/A

Are all retention times acceptable in the PEMs, INDA and INDB mixes? ..... (Yes) No N/A

Are all RPD values in the PEMs acceptable? ..... (Yes) No N/A

Are the DDT and endrin breakdowns acceptable? ..... (Yes) No N/A

Was GPC cleanup performed? ..... Yes (No) N/A

Is the GPC calibration check acceptable? ..... Yes No (N/A)

Was Florisil cleanup performed? ..... (Yes) No N/A

Is the Florisil performance check acceptable? ..... (Yes) No N/A

Comments: _____

4. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

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

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

Comments:_____

_____

_____

_____

_____

5. ACCURACY *(see ACCURACY DATA SUMMARY form)*

Were surrogates analyzed? . . . . . (Yes) No N/A

Are all surrogate recoveries acceptable? . . . . . (Yes) No N/A

★

Surrogate Recovery

$$\%R = \left(\frac{Q_d}{Q_a}\right) \times 100$$

where:
Q_d = quantity of surrogate determined (analysis result)
Q_a = quantity of surrogate added (true value)

Were MS/MSD samples analyzed? . . . . . (Yes) No N/A

Are all MS/MSD recoveries acceptable? . . . . . (Yes) No N/A

Were LCS samples analyzed? . . . . . Yes No (N/A)

Are all LCS results acceptable? . . . . . Yes No (N/A)

★

Spike Recovery

$$\%R = \frac{MS - OS}{SA} \times 100$$

where:
MS or MSD = spiked sample result
OS = sample result
SA = spike added

Comments:_____

_____

_____

_____

_____

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all duplicate RPD values acceptable? . . . . . (Yes) No N/A

★

$$\text{RPD} = \frac{|\text{MS} - \text{MSD}|}{\left(\frac{\text{MS} + \text{MSD}}{2}\right)} \times 100$$

Relative Percent Difference

where:
MS = MS recovery
MSD = MSD recovery

Comments:_____

7. FIELD QC SAMPLES

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified? . . . . . (Yes) No N/A

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

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

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

Are performance audit sample results acceptable? . . . . . Yes No (N/A)

Comments: BOBMY0 → duplicate
BOBMZ2 & BOBMZ8 → equipment BLANKS

8. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . (Yes) No N/A

Are all positive results resolved acceptably? . . . . . (Yes) No N/A

Comments:_____

CMP 9/1/2

9. COMPOUND IDENTIFICATION AND QUANTITATION

Is compound identification acceptable? ..... (Yes) No N/A

Is compound quantitation acceptable? ..... (Yes) No N/A

★ Recalculate the valid detected results of at least two samples.

★

External Standard Calibration, Aqueous (EW) Samples

$$\text{Concentration } (\mu g/L) = \frac{(A_xEW)(AEW)(V_tEW)(DEW)}{(A_sEW)(V_iEW)(V_sEW)}$$

where:

A_xEW = response for sample (area counts/peak height)
AEW = amount of standard (ng)
A_sEW = response for external standard (area counts/peak height)
V_iEW = volume of extract injected (µL)
DEW = dilution factor
V_tEW = volume of total extract (µL)
V_sEW = volume of sample extracted (ml)

★

External Standard Calibration, Nonaqueous (ES) Samples

$$\text{Concentration } (\mu g/Kg) = \frac{(A_xES)(AES)(V_tES)(DES)}{(A_sES)(V_iES)(WES)(SES)}$$

where:

A_xES = response for sample (area counts/peak height)
AES = amount of standard (ng)
A_sES = response for external standard (area counts/peak height)
V_iES = volume of extract injected (µL)
DES = dilution factor
V_tES = volume of total extract (µL)
WES = weight of sample (g)
SES = dry weight conversion factor [(100 – %moisture)/100]

Comments: _____

9. COMPOUND IDENTIFICATION AND QUANTITATION (continued)

★

Internal Standard Calibration, Aqueous (IW) Samples

$$\text{Concentration } (\mu g/L) = \frac{(A_x IW)(C_{is} IW)(DIW)}{(A_{is} IW)(RFIW)(V_s IW)}$$

where:
$A_x IW$ = response for sample (area counts/peak height)
$C_{is} IW$ = amount of internal standard added (ng)
$A_{is} IW$ = response for internal standard (area counts/peak height)
DIW = dilution factor
RFIW = response factor for the analyte
$V_s IW$ = volume of sample extracted (ml)

★

Internal Standard Calibration, Nonaqueous (IS) Samples

$$\text{Concentration } (\mu g/Kg) = \frac{(A_x IS)(C_{is} IS)(DIS)}{(A_{is} IS)(RFIS)(W_s IS)(SIS)}$$

where:
$A_x IS$ = response for sample (area counts/peak height)
$C_{is} IS$ = amount of internal standard added (ng)
$A_{is} IS$ = response for internal standard (area counts/peak height)
DIS = dilution factor
RFIS = response factor for the analyte
$W_s IS$ = weight of sample extracted (g)
SIS = dry weight conversion factor [(100 - %moisture)/100]

Comments: _____

10. REPORTED RESULTS AND QUANTITATION LIMITS

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

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

Do results meet the CRQLs? . . . . . (Yes) No N/A

Comments: _____

LATA PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

MINOR DEFICIENCIES: BOBMP0 was extracted after acceptable hold time. The Sample results are qualified as estimated.

The initial Calibration Criteria was exceeded for Heptachlor, Heptachlor epoxide and 4,4'-DDD. The sample results for BOBMP0, BOBMW8, BOBMX2, BOBMY0 and BOBMZ2 are qualified as estimated.

The initial calibration criteria was exceeded for Heptachlor, Heptachlor epoxide, Dieldrin, 4,4'-DDD and Endrin Ketone. The sample results for BOBMZ8 are qualified as estimated.

COMMENTS: The Sample BOBMY0 was a project identified duplicate.

The Samples BOBMZ2 and BOBMZ8 were project identified Equipment Blanks. NO target Compounds were detected, however, several ~~are~~ were estimated to be non-detects.

BM 8-30-94

HOLDING TIME SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. Morris	DATE: 8-30-94	PAGE __ OF __

COMMENTS: PESTICIDES/PCBS

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMPO	PEST/PCBs	5-17-94	5-26-94	5-27-94	9	1	J/UJ

CALIBRATION DATA SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. MORRIS	DATE: 8-30-94	PAGE__OF__

COMMENTS: PESTICIDES/PCBS

CALIB. TYPE:	INITIAL	CONT	INSTRUMENT:

CALIB. DATE	COMPOUND	RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
5-25-94	Heptachlor		%RSD > 10 (12.2)	BOBMP0, BOBMW8, BOBMX2, BOBMY0, BOBMZ2	
	Heptachlor Epoxide		%RSD > 10 (10.3)		UJ
	4,4'-DDD		%RSD > 10 (15.5)		
6-12-94	Heptachlor		%RSD > 10 (11.5)	BOBMZ8	UJ
	Heptachlor Epoxide		%RSD > 10 (12.4)	↓	↓
	Dieldrin		%RSD > 10 (10.3)		
	4,4'-DDD		%RSD > 10 (10.6)		
	Endrin Ketone		%RSD > 10 (12.3)		

PNO-DVF-019, R1

80000

96154791.1234

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Instrument ID: 5890G Level (x low): low 1.0 mid 4.0 high 16.0

GC Column: DB-608 ID: 0.53(mm) Date(s) Analyzed: 05/25/94 05/26/94

COMPOUND	CALIBRATION FACTORS LOW	MID	HIGH	MEAN	%RSD
alpha-BHC	10700000	10300000	11000000	10700000	3.3
beta-BHC	6970000	6660000	5980000	6540000	7.7
delta-BHC	8540000	8360000	8150000	8350000	2.3
gamma-BHC (Lindane)	9380000	8680000	8430000	8830000	5.6
Heptachlor	6600000	5900000	5160000	5890000	12.2
Aldrin	10500000	9970000	10200000	10200000	2.6
Heptachlor epoxide	8730000	7920000	7100000	7920000	10.3
Endosulfan I	9150000	8410000	8290000	8620000	5.4
Dieldrin	7450000	6710000	6230000	6800000	9.0
4,4'-DDE	9560000	9790000	10600000	9980000	5.5
Endrin	6550000	5820000	5310000	5890000	10.6
Endosulfan II	6930000	6460000	6380000	6590000	4.5
4,4'-DDD	6680000	5800000	4890000	5790000	15.5
Endosulfan sulfate	5630000	5420000	5110000	5390000	4.9
4,4'-DDT	4160000	3900000	3600000	3890000	7.2
Methoxychlor	1250000	1160000	1000000	1140000	11.1
Endrin ketone	4810000	4460000	4070000	4450000	8.3
Endrin aldehyde	4060000	3840000	3380000	3760000	9.2
alpha Chlordane	11000000	10300000	10200000	10500000	4.2
gamma Chlordane	10800000	10100000	10000000	10300000	4.2
Tetrachloro-m-xylene	14000000	13700000	14700000	14100000	3.6
Decachlorobiphenyl	4720000	4550000	4150000	4470000	6.5

* Surrogate calibration factors are measured from Standard Mix A analyses

%RSD must be less than or equal 20.0% for all compounds except the surrogates, where %RSD must be less than or equal to 30.0%. Up to two target compounds, but not surrogates, may have %RSD greater than 20.0% but less than or equal to 30.0%.

BM 8-30-94

6E

PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0068 SAS No.: _____ SDG No.: W0068

Instrument ID: 5890G Level (x low): low 1.0 mid 4.0 high 16.0

GC Column: DB-608 ID: 0.53(mm) Date(s) Analyzed: 06/12/94 06/12/94

COMPOUND	CALIBRATION FACTORS LOW	MID	HIGH	MEAN	%RSD
alpha-BHC	10900000	10500000	10900000	10800000	2.1
beta-BHC	8120000	7590000	6790000	7500000	8.9
delta-BHC	9030000	8440000	8160000	8540000	5.2
gamma-BHC (Lindane)	10100000	9580000	9240000	9640000	4.5
Heptachlor	8220000	7410000	6520000	7380000	11.5
Aldrin	11600000	10300000	10300000	10700000	7.0
Heptachlor epoxide	9920000	8700000	7750000	8790000	12.4
Endosulfan I	10000000	9230000	8870000	9370000	6.2
Dieldrin	8350000	7440000	6810000	7530000	10.3
4,4'-DDE	10800000	10400000	10800000	10700000	2.2
Endrin	7410000	6630000	6070000	6700000	10.0
Endosulfan II	8230000	7390000	7000000	7540000	8.3
4,4'-DDD	7230000	6460000	5850000	6510000	10.6
Endosulfan sulfate	7920000	7250000	6950000	7370000	6.7
4,4'-DDT	6500000	5870000	5240000	5870000	10.7
Methoxychlor	2060000	1840000	1530000	1810000	14.7
Endrin ketone	7820000	6950000	6110000	6960000	12.3
Endrin aldehyde	4690000	4760000	4030000	4490000	9.0
alpha Chlordane	12900000	11500000	11000000	11800000	8.3
gamma Chlordane	12600000	11300000	10900000	11600000	7.7
Tetrachloro-m-xylene	15100000	14800000	15200000	15000000	1.4
Decachlorobiphenyl	14100000	12600000	10900000	12500000	12.8

* Surrogate calibration factors are measured from Standard Mix A analyses

%RSD must be less than or equal 20.0% for all compounds except the surrogates, where %RSD must be less than or equal to 30.0%. Up to two target compounds, but not surrogates, may have %RSD greater than 20.0% but less than or equal to 30.0%.

BM 8-30-94

PERCENT BREAKDOWN

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	Total Amount (ng) of DDE+DDD or endrin aldehyde +endrin ketone	Total Amount (ng) of DDE, DDE+DDT or endrin aldehyde, endrin ketone+endrin	% Breakdown
	TDA	TPA	
DDT PEMDE	0.01	0.10	10.4%
ENDRIN PEMDE	0.00	0.05	2.4%

961379.1737

000211

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Standard ID: INIT CAL 5-25-94
Date: 31-Aug-94
Validator: B. MORRIS

RF1
6600000
5900000
5160000

Constituent: HEPTACHLOR

MEAN	STDEV	RSD
5886667	720093	12.2

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Standard ID: INIT CAL 5-25-94
Date: 31-Aug-94
Validator: B. MORRIS

RF2
6550000
5820000
5310000

Constituent: ENDRIN

MEAN	STDEV	RSD
5893333	623244	10.6

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Standard ID: INIT CAL 6-10-94
Date: 31-Aug-94
Validator: B. MORRIS

RF3
14200000
13700000
13500000

Constituent: gamma-Chlordane

MEAN	STDEV	RSD
13800000	360555	2.6

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Standard ID: INIT CAL 6-10-94
Date: 31-Aug-94
Validator: B. MORRIS

RF4
10500000
11300000
13000000

Constituent: alpha-BHC

MEAN	STDEV	RSD
11600000	1276715	11.0

SURROGATE RECOVERY

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Sample ID: BOBMYO

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined Qd	quantity of surrogate added Qa	%R
TCX	0.020	0.020	100%
DCB	0.023	0.021	109%

9615479.1739

000213

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Sample ID: BOBMYO

Date: 31-Aug-94
Validator: B. MORRIS

Constituent	MS Result	MSD Result	Sample Result	Spike Added	MS %R	MSD %R	RPD
	MS	MSD	OS	SA			
ALDRIN	0.44	0.48	0.00	0.50	88%	96%	9%
ENDRIN	0.99	1.09	0.00	1.00	99%	109%	9%
DDT	1.13	1.18	0.00	1.00	113%	118%	4%

961579.1740

000214

EXTERNAL STANDARD CALIBRATION, AQUEOUS SAMPLES

Analysis: Pesticides/PCBs
SDG: WOO68-ITC-079
Sample ID: BOBMY0

Date: 34577
Validator: B. MORRIS

Constituent	Response for sample (area counts or peak height) AxEW	Amount of standard (ng) AEW	Response for external standard (area counts or peak height) AsEW	Volume of extract injected (µL) ViEW	Dilution Factor DEW	Volume of Total Extract (µL) VtEW	Volume of Sample Extracted (mL) VsEW	Conc (µg/L)
TCX	274144.00	0.02	2740000.00	1.00	1.00	10000.00	1000.00	0.0200
DCB	102257.00	0.02	910000.00	1.00	1.00	10000.00	1000.00	0.0225

PESTICIDES/PCBS QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
All reported analytes	MINOR	UJ	MP0	HOLD TIME	The holding times were exceeded by less than two times.
4,4'-DDD	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%
Dieldrin	MINOR	UJ	MZ8	OTHER	The % RSD for the initial calibration verification was greater than 10%
Endrin Ketone	MINOR	UJ	MZ8	OTHER	The % RSD for the initial calibration verification was greater than 10%
Heptachlor	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%
Heptachlor epoxide	MINOR	UJ	MW8,MX2,MY0, MZ2,MZ8,MP0	OTHER	The % RSD for the initial calibration verification was greater than 10%

9/20/94
dw for
entered by: WJC
date: 9/12/94

9/20/94
dw for
checked by: JMJ
date: 9/13/94

9613479.1743

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E
PROJECT: 100-FR-3			SDG: W0068-ITC-079		
VALIDATOR: B. Morris		LATA NO.: VW402.72		DATE: 9-1-94	
SAF NO.: 94-087		LAB: IT		CASE:	
QAPP REFERENCE:			SAP REFERENCE:		

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☒ CLP/ICP	☒ CLP/GFAA	☒ CLP/Hg	☐ CLP/CN	☐	☐
☐ SW-846/ICP	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846/CN	☐	☐

SAMPLES/MATRIX B0BMP0, B0BMP1, B0BMW8, B0BMW9, B0BX2, B0BX3, B0BZ2, B0BZ3, B0BZ8, B0BZ9, B0BY0, B0BY1

ALL WATER SAMPLES

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES *(see HOLDING TIME SUMMARY form)*

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

Comments: _____

CMM 9/1

Peer Review MW 9-9-94

3. INSTRUMENT PERFORMANCE AND CALIBRATIONS *(see CALIBRATION DATA SUMMARY form)*

Were initial calibrations performed on all instruments? . . . . . (Yes) No N/A

Are initial calibrations acceptable? . . . . . (Yes) No N/A

★ Recalculate the correlation coefficient (r) of the standard curves for atomic absorption and cyanide analyses.

$$\text{Correlation Coefficient (r)}$$

$$r = \frac{N \sum x_i y_i - \sum x_i \sum y_i}{[N \sum x_i^2 - (\sum x_i)^2]^{1/2} \; [N \sum y_i^2 - (\sum y_i)^2]^{1/2}}$$

Are ICP interference checks acceptable? . . . . . (Yes) No N/A

Were ICV and CCV checks performed on all instruments? . . . . . (Yes) No N/A

Are ICV and CCV checks acceptable? . . . . . (Yes) No N/A

★ Recalculate at least one ICV and CCV recovery for each method.

★

$$\text{ICV/CCV Recovery}$$

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: _____

_____

_____

_____

_____

4. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

Were ICB and CCB checks performed for all applicable analyses? . . . . . (Yes) No N/A

Are ICB and CCB results acceptable? . . . . . Yes (No) N/A

Were preparation blanks analyzed? . . . . . (Yes) No N/A

Are preparation blank results acceptable? . . . . . Yes (No) N/A

Comments: SEE Summary

_____

_____

_____

_____

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. ACCURACY *(see ACCURACY DATA SUMMARY form)*

Were spike samples analyzed? ..... (Yes) No N/A

Are all spike sample recoveries acceptable? ..... (Yes) No N/A

Were laboratory control samples (LCS) analyzed? ..... (Yes) No N/A

Are all LCS recoveries acceptable? ..... (Yes) No N/A

★

$$\%R = \frac{SSR - SR}{SA} \times 100$$

Spike Recovery

where:
SSR = spiked sample result
SR = sample result
SA = spike added

Comments: ~~BOBM~~ The spike recovery for CN was 127% (75-125), but the sample results were non-detects. NO qualification is necessary.

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Were laboratory duplicates analyzed? ..... (Yes) No N/A

Are all duplicate RPD values acceptable? ..... (Yes) No N/A

★

$$RPD = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

Relative Percent Difference

where:
OS = sample concentration (original sample/MS)
D = duplicate concentration (duplicate sample/MSD)

Comments:

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

6. PRECISION (continued) *(see PRECISION DATA SUMMARY form)*

Were ICP serial dilution samples analyzed? ..... (Yes) No N/A

Are all ICP serial dilution %D values acceptable? ..... (Yes) No N/A

★

$$\%D = \frac{\text{Percent Difference}}{\frac{|I - S|}{I} \times 100}$$

where:
I = analyte concentration before dilution
S = analyte concentration after serial dilution

Comments:

7. FIELD QC SAMPLES

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified? (Yes) No N/A

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

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

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

Are performance audit sample results acceptable? ..... Yes No (N/A)

Comments: BOBMY0 is a project identified duplicate.

The Samples BOBMZ2 and BOBMZ8 are project identified equipment blanks.

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

8. FURNACE AA QUALITY CONTROL

Were duplicate injections performed as required? ..... (Yes) No N/A

Are all duplicate injection %RSD values acceptable? ..... (Yes) No N/A

Were analytical spikes performed as required? ..... (Yes) No N/A

Are all analytical spike recoveries acceptable? ..... BM 9-27-94 (Yes) (No) N/A

Was MSA performed as required? ..... Yes No (N/A)

Are all MSA results acceptable? ..... Yes No (N/A)

Comments: Tl has recoveries outside of limits for BOBMP1, BOBMX2, ~~BOBMX3~~ BOBMX3 and BOBMPO

Se recovery was outside limits for BOBMP1

The analytical spike recoveries ~~of~~ BM 9-27-94 of Tl was outside control limits for BOBMP1, BOBMX2, BOBMX3 and BOBMPO. The Samples were qualified estimated (J/UJ).

The analytical spike recovery of Se was outside control limits for BOBMP1. The Sample was qualified as estimated (BJ)

9. REPORTED RESULTS AND DETECTION LIMITS

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

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

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

★

Inorganics Analysis Results Calculation, water sample

Concentration (µg/L) = CONCW × DFW

where:

CONCW = concentration off calibration curve (µg/L)

DFW = dilution factor (if any)

★

Inorganics Analysis Results Calculation, soil sample

$$\text{Concentration (mg/Kg)} = \frac{\text{CONCS} \times \text{DFS} \times \text{VOL}}{\text{WS} \times \text{SS}}$$

where:

CONCS = concentration off calibration curve (mg/L)

DFS = dilution factor (if any)

VOL = volume of final extract (ml)

WS = weight of sample (g)

SS = dry weight conversion factor [(100 - %moisture) × 100]

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

Comments:

9613479.1749

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES: NONE.

MINOR The Preparation blank data was outside acceptance Criteria for Zn in BOBMY0, BOBMW8, ~~BOBMW9~~, BOBMY1, ~~BOBMZ8~~ and ~~BOBMZ9~~. The results are qualified undetected (u).

MINOR DEFICIENCIES: Prep blank data was outside acceptance criteria for Ca in BOBMZ2, BOBMZ3, BOBMZ8 and BOBMZ9. Samples are qualified as undetected.

The Prep blank data was outside acceptance Criteria for Na in BOBMZ8 and BOBMZ9. Samples are qualified as undetected

The Prep blank data was outside Acceptance Criteria for Fe in BOBMW9, BOBMY0, BOBMY1, BOBMP0, BOBMP1, BOBMX2, BOBMX3, BOBMZ2, and BOBMZ3. Sample results ~~qualified~~ as undetected.

The Prep blank data was outside acceptance Criteria for Al in ~~BOBMW9~~ BOBMW9 BOBMY0 and BOBMY1. Samples are qualified as estimated (BJ).

The Continuing Calibration blank was outside acceptance Criteria for Cu in BOBMW8, BOBMW9, BOBMY0 and BOBMY1. Samples are qualified as estimated (UJ).

The Prep blank data was outside acceptance Criteria for Pb in BOBMP0, BOBMP1, BOBMX2 and BOBMX3 and BOBMZ3. Samples are qualified as undetected.

The Cont. Cal. Blank was outside acceptance criteria for K in BOBMY0 and BIBMY1. Samples are qualified as estimated (UJ.

COMMENTS:

The duplicate spike recoveries of Tl was outside acceptance criteria for BOBMP0 BOBMP1, BOBMX2 and BOBMX3. The Sample results are qualified as estimated (UJ).

The duplicate spike recovery of Se was outside acceptance Criteria for BOBMP1 the Sample is qualified as estimated (BJ).

COMMENTS: BOBMY0 is a project identified duplicate.

BOBMZ2 and BOBMZ8 are project identified equipment Blanks.

PNO-DVF-014, R1 BOBMW8, BOBMY0, MP0, MX2 and MZ2 were received without proper preservatives for the cyanide analysis. The results could be biased low.

~~Page 7 of 7~~

FURNACE DATA SHEET

File: 2SE0610_ Element: SE__ Instrument: PEZ1_____

Start Run Date: 06/10/94 End Run Date: 06/10/94

Correlation Coefficient: _____ Slope: _____ Intercept: _____

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
41	ALCSW0526A	14:02	1.00	0.06942	20.0600	95.9			
42	AA9710	14:07	1.00	0.00647	1.8700				
43	AA9710A	14:12	1.00	0.03494	10.0900	100.9			
44	AA9715	14:17	1.00	0.00717	2.0700		B		
45	AA9715A	14:22	1.00	0.03442	9.9400	78.7	*W		
46	AA9726	14:27	1.00	0.00442	1.2800				
47	AA9726A	14:32	1.00	0.03391	9.8000	98.0			
48	CCV4	14:37	1.00	0.15154	43.7800	109.4			
49	CCB4	14:42	1.00	0.00121	0.3500				
50	AA9731	14:47	1.00	0.00504	1.4600				
51	AA9731A	14:52	1.00	0.03400	9.8200	98.2			
52	AA9743	14:57	1.00	0.00208	0.6000				
53	AA9743A	15:02	1.00	0.03393	9.8000	98.0			
54	AA9749	15:07	1.00	0.00216	0.6200				
55	AA9749A	15:12	1.00	0.03437	9.9300	99.3			
56	APBW0607A	15:17	1.00	-0.00015	-0.0400				
57	APBW0607A	15:22	1.00	0.03423	9.8900	98.9			
58	ALCSW0607A	15:27	1.00	0.03441	9.9400	99.4			
59	ALCSW0607A	15:32	1.00	0.06696	19.3400	94.0			
60	CCV5	15:37	1.00	0.15160	43.8000	109.5			
61	CCB5	15:42	1.00	0.00160	0.4600				
62	AA9929	15:47	1.00	0.00010	0.0300				
63	AA9929A	15:52	1.00	0.03310	9.5600	95.6			
64	AA9951	15:58	1.00	0.00237	0.6800				
65	AA9951A	16:03	1.00	0.03464	10.0100	100.1			
66	APBW0607AS	16:08	1.00	0.00052	0.1500				
67	ALCSW0607AS	16:13	1.00	0.03487	10.0800	100.8			
68	AB0143	16:18	1.00	0.00124	0.3600				
69	AB0143S	16:24	1.00	0.03581	10.3500				
70	AB0143SD	16:29	1.00	0.03603	10.4100				
71	AB0147	16:34	1.00	0.00192	0.5500				
72	CCV6	16:40	1.00	0.13881	40.1000	100.2			
73	CCB6	16:45	1.00	0.00049	0.1400				
74	AB0173	16:50	1.00	0.00064	0.1900				
75	AB0177	16:55	1.00	0.00058	0.1700				
76	AB0181	17:00	1.00	0.00234	0.6800				
77	AB0185	17:05	1.00	0.00189	0.5500				
78	AB0190	17:11	1.00	0.00162	0.4700				
79	AB0195	17:16	1.00	0.00045	0.1300				
80	AB0200	17:21	1.00	-0.00006	-0.0200				

Analyst: FROUZAN_____ QC Reviewer: _____ BM 9-2-94

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FURNACE DATA SHEET

File: 4TL0608_ Element: TL__ Instrument: PEZ3_____

Start Run Date: 06/08/94 End Run Date: 06/09/94

Correlation Coefficient: _____ Slope: _____ Intercept: _____

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
41	AA9635S	19:09	1.00	0.13760	52.4000				
42	ZZZZZZ	19:14	1.00	0.18461	76.1500				
43	CCV3	19:20	1.00	0.11257	40.9900	102.5			
44	CCB3	19:25	1.00	0.00313	0.9200				
45	APBW0526A	19:30	1.00	0.00390	1.1400				
46	APBW0526A	19:35	1.00	0.06348	21.0600	105.3			
47	ALCSW0526A	19:40	1.00	0.14437	55.6300	111.3			
48	ALCSW0526A	19:45	1.00	0.19129	79.7700	120.7	*		
49	AA9710	19:50	1.00	0.00532	1.5600				
50	AA9710A	19:55	1.00	0.06886	23.0800	115.4			
51	AA9715	20:01	1.00	0.00434	1.2700				
52	AA9715A	20:06	1.00	0.07148	24.0800	120.4	*W		
53	AA9726	20:11	1.00	0.00464	1.3600				
54	AA9726A	20:16	1.00	0.06979	23.4400	117.2	*W		
55	CCV4	20:21	1.00	0.11373	41.5000	103.8			
56	CCB4	20:26	1.00	0.00238	0.6900				
57	AA9731	20:31	1.00	0.00294	0.8600				
58	AA9731A	20:36	1.00	0.06929	23.2500	116.2	*W		
59	AA9743	20:41	1.00	0.00234	0.6800				
60	AA9743A	20:46	1.00	0.06321	20.9500	104.8			
61	AA9749	20:51	1.00	0.00348	1.0200				
62	AA9749A	20:56	1.00	0.06309	20.9100	104.6			
63	APBW0607A	21:01	1.00	0.00346	1.0100				
64	APBW0607A	21:07	1.00	0.06618	22.0700	110.4			
65	ALCSW0607A	21:12	1.00	0.14398	55.4400	110.9			
66	ALCSW0607A	21:17	1.00	0.19173	80.0100	122.8	*		
67	CCV5	21:22	1.00	0.11037	40.0200	100.0			
68	CCB5	21:27	1.00	0.00173	0.5000				
69	AA9929	21:32	1.00	0.00391	1.1400				
70	AA9929A	21:38	1.00	0.06862	22.9900	115.0			
71	AA9951	21:43	1.00	0.00352	1.0300				
72	AA9951A	21:48	1.00	0.06661	22.2300	111.2			
73	APBW0607AS	21:54	1.00	0.00105	0.3100				
74	ALCSW0607AS	21:59	1.00	0.12158	45.0000	90.0			
75	AB0143	22:04	1.00	0.00281	0.8200				
76	AB0143S	22:10	1.00	0.12082	44.6500				
77	AB0143SD	22:15	1.00	0.12030	44.4200				
78	AB0147	22:20	1.00	0.00174	0.5100				
79	CCV6	22:25	1.00	0.10972	39.7400	99.4			
80	CCB6	22:30	1.00	0.00215	0.6300				

Analyst: frouzan_____ QC Reviewer: _____

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3
BLANKS

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO602 SAS No.: _____ SDG No.: W0068_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank (PBW0603A (0285) PBW0607A (0285) PBW0581 CPBW0610A (A0961) APBW0607A (0285))	C	M
Aluminum	40.0	U	40.0	U	40.0	U	40.0	U	40.000	U	P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Calcium	20.0	U	20.0	U	20.0	U	20.0	U	77.920	B	P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cobalt	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Copper	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Iron	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Magnesium	30.0	U	30.0	U	30.0	U	30.0	U	30.000	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Mercury	0.2	U	0.2	U	0.2	U	0.2	U	0.200	U	CV
Nickel	20.0	U	20.0	U	20.0	U	20.0	U	20.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.000	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Sodium	100.0	U	100.0	U	100.0	U	100.0	U	155.780	B	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Vanadium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	6.020	B	P
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	AS

Prep Blank
BOBM28
BOBM29

8 6/28/94

By 9-2-94

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3
BLANKS

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO583 SAS No.: _____ SDG No.: W0068_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

(CN) PBW0526
CPBW0610A (AB0468)
APBW0526A (9786)

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank PBW0526B (9784)	C	M
Aluminum	40.0	U	40.0	U	40.0	U	40.0	U	40.000	U	P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Calcium	20.0	U	20.0	U	20.0	U	20.0	U	40.580	B	P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cobalt	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Copper	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Iron	10.0	U	10.0	U	10.0	U	10.0	U	12.920	B	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.810	B	F
Magnesium	30.0	U	30.0	U	30.0	U	30.0	U	30.000	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.200	U	CV
Nickel	20.0	U	20.0	U	20.0	U	20.0	U	20.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.000	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Sodium	100.0	U	100.0	U	100.0	U	100.0	U	100.000	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Vanadium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	AS

Prep Blank

BOBMP0 BOBMX3
BOBMP1 BOBMZ2
BOBMX2 BOBMZ3

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3
BLANKS

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

(CV) PBW 0525
CPBW0601B (AB 0468)
APBW0524B (9679)

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Prepa-ration Blank PBW 0524B (9677)	C	M
Aluminum	40.0	U	40.0	U	40.0	U	40.0	U	-47.540	B	P
Antimony	50.0	U	50.0	U	50.0	U	50.0	U	50.000	U	P
Arsenic	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Barium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Beryllium	1.0	U	1.0	U	1.0	U	1.0	U	1.000	U	P
Cadmium	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Calcium	-29.6	B	-29.9	B	20.0	U	20.0	U	59.170	B	P
Chromium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Cobalt	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Copper	-13.5	B	-12.8	B	-10.2	B	-12.8	B	10.000	U	P
Iron	-14.8	B	-13.7	B	-10.4	B	10.0	U	48.350	B	P
Lead	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Magnesium	30.0	U	30.0	U	30.0	U	30.0	U	30.000	U	P
Manganese	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	P
Mercury	0.2	U	0.2	U	0.2	U			0.200	U	CV
Nickel	20.0	U	20.0	U	20.0	U	20.0	U	20.000	U	P
Potassium	1000.0	U	1000.0	U	1000.0	U	1000.0	U	1000.000	U	P
Selenium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Silver	5.0	U	5.0	U	5.0	U	5.0	U	5.000	U	P
Sodium	100.0	U	100.0	U	100.0	U	100.0	U	100.000	U	P
Thallium	2.0	U	2.0	U	2.0	U	2.0	U	2.000	U	F
Vanadium	10.0	U	10.0	U	10.0	U	10.0	U	10.000	U	P
Zinc	5.0	U	5.0	U	5.0	U	5.0	U	10.140	B	P
Cyanide	10.0	U	10.0	U					10.000	U	AS

Prep Blank
BOBMW8
BOBMW9
BOBMY0
BOBMY1

BM 9-2-94

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO579 SAS No.: _____ SDG No.: W0068_

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L_

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	CLGSW06018 (AB0470) Prepa-ration Blank	C	M
Aluminum			40.0	U	40.0	U	-50.9	B			P
Antimony			50.0	U	50.0	U	50.0	U			P
Arsenic											NR
Barium			2.0	U	2.0	U	2.0	U			P
Beryllium			1.0	U	1.0	U	1.0	U			P
Cadmium			5.0	U	5.0	U	5.0	U			P
Calcium			40.1	B	20.0	U	-29.6	B			P
Chromium			10.0	U	10.0	U	10.0	U			P
Cobalt			10.0	U	10.0	U	10.0	U			P
Copper			10.0	U	10.0	U	-12.8	B			P
Iron			10.0	U	-13.1	B	-16.1	B			P
Lead											NR
Magnesium			30.0	U	-60.2	B	-48.5	B			P
Manganese			2.0	U	2.0	U	2.0	U			P
Mercury									0.200	U	CV
Nickel			20.0	U	20.0	U	20.0	U			P
Potassium			1000.0	U	-1477.4	B	-1052.6	B			P
Selenium											NR
Silver			5.0	U	5.0	U	5.0	U			P
Sodium			100.0	U	100.0	U	100.0	U			P
Thallium											NR
Vanadium			10.0	U	10.0	U	10.0	U			P
Zinc			5.0	U	5.0	U	5.0	U			P
Cyanide											NR

BOBMW8 BOBM40
BOBMW9 BOBM41

8 c/24/94

BM
7-2-94

If there is any question about this, see the calibration graph displayed
in "Calib Graphs and Stats" menu selection, Results/Approval.

---------- End of Calibration Report ----------

QuikChem AE Postrun Report for Tray 94052601.RS
Method: CN RG .01 -.50 mg/L

This report prepared on 05/26/94 at 04:08 pm.
This tray was run on 05/26/94 at 04:00 pm.
Operator: DFW Tray Template: CYANIDE

-- Calibration now in effect is Ref: 94052601, 05/26/94, 03:32 pm

20PPMX5ML/500ML=.2PPM CHKSTD +/-15% DISTILLED BY MSP 5/25/94
WATER SAMPLES ----

W.O. #579

-- Page 1 of report for tray 94052601.RS ----------

Cup#	Sample ID	1 CN RG .01 -.50 mg/L mg/l
101	IC .2PPM LCS N2351	0.225 ✓
102	P6240 DI H2O BLANK	-0.006 ✓
103	ICB	-0.005 ✓
104	WO#572-AA9502-	0.026
105	WO#577-AA9604-	-0.004
106	WO#579-AA9617-	0.008 ✓
107	AA9631-DS-	-0.009<
108	AA9631-DUP-	-0.004
109	BLK SPK N2350-	0.254
110	IC .2PPM LCS N2351-	0.184 ✓
111	CCB	-0.006 ✓

$\frac{0.254}{0.200} \times 100 = 127\%$

too high
(75-125)

> Concentration was significantly greater than the high standard's concentration.

< Concentration was significantly less than the lowest non-zero standard's concentration.
< If sample was diluted, concentration after dilution is shown.

--------- End of Report for Tray 94052601.RS ----------

BM
9-2-94

LINEAR REGRESSION ANALYSIS

Analysis: Inorganic (metals/CN)
Constituent: GFAA--ARSENIC
SDG: WOO68-ITC-079

Calibration Date: 10-Jun-94

Date: 1-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	0.001
10.00	0.062
20.00	0.134
40.00	0.248
60.00	0.366
80.00	0.478

r	r^2
0.9995	0.9990

slope	x intercept
167.8009	-1.0445

1/slope	y intercept
0.0060	0.0064

LINEAR REGRESSION ANALYSIS

Analysis: Inorganic (metals/CN)
Constituent: CYANIDE
SDG: WOO68-ITC-079

Calibration Date: 26-May-94

Date: 1-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	-0.002
0.01	0.003
0.02	0.009
0.05	0.025
0.10	0.051
0.20	0.099
0.40	0.189

r	r^2
0.9995	0.9989

slope	x intercept
2.0884	-0.0004

1/slope	y intercept
0.4788	0.0003

LINEAR REGRESSION ANALYSIS

Analysis: Inorganic (metals/CN)
Constituent: MERCURY
SDG: W0068-ITC-079

Calibration Date: 10-Jun-94

Date: 1-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	1.000
0.50	13.500
1.00	25.500
2.00	48.000
3.00	70.500
6.00	128.000

r	r^2
0.9986	0.9972
slope	x intercept
0.0473	-0.1730
1/slope	y intercept
21.1625	3.7849

PERCENT RECOVERY (ICV/CCV)

Analysis: Inorganic (metals/CN) Date: 1-Sep-94
SDG: WOO68-ITC-079 Validator: B. MORRIS

Constituent	Observed Value	True Value	%R
	O	A	
aluminum	19996.00	20000.00	100.0%
beryllium	3935.00	4000.00	98.4%
lead	25.79	25.00	103.2%
selenium	39.94	40.00	99.9%
cyanide	209.00	200.00	104.5%
mercury	4.13	4.00	103.3%
mercury	4.32	4.00	108.0%
cyanide	225.00	200.00	112.5%
cyanide	184.00	200.00	92.0%
cyanide	185.00	200.00	92.5%
aluminum	20629.00	20000.00	103.1%
barium	4008.00	4000.00	100.2%

961379.1759

000233

MATRIX SPIKE RECOVERY (MS)

Analysis: Inorganic (metals/CN)
SDG: WOO68-ITC-079
Sample ID: BOBMY0/BOBMY1

Date: 1-Sep-94
Validator: B. MORRIS

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
Aluminum	1929.1	67.1	2000.0	93.1%
Cyanide	254.0	0.0	200.0	127.0%
Lead	19.3	0.0	20.0	96.5%
Mercury	1.1	0.0	1.0	105.3%
Aluminum	1893.1	73.4	2000.0	91.0%
Lead	19.0	0.0	20.0	94.9%
Mercury	1.1	0.0	1.0	105.3%

961379.1760

000234

s

PERCENT RECOVERY (LCS)

Analysis: Furnace LCS0524 Date: 1-Sep-94

SDG: WOO68-ITC-079 Validator: B. MORRIS

Constituent	Observed value	True value	%R
	OLCS	ALCS	
Cyanide	185.00	200.00	92.5%
"	225.00	200.00	112.5%
"	96.00	100.00	96.0%
Mercury	4.32	4.00	108.0%
Lead	19.93	20.00	99.7%
"	19.03	20.00	95.2%
Barium	2058.38	2000.00	102.9%
"	1875.47	2000.00	93.8%
"	1957.03	2000.00	97.9%

961479.1761

RELATIVE PERCENT DIFFERENCE

Analysis: Inorganic (metals/CN)
SDG: WOO68-ITC-079
Sample ID: BOBMY0/BOBMY1

Date: 1-Sep-94
Validator: B. MORRIS

Constituent	Original (Sample) concentration OS	Duplicate concentration D	RPD
Barium	21.1	20.5	2.8%
Lead	0.0	0.0	undetected
Mercury	0.0	0.0	undetected
Cyanide	0.0	0.0	undetected
Barium	22.83	20.86	9.0%
Lead	0.00	0.00	undetected
Mercury	0.00	0.00	

PERCENT DIFFERENCE (ICP SERIAL DILUTION)

Analysis: ICP
SDG: WOO68-ITC-079
Sample ID: BOBMY0/BOBMY1

Date: 1-Sep-94
Validator: B. MORRIS

Constituent	Analyte Concentration before Dilution I	Analyte Concentration after Serial Dilution S	%D
Calcium	26083.4	25728.5	1.4%
Calcium	23956.2	23327.3	2.6%
Magnesium	4422.2	4166.7	5.8%
Magnesium	4037.5	3756.3	7.0%

9615479.1763

000237

INORGANICS RESULTS CALCULATION, WATER

Analysis: Inorganic (metals/CN)
SDG: WOO68-ITC-079
Sample ID: BOBMY0

Date: 1-Sep-94
Validator: B. MORRIS

Constituent	Concentration from curve CONCW	Dilution Factor DFW	Concentration (µg/L)
Aluminum	67.07	1	67.1
Lead	1.06	1	1.1
Mercury	0.00	1	0.0
Cyanide	0.01	1	0.0

INORGANICS QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
Selenium	MINOR	BJ	MP1	ACCURACY	The analytical spikes for graphite furna were outside the acceptance criteria.
Thallium	MINOR	UJ	MP0,MP1,MX2,MX3	ACCURACY	The analytical spikes for graphite furna were outside the acceptance criteria.
Aluminum	MINOR	BJ	MY0,MY1,MW9	BLANKS	The absolute value of the preparati blank was between the IDL and CRI with associated sample results less th 2x the highest blank concentration.
Calcium	MINOR	U	MZ2,MZ3,MZ8,MZ9	BLANKS	The preparation blank values we between the IDL and the CRDL w associated sample results less than the highest blank concentration.
Copper	MINOR	UJ	MW8,MW9,MY0, MY1	BLANKS	The absolute value of the calibrati blank was between the IDL and CRI with associated sample results less tha 2x the highest blank concentration.
Iron	MINOR	U	MW9, MY0, MY1, MP0, MP1, MX2, MX3, MZ2, MZ3	BLANKS	The preparation blank values we between the IDL and the CRDL wi associated sample results less than the highest blank concentration.
Lead	MINOR	U	MP0, MP1, MX2, MX3, MZ3	BLANKS	The preparation blank values wer between the IDL and the CRDL wi associated sample results less than the highest blank concentration.
Potassium	MINOR	UJ	MY0,MY1	BLANKS	The absolute value of the calibratic blank was between the IDL and CRI with associated sample results less tha 2x the highest blank concentration.
Sodium	MINOR	U	MZ8,MZ9	BLANKS	The preparation blank values wer between the IDL and the CRDL wit associated sample results less than the highest blank concentration.
Zinc	MINOR	U	MW8,MY0,	BLANKS	The preparation blank values wer between the IDL and the CRDL wit associated sample results less than the highest blank concentration.

9613479.1766

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E
PROJECT: 100-FR-3			SDG: W0068-ITC-079		
VALIDATOR: B. MORRIS		LATA NO: VW402 72		DATE: 9-6-94	
SAF NO.:		LAB: IT		CASE:	
QAPP REFERENCE:			SAP REFERENCE:		

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☒ Alkalinity 310.1	☐ Chloride 325.3	☒ pH 9040/150.1	☒ TOC 9060/415.1	☒ TDS 160.1 ☐ TSS 160.2	☐
☒ Anions 300.0	☐ Chromium+6 7196	☐ Phenols 9065/420.1	☒ TOX 9020/9022	☐ Sulfate 375.4	☐
☒ Ammonia 350.3	☒ COD 410.1	☐ Phosphorus 365.2	☐ TKN 351.3	☒ Sulfide 9030/376.1	☐
☐ BOD 405.1	☒ Nitrate+Nitrite 353.2	☐ Oil & Grease 413.1	☐ TPH 9070/418.1	☒ COND 9050	☐

SAMPLES/MATRIX B0BMW8, B0BMY0, B0BMZ2, B0BMP0
B0BMX2, B0BMZ8

All WATER

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

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

Comments: _____

2. HOLDING TIMES *(see HOLDING TIME SUMMARY form)*

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

Comments: DWO 9/6/94 ~~FOX~~, Phosphate and pH for all samples.
Sulfide (B0BMP0), TDS (B0BMP0, B0BMY0)
TDS and Sulfide were cancelled according to WHC ROD, but were Run anyway. Samples are validated.

CMO 9/19/

Peer Review MW 9-9-94

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION *(see CALIBRATION DATA SUMMARY form)* BM 9-6-94

Was initial calibration performed for all applicable analyses?	(Yes)	(No)	N/A
Are initial calibration results acceptable?	(Yes)	No	N/A
Was a calibration check performed for all applicable analyses?	(Yes)	No	N/A
Are calibration check results acceptable?	(Yes)	No	N/A

★ For methods requiring a calibration curve (three standards and a blank) use the following equation for correlation coefficient (r).

$$\text{Correlation Coefficient (r)}$$

$$r = \frac{N \sum x_i y_i - \sum x_i \sum y_i}{[N \sum x_i^2 - (\sum x_i)^2]^{1/2} \; [N \sum y_i^2 - (\sum y_i)^2]^{1/2}}$$

★ For methods requiring ICV/CCV or a calibration check standard, calculate recovery as follows:

$$\text{Recovery}$$

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: An analytical balance check was not conducted prior to TDS analysis.

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

4. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

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

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

Comments: _____

5. ACCURACY *(see ACCURACY DATA SUMMARY form)*

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

Are all spike recoveries acceptable? ..... Yes (No) N/A

★

$$\%R = \frac{SSR - SR}{SA} \times 100$$

Spike Recovery

where:
SSR = spiked sample result
SR = sample result
SA = spike added

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

Are all LCS recoveries acceptable? ..... (Yes) No N/A

★

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Recovery

Comments: The MS/MSD Recovery of TOX was 150%. B0BMY0 and B0BMZ8 are J, no qual. req. on Rest of Samples

CMD 9/19

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

6. PRECISION *(see PRECISION DATA SUMMARY form)*

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

Are all duplicate RPD values acceptable? . . . . . (Yes) No N/A

★

$$\text{RPD} = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

Relative Percent Difference

where:
OS = sample concentration (original sample/MS)
D = duplicate concentration (duplicate sample/MSD)

Comments:

7. FIELD QC SAMPLES

Were field QC samples (field/trip blanks, duplicates, splits, performance audit) identified? (Yes) No N/A

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

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

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

Are performance audit sample results acceptable? . . . . . Yes No (N/A)

Circl. ← 13. 9-28

Comments: BOBM40 is a project identified duplicate.

CMS 9/19/

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

8. ANALYTE QUANTITATION

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

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

★ For methods with calibration curves:

General Chemistry Results Calculation, water sample

Concentration (µg/L) = CONCW × DfW

where:

CONCW = concentration off calibration curve (µg/L)

DfW = dilution factor (if any)

or

General Chemistry Results Calculation, soil sample

$$\text{Concentration (mg/Kg)} = \frac{(\text{CONCS} \times \text{DfS} \times \text{VOL})}{(\text{WS} \times \text{SS})}$$

where:

CONCS = concentration off calibration curve (mg/L)

VOL = volume of final extract (ml)

WS = weight of sample (g)

DfS = dilution factor (if any)

SS = dry weight conversion [(100 - %moisture) × 100]

★ For all other results calculations, see the analytical method.

Comments: _____

9. REPORTED RESULTS AND DETECTION LIMITS

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

Are results supported in the raw data? ..... (Yes) No N/A

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

Comments: No pH reported for BOBMW8; BOBMY0 had to be found from the Raw data.

The CRDL for TOX is 5, but the lab reports at 20.

9613479.1771

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

The holding time for pH was 49 days in Sample BOBMY0. The results are Rejected (R).

The holding time for phosphate was exceeded in All samples. The results are rejected (UR)

BM 9-7-94

* Except BOBMY0

MINOR DEFICIENCIES: The holding time* ~~for phosphate and~~ pH were exceeded for all samples*. The pH results are qualified as estimated (J) ~~and the phosphate results are rejected (UR).~~ BM 9-7-94

The holding time for TDS was exceeded in BOBMP0 and BOBMY0. The results are qualified as estimated (J).

The holding time for Sulfide was exceeded in BOBMP0. The results are qualified as estimated (J).

The analytical balance check was not conducted prior to TDS analysis. The Sample results are qualified as estimated (J).

The matrix spike recovery of TOX was outside acceptance criteria in BOBMY0 and BOBMZ8. The results are qualified as estimated (J).

COMMENTS: A pH value could not be found for BOBMW8. The pH value for BOBMY0 was not reported, but was found in the raw data.

The CRDL for TOX is 5, However, the laboratory is using 20.

The Sample BOBMY0 was a project identified duplicate.

NO BALANCE CHECK

ITAS-KNOXVILLE
RAW DATA WORKSHEET (SOLIDS OR OIL & GREASE)

Filed with Project Code: 579

Group Supervisor /Date:

Checked and Approved by/Date: CWKemker 6-23-94

000051

Project Code	Parameter/Method	Sample No.	Sample Type	Sample Volume	Gross Wt.	Tare Wt.	Residue Wt.	Residue Wt. (mg)	Final Concentration*	Analyst/Date	% RPD or Comments
	TSS (160.2)		BLANK	100mL	17.04009 17.04006	17.04011	—	—	<1 mg/L	5/26/94	5
572		AA9500	H2O	50mL	17.74039 17.74033	17.73852	0.00181	1.81	36	jem	80
568		AA9478	↓	10mL	17.70810 17.70807	17.70713	0.00094	0.94	94		29
	TDS (160.1)	~~AA~~ jem 6/2	BLANK	100mL	72.1287 72.1285	72.1285	—	—	<1		0
579		AA9620	H2O	↓	72.7490 72.7489	72.6678	0.08110	✓81.1	✓811		H
		AA9634	↓	↓	74.5941 74.5939	74.5803	0.01360	✓13.6	✓136		Q
		dup	↓	↓	65.8873 65.8870	65.8736	0.01340	13.4	134		I
577		AA9577	↓	↓	68.4761 68.4758	68.4131	0.06270	62.7	627		II
		AA9600	↓	↓	67.0465 67.0463	67.0297	0.01660	16.6	166		II
					jem 6/2						

Parameter	Batch QC with Project No.

NOTES: * Final Concentration = Residue Wt. (mg) x 1000/Sample Volume or Weight (ml or g)

%RPD = F - G / (F + G/2) x 100

[redacted]

ITAS-K-WA005R4

000246

000329

9613479.1772

Filed with Project Code: 583

ITAS-KNOXVILLE
RAW DATA WORKSHEET (SOLIDS OR OIL & GREASE)

000052

Group Supervisor /Date:

Checked and Approved by/Date: CWKamler 6.23.94

Project Code	Parameter/Method	Sample No.	Sample Type	Sample Volume	Gross Wt.	Tare Wt.	Residue Wt.	Residue Wt. (mg)	Final Concentration*	Analyst/Date	% RPD or Comments
591	TOT. SETT. (160.5) TDS (160.1)	AA 9795	H2O	1L					<.1 mg/L	5/26/94	
			BLANK	100 mL	69.2533 / 69.2533	69.2533	—	—	<1 mg/L	jl.mm	G
548		AA 9161	P.E.		71.6399 / 71.6398	71.5981	0.04170	41.7	417		F
		dup	↓		~~56.7768 / 56.7766~~ 71.6348	56.7476	0.02900	29.0	290	~~360~~	Y
		dup	↓		67.0609 / 67.0607	67.0236	0.03710	37.1	371	394	OP
583		AA 9723	H2O		56.3466 / 56.3461	56.2944	0.05170	✓51.7	✓517		7-21
		AA 9740	↓		59.4607 / 59.4605	59.4602	0.00030	✓0.3	✓3		T.1
		AA 9707	↓	↓	65.0388 / 65.0384	65.0092	0.02920	✓29.2	✓292		M
	TSS (160.2)		BLANK	100 mL	17.10503 / 17.10500	17.10502	—	—	<1		BZ
590	*	AA 9793	H2O	20 mL	17.06611 / 17.06609	17.05470	0.00939	9.39	470 ↓		7
						jlmm	6/2				

* SAMPLE had large white particles floating in it.

Parameter	Batch QC with Project No.

NOTES: * Final Concentration = Residue Wt. (mg) x 1000/Sample Volume or Weight (ml or g)

%RPD = F - G / (F + G/2) x 100

[redacted]

ITAS-K-WA003R4

000247

6-9-94

0003330

96134791773

ITAS-KNOXVILLE
RAW DATA WORKSHEET (SOLIDS OR OIL & GREASE)

Filed with Project Code: 602

Group Supervisor /Date:

Checked and Approved by/Date: CW Hunter 6/28/94

000055

Project Code	Parameter/Method	Sample No.	Sample Type	Sample Volume	Gross Wt.	Tare Wt.	Residue Wt.	Residue Wt. (mg)	Final Concentration*	Analyst/Date	% RPD or Comments
	TOT. SOLIDS (160.3)		Blank	30ML	27.45849 / 27.45847	27.45841	0.00001	0.010	<1 mg/g	5/31/94	53
603		AA9974	P.E.	50ML	54.7492 / 54.7490	54.7124	0.03660	36.6	732	gem	Y6
		dup	↓	↓	62.1591 / 62.1589	62.1231	0.03580	35.8	716	~~733~~ gem qc	04
		dup	↓	↓	71.0363 / 71.0361	70.9985	0.03760	37.6	752	724	U-14
	TDS (160.1)		Blank	30 ML	28.80916 / 28.80915	28.80913	0.00002	0.020	<1		w44
602		AA9939	H_2O	30ML	31.46133 / 31.46130	31.45887	0.00243	2.43 ✓	81		54
603		AA9974	P.E. H_2O	50ML	61.8778 / 61.8776	61.8427	0.03490	34.9	698	701	Y4
		dup	P.E.	↓	68.3899 / 68.3895	68.3523	0.03720	37.2	744	~~#5~~ gem 4/2	V
		dup	P.E.	↓	73.0685 / 73.0683	73.0331	0.03520	35.2	704		P
	TSS (160.2)		Blank	100 ML	17.85273 / 17.85273	17.85275	—	—	<1		BA
601		AA9918	H_2O	10ML	17.57901 / 17.57900	17.57778	0.00122	1.22	122		12
603		AA9975	P.E.	100ML	17.59699 / 17.59697	17.59118	0.00579	5.79	57.9 ✓	58	BO

Total Solids should equal TDS + TSS, but it doesn't.

Parameter	Batch QC with Project No.

NOTES: * Final Concentration = Residue Wt. (mg) x 1000/Sample Volume or Weight (ml or g)

%RPD = $\frac{F - G}{(F + G/2)}$ x 100

[redacted]

ITAS-K-[illegible]

000248

BM 6.6.94

9615479.1274

0003331

pH RAW DATA WORKSHEET

SOP#:ITAS-KN-WC-6012
Analyst: JLM

Date: 7-6-94
Detection Limit: 0.01 pH units

Calibration of pH meter (Orion):

Lot# N097 Buffer 4 3.99
Lot# _____ Buffer 7 _____
Lot# _____ Buffer 10 _____

Slope: 98.4

	Project Code	Sample Number	Matrix	Weight (g) or mL of Sample	pH	RPD
1	579	~~AA~~ 9625	H2O	50 mL	7.44	
2	↓	dup	↓	↓	7.44	0%
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						

JLM 7/5/94

Comments: AA9625 (DS) @ 11.1 °C
AA 9625 (dup) @ 10.9 °C

Reviewed By: J Mullins Date: 7-6-94
Approved By: _____ Date: _____

ITAS-K-WW032-R1

BM 9-6-94

Tox

6-15-94

WO #	Sample #	carbon Pack #1	#2	Total ug	AJR Volume	Reporting Value
QA/QC	2 mg std	1.75			4 mL	
	10 mg std	9.92			20 mL	
	NO3 BLK	0.21			2 mL	
↓	↓	0.79			↓	
	LCS-5mg	1.35	4.86	6.21 ~~5.21~~ AJR 6-15-94	100 mL	52.1 ~~6.21~~ AJR 6-15-94
579	AA 9633	3.40		3.40	50 mL	AJR 6-15-94 ~~68~~ 48
↓	↓ MS	8.56			100 mL	75.6
↓	↓ MSD	8.63			100 mL	76.3
577	AA 9606	4.72		4.72	100 mL	37.2
QA/QC	NO3 BLK	0.26			2 mL	
	~~High Std 9mg~~ 9 mg AJR 6-15-94	8.1			16 mL	

NO3 BLK avg - 0.50

[redacted]

Calculations for Reporting Value

$$\frac{(A+B)-2C}{\text{Vol (mL)}} \times 1000 = \text{ug/L}$$

A = Carbon 1
B = ↓ 2
C = Avg NO3 BLK

LCS recovery 104.2%

Detection limit .20 mg/L

The LCS & MS, MSD were spiked with 10 ml of a 0.5 mg/L 2,4,6 Trichlorophenol Spike.

NOTE: During the run the power went out, when it came back on a check std was ran. The check std passed with a 91.2% recovery. After the power went out so did the printer the rest of the results were recorded manually ~~manually~~

BM 6-6-94

HOLDING TIME SUMMARY

SDG: W0068 - ITC - 079	VALIDATOR: B. MORRIS	DATE: 9-6-94	PAGE 1 OF 2
COMMENTS: INORGANIC ANALYSES			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMW8	TOX	5-19-94		6-15		27	~~J/UR~~ BM 9-7-94
	Phosphate			6-13		25	J/UR
BOBMP0	pH	5-17-94		5-26		9	J
	Sulfide			5-26		9	J/UJ
	TDS			5-26		9	J/UJ
	TOX			6-15		29	~~J/UR~~ UJ BM 9-7-94
	Phosphate			6-6		20	J/UR
BOBMZ2	pH	5-20-94		5-26		6	J
	Phosphate			6-6		17	J/UR
	TOX			6-15		26	~~J/UR~~
BOBMX2	pH	5-23-94		5-26		3	J BM 9-7-94
	Phosphate			6-6		14	J/UR
	TOX			6-15		23	~~J/UR~~
BOBMZ8	pH	5-25-94		5-31		6	J
	TOX			6-22		28	~~J/UR~~
	Phosphate			6-6		12	J/UR

9425479.1777

000251

HOLDING TIME SUMMARY

SDG: W0068-ITC-079	VALIDATOR: B. Morris	DATE: 9-6-94	PAGE 2 OF 2

COMMENTS: INORGANIC ANALYSES

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMY0	pH	5-18-94		7-6-94		49	R
	TDS			5-26		8	J/UJ
	TOX			6-15		28	~~J/UR~~ BM 9-7-94
	Phosphate			6-13		26	J/UR

0002522

PNO-DVF-014, R1

96134796

ACCURACY DATA SUMMARY

SDG: W0068 - ITC-079	VALIDATOR: B. MORRIS	DATE: 9-7-94	PAGE__OF__
COMMENTS: GENERAL CHEMISTRY ANALYSES			

FIELD SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER
BOBMY0	TOX	150	BOBMY0, BOBMZ8	J

000253

PNO-DVF-013, R1

96134679.179

LINEAR REGRESSION ANALYSIS

Analysis: General Chemistry
Constituent: FLUORIDE
SDG: W0068-ITC-079

Calibration Date: 31-May-94

Date: 6-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	0.000
0.40	467196.000
2.00	2392712.000
4.00	5523691.000

r	r^2
0.9976	0.9951

slope	x intercept
0.0000	0.0846

1/slope	y intercept
1383058.3792	-106246.7016

LINEAR REGRESSION ANALYSIS

Analysis: General Chemistry
Constituent: NO2/NO3
SDG: W0068-ITC-079

Calibration Date: 3-Jun-94

Date: 6-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	-0.0008
0.02	-0.0001
0.04	0.0008
0.10	0.0034
0.40	0.0174
1.00	0.0471
2.00	0.0941

r	r^2
0.9999	0.9999

slope	x intercept
20.9688	0.0236

1/slope	y intercept
0.0477	-0.0011

PERCENT RECOVERY (ICV/CCV)

Analysis: General Chemistry
SDG: W0068-ITC-079

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Observed Value	True Value	%R
	O	A	
CHLORIDE	3.11	3.00	103.7%
NO2/NO3	0.95	1.00	94.8%
NO2/NO3	0.98	1.00	98.1%
TOC	24.73	25.00	98.9%
TOX	9.56	10.00	95.6%

000255

MATRIX SPIKE RECOVERY (MS)

Analysis: General Chemistry
SDG: W0068-ITC-079
Sample ID: BOBMY0

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
AMMONIA	0.93	0.00	1.00	93.0%
COD	47.00	0.00	50.00	94.0%
NO2/NO3	2.48	0.00	2.50	99.0%
SULFIDE	50.00	5.00	42.00	107.1%
TOC	33.57	0.00	32.00	104.9%
TOX	75.60	0.00	50.00	151.2%
CHLORIDE	4.70	1.40	3.00	110.0%

PERCENT RECOVERY (LCS)

Analysis: General Chemistry
SDG: W0068-ITC-079

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Observed value OLCS	True value ALCS	%R
TOX	52.10	50.00	104.2%
CHLORIDE	2.90	3.00	96.7%
ALKALINITY	188.00	186.00	101.1%
AMMONIA	1.92	2.00	96.0%
COD	55.00	50.00	110.0%
NO2/NO3	0.96	1.00	96.1%
COND	946.00	1090.00	86.8%
TOC	26.22	25.00	104.9%

RELATIVE PERCENT DIFFERENCE

Analysis: General Chemistry
SDG: W0068-ITC-079
Sample ID: BOBMY0

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Original (Sample) concentration OS	Duplicate concentration D	RPD
ALKALINITY	78.00	81.00	3.8%
AMMONIA	0.93	0.93	0.0%
COD	47.00	45.00	4.3%
NO2/NO3	2.47	2.48	0.3%
pH	7.44	7.44	0.0%
SPEC. COND.	202.00	202.00	0.0%
SULFIDE	45.00	41.00	9.3%
TOC	33.57	32.61	2.9%
TOX	75.60	76.30	0.9%
CHLORIDE	4.70	4.70	0.0%

GENERAL CHEMISTRY RESULTS CALCULATION, WATER

Analysis: General Chemistry
SDG: W0068-ITC-079
Sample ID: BOBMY0

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Concentration from curve CONCW	Dilution Factor DfW	Concentration (µg/L)
CHLORIDE	1.40	1	1.4
ALKALINITY	78.00	1	78.0
AMMONIA	0.00	1	0.0
COD	0.00	1	0.0
SPEC. COND.	202.00	1	202.0
NO2/NO3	0.63	1	0.6
TOC	0.00	1	0.0
TOX	48.00	1	48.0

GENERAL CHEMISTRY QUALIFICATION SUMMARY

ANALYTE	DISCREPANCY TYPE	QUALIFIER	SAMPLES AFFECTED BOB-	DQO	REASON
pH	**MAJOR**	**R**	MY0	HOLD TIME	The holding times were grossly exceeded.
Phosphate	**MAJOR**	**UR**	MW8,MYO,MZ2, MP0,MX2,MZ8	HOLD TIME	The holding times were exceeded by greater than two times.
TOX	MINOR	J	MY0,MZ8	ACCURACY	The MS/MSD spike recoveries for accuracy were greater than 125% .
pH	MINOR	J	MZ2,MP0,MX2,MZ8 MW8	HOLD TIME	The holding times were exceeded by less than two times.
Sulfide	MINOR	J	MP0	HOLD TIME	The holding times were exceeded by less than two times.
TDS	MINOR	J	MP0,MY0	HOLD TIME	The holding time was exceeded.
TDS	MINOR	J	MW8,MYO,MZ2, MP0,MX2,MZ8	OTHER	No balance check performed.

entered by: BM
date: 10-5-94

checked by: [illegible]
date: 10-5-9[illegible]

9613479.1787

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E
PROJECT: D 100-FR-3 (MW 8-27-94)			SDG: W0068-TIC-079		
VALIDATOR: MWeb5		LATA NO.: VW401. (VW402 72)		DATE: 8-27-94	
SAF NO.: 94-037		LAB: HTC		CASE: –	
QAPP REFERENCE:			SAP REFERENCE:		

If there is no QAPP or SAP reference, contact the WHC Technical Representative.
If the document(s) are not provided, default to the Method acceptance criteria.

ANALYSES PERFORMED

☒ Gross Alpha ☒ Gross Beta	☐ Strontium-89 TOT ☒ Strontium-90	☒ Technetium-99	☒ Isotopic Anal. Alpha Spec. AN	☒ Gamma Spectroscopy	☐ Iodine-129
☐ Total Uranium (KPA)	☐ Radium-226 ☐ Radium-228	☒ (LSC) Liquid Scintillation H3	☒ PU	☒ U-ISO	☒ C14

SAMPLES/MATRIX (4801) B0GMW8 (0403) B0BMZ2 (eq. blk) Water

(4802) B0BMY0 (dup) B0BMZ8 (7301) (eq blk)

(0401) B0GMP0

(0402) B0BMX2

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification forms present? ..... (Yes) No N/A

Compliance screening form present? ..... (Yes) No N/A

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

Were all analyses requested reported? ..... (Yes) No N/A

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

Comments: A result for some analytes was reported, but the re-analysis of U-ISO B0BMY0 was not reported as stated in the case narrative.

2. CHAIN-OF-CUSTODY/HOLDING TIMES

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

Are samples preserved correctly? ..... (Yes) No N/A MW 8-28-94

Was the pH of the sample checked prior to analysis? ..... (Yes) No (N/A)

Comments: No evidence that pH was checked prior to analysis.
Per review BM 9-6-94 pH accepted – no variance reports

CWD 9/19/94

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

3. INITIAL CALIBRATION

Instruments/detectors calibrated within one year of sample analysis? ..... Yes (No) N/A

Initial calibration acceptable? ..... (Yes) No N/A

Standards NIST traceable? ..... (Yes) No N/A

Standards Expired? ..... Yes (No) N/A

Comments: Initial Calib accepted based on acceptable continuing calibration. Instrument re-calibration has no effect on the data.

4. CONTINUING CALIBRATION

Background checked at proper frequency? ..... (Yes) No N/A

Background check acceptable? ..... (Yes) No N/A

Efficiency checked at proper frequency? ..... (Yes) No N/A

Efficiency check acceptable? ..... (Yes) No N/A

Calibration check standards NIST traceable? ..... (Yes) No N/A

Calibration check standards expired? ..... Yes (No) N/A

Comments:

5. BLANKS *(see BLANK AND SAMPLE DATA SUMMARY form)*

Method blank analyzed? ..... (Yes) No N/A

Method blank results acceptable? ..... Yes (No) N/A

Analytes detected in method blank? ..... (Yes) No N/A

Transcription/Calculation Errors? ..... Yes (No) N/A

Comments: Tc 99 detected in Method blank. Results < 14.85 are qualified as undetected (B06MW8)

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

6. MATRIX SPIKES *(see ACCURACY DATA SUMMARY form)*

Matrix spike analyzed?	(Yes)	No	N/A
Spike recoveries acceptable?	(Yes)	No	N/A
Spike source traceable?	(Yes)	No	N/A
Spike source expired?	Yes	(No)	N/A
Transcription/Calculation Errors?	Yes	(No)	N/A

★

$$\%R = \frac{SSR - SR}{SA} \times 100$$

Spike Recovery

where:
SSR = spiked sample result
SR = sample result
SA = spike added

Comments: _____

7. LABORATORY CONTROL SAMPLES *(see ACCURACY DATA SUMMARY form)*

LCS analyzed?	(Yes)	No	N/A
LCS recoveries acceptable?	Yes	(No)	N/A
LCS traceable?	(Yes)	No	N/A
Transcription/Calculation Errors?	Yes	(No)	N/A

★

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Recovery

Comments: U235 %R < 75% (QAPjP) est all sample results (U235) except B0B4y0

CMS 9/19/94

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

8. CHEMICAL RECOVERY *(see ACCURACY DATA SUMMARY form)*

Chemical carrier added?	(Yes)	No	N/A
Chemical recovery acceptable?	(Yes)	No	N/A
Tracer added?	(Yes)	No	N/A
Tracer recovery acceptable?	(Yes)	No	N/A
Standards traceable?	(Yes)	No	N/A
Standards expired?	Yes	(No)	N/A
Transcription/Calculation errors?	Yes	(No)	N/A

★

$$\text{Alpha Spec Tracer Recovery} = \frac{A.1 - B.1}{(2.22)(E.1)(T.1)}$$

where:
- A.1 = gross counts per minute
- B.1 = background counts per minute of tracer
- 2.22 = conversion factor, dpm/pCi
- E.1 = detector efficiency
- T.1 = activity (pCi) of tracer added to sample (can be determined by taking dpm of tracer added divided by 2.22)

Comments: _____

9. DUPLICATES *(see PRECISION DATA SUMMARY form)*

Duplicates Analyzed?	(Yes)	No	N/A
RPD Values Acceptable?	Yes	(No)	N/A
Transcription/Calculation Errors?	Yes	(No)	N/A

★

$$\text{Relative Percent Difference} \quad RPD = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

where:
- OS = sample concentration (original sample/MS)
- D = duplicate concentration (duplicate sample/MSD)

Comments: U-150 on acceptable DP duplicate was not analyzed with the batch all U-150 results for all samples are qualified as estimated (J/UJ) (including the re-analysis of B0B4Y0) CMP 9/19/94

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

10. FIELD QC SAMPLES

Field blank(s) identified?	(Yes)	No	N/A
Field blank results acceptable?	(Yes)	No	N/A
Analytes detected in field blank(s)?	Yes	(No)	N/A
Field duplicate sample(s) identified?	(Yes)	No	N/A
Field duplicate RPD values acceptable?	Yes	No	(N/A)
Field split sample(s) identified?	Yes	(No)	N/A
Field split RPD values acceptable?	Yes	No	(N/A)
Performance audit sample(s) identified?	Yes	(No)	N/A
Performance audit sample results acceptable?	Yes	No	(N/A)

Comments:

BOBM40 is a Field duplicate (which sample it goes with is unknown)

BOBMZ2 is MZB are equip blanks

all analyses had non-detected results (both blanks)

11. DETECTION LIMITS (LEVELS D & E)

MDA's meet required detection limits?	(Yes)	No	N/A
Transcription/calculation errors?	Yes	(No)	N/A

★

$$\frac{\text{Minimum Detectable Activity (MDA)}}{\dfrac{4.66 \times \sqrt{(B.2)(T.2)}}{2.22(E.2)(I.2)(R.2)(D.2)(V.2)(Y.2)(T.2)}}$$

where:

- B.2 = background counts per minute (cpm) or the reported standard deviation of the background (S) cpm
- T.2 = counting time for associated sample
- 2.22 = conversion dpm/pCi
- E.2 = detector efficiency
- I.2 = ingrowth correction factor (if applicable or 1)
- R.2 = carrier recovery factor (if applicable or 1)
- D.2 = decay factor (if applicable or 1)
- Y.2 = chemical yield factor (if applicable or 1)
- V.2 = sample volume in liters or grams

Comments:

CMO 9/

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

Results Calculation Equations

Gross α/β and Tritium

$$\frac{(A.3 - B.3) \times C.3}{(2.22)(E.3)(V.3)}$$

where:

A.3 = gross counts per minute
B.3 = background counts per minute
C.3 = activity of α fraction in β channel*
2.22 = conversion factor, dpm/pCi
E.3 = detector efficiency
V.3 = sample volume, liters or grams

*if for calculation of gross β, otherwise substitute 1

Strontium (total)

$$\frac{A.4 - B.4}{(2.22)(E.4)(I.4)(D.4)(R.4)(V.4)}$$

where:

A.4 = gross counts per minute
B.4 = background counts per minute
2.22 = conversion factor, dpm/pCi
E.4 = detector efficiency
I.4 = ingrowth correction factor
R.4 = carrier recovery factor
D.4 = strontium decay factor
V.4 = sample volume, liters or grams

Strontium-90 (corrected for Sr-89)

$$\frac{A.5 - B.5}{(2.22)(Y.5)(E.5)(I.5)(D.5)(R.5)(V.5)}$$

where:

A.5 = gross counts per minute
B.5 = background counts per minute
Y.5 = yttrium-90 yield factor
2.22 = conversion factor, dpm/pCi
E.5 = detector efficiency
I.5 = ingrowth correction factor
R.5 = strontium-89 yield factor
D.5 = strontium decay factor
V.5 = sample volume, liters or grams

Results Calculation Equations, continued

Technetium-99

$$\frac{A.6 - B.6}{(2.22)(E.6)(R.6)(V.6)}$$

where:

A.6 = gross counts per minute
B.6 = background counts per minute
2.22 = conversion factor, dpm/pCi
E.6 = detector efficiency
R.6 = carrier recovery factor
V.6 = sample volume, liters or grams

Alpha Spec Isotopes

$$\frac{A.7 - B.7}{(2.22)(E.7)(R.7)(V.7)}$$

where:

A.7 = gross counts per minute for isotope
B.7 = background counts per minute for detector
2.22 = conversion factor, dpm/pCi
E.7 = detector efficiency
R.7 = tracer recovery factor
V.7 = sample amount, liters or grams

Gamma Spec Isotopes

$$\frac{A.8}{(2.22)(B.8)(D.8)(E.8)(V.8)(T.8)}$$

where:

A.8 = peak area for isotope
D.8 = decay factor for isotope
2.22 = conversion factor, dpm/pCi
B.8 = abundance factor for isotope
E.8 = efficiency factor for isotope
V.8 = sample amount, liters or grams
T.8 = live time (minutes)

CMO 9/4

Results Calculation Equations, continued

Total Uranium by Laser Fluorometry

$$\frac{(W.9 - I.9)(R.9)(D.9)}{U.9 - W.9}$$

where:

W.9 = sample reading with Fluran
I.9 = initial sample reading
R.9 = concentration of uranium standard after dilution with sample (µg/L)
D.9 = dilution factor
U.9 = sample reading with uranium standard

Radium-226 by Radon Emanation

$$D = \frac{COUNT}{(2.22)(CAL)(VOL)} \times \frac{1}{1 - e^{-\lambda t_1}} \times \frac{1}{e^{-\lambda t_2}} \times \frac{t_3}{1 - e^{-\lambda t_3}}$$

where:

COUNT = net count rate, cpm
CAL = calibration constant of the de-emanation system and the scintillation cell in counts per minutes/disintigrations per minute of radon-222
VOL = sample aliquot in liters
t_1 = the elapsed time in days between the first and second de-emanations, and λ is the decay constant for radon-222 (0.181 d^{-1})
t_2 = the time interval in hours between the second de-emanation and counting, and λ is the decay constant of radon-222 (0.00755hr^{-1})
t_3 = the counting time in minutes, and λ is the decay constant of radon-222 (1.26×10^{-4} min^{-1})
2.22 = conversion factor, dpm/pCi

CMS 9/19/96

Validator	Date	SDG
MC Webb	8-28-94	W0068-ITC-079

DATA VALIDATION SUMMARY

Analyte	Qualifier	Sample	Reason
Tc99	U	BOBMW8	Tc99 detected in the method blank
U235	J/UJ	All samples except BOBMY0	LCS < 75% (QAPjP)
U234,U235 U238	J/UJ	All Samples, including the reanalysis of BOBMY0	No duplicate in batch

Validator	Date	SDG
MC Webb	8-28-94	W0068-ITC-079

DATA VALIDATION SUMMARY

MAJOR DEFICIENCIES:

1. None.

MINOR DEFICIENCIES:

1. Tc99 was detected in the method blank. BOBMW8 was qualified as undetected (U).
2. The U-235 LCS recovery (first analysis) was < 75% (QAPjP). The U235 results for all samples except BOBMY0 are qualified as estimated (J/UJ).
3. An acceptable duplicate for the U-iso analysis (the original and the reanalysis run) was not performed. The U-iso results for all samples are qualified estimated (J/UJ).

COMMENTS:

1. The reanalysis results for U-iso of BOBMY0 are added to the Form 1 by the validator. This avoids putting the package "on hold". The reanalysis data was included in the data package. The original analysis of BOBMY0 was rejected due to a pour up error during sample preparation.
3. BOBMZ2 and BOBMZ8 are field equipment blanks. Both samples had no activity detected for all analyses.
4. BOBMY0 is listed as a field duplicate, but a field duplicate of which sample? A RPD evaluation is not possible.
5. The expected value for the U235 LCS was not entered correctly. The correct LCS expected and the % recovery is listed on the LCS Form 1.

9613479.1797

IT ANALYTICAL SERVICES
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(509) 375-3131

DUPLICATE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	F0544802	**MATRIX:**	WATER
CLIENT ID:	B0BMY0	**DATE RECEIVED:**	5/20/94
ORIG LAB SAMPLE ID:	40544802		

ISOTOPE		DUP RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT		RPD
AM-241	U	2.30E-01	2.35E-01	2.38E-01	2.36E-01	pCi/L	61.80%	RD3302	4.31E-02	U	136.87%
PU-238	U	0.00E+00	0.00E+00	1.87E-01	1.69E-01	pCi/L	67.00%	RD3209	0.00E+00	U	0.00%
PU239/40	U	9.95E-02	1.79E-01	1.80E-01	3.51E-01	pCi/L	67.00%	RD3209	2.52E-01	U	86.77%
U-234		5.91E-01	3.84E-01	3.91E-01	4.39E-01	pCi/L	75.60%	RD3234	7.66E+00		171.35%
U-235		2.87E-02	1.12E-01	1.12E-01	3.27E-01	pCi/L	75.60%	RD3234	1.30E-01		127.66%
U-238DA		6.95E-01	3.98E-01	4.08E-01	3.11E-01	pCi/L	75.60%	RD3234	5.91E+00		157.91%
ALPHA	U	8.00E-01	6.02E-01	6.13E-01	9.41E-01	pCi/L	100.00%	RD3214	1.37E+00		52.53%
BETA		3.92E+01	3.24E+00	4.27E+00	2.79E+00	pCi/L	100.00%	RD3214	3.62E+01		7.96%

Number of Results: 8

Alpha RPD acceptable, Pu 239 accepted on ~~accepted~~

U234, U235, U238 — No accepted due to sample prep mix up.

The reported U-ISO values for B0BMY0 are not accepted. The lab admits to a sample prep error and re-analyzed of B0BMY0. For some reason, the reanalysis results were not reported. When B0BMY0 was re-analyzed, a duplicate was not re-analyzed. Therefore a duplicate was not done with the batch and all samples will be estimated (J/UJ). The results for the re-analysis of B0BMY0 will be added to the Form 1. The LCS for the re-analysis is acceptable. The blank is ~~not~~ acceptable. The results will be est. (UJ/J) for lacking duplicate.

~~0016~~ CH 9/1

The re-analysis results cannot be compared to the "dup" from the 1st analyses because the samples were not prepped at the same time; per 8.2.24

9613479.1798

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DUPLICATE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	F0544801	**MATRIX:**	WATER
CLIENT ID:	B0BMW8	**DATE RECEIVED:**	5/20/94
ORIG LAB SAMPLE ID:	40544801		

ISOTOPE		DUP RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER		ORIG RESULT	RPD
CO-58	U	-2.22E+00	6.49E+00	6.49E+00	1.02E+01	pCi/L	N/A	RD3219	U	1.85E-01	236.36%
CO-60	U	-1.19E+00	4.14E+00	4.14E+00	7.83E+00	pCi/L	N/A	RD3219	U	-6.57E+00	138.66%
CS-137DA	U	-2.84E+00	5.00E+00	5.01E+00	7.97E+00	pCi/L	N/A	RD3219	U	4.11E+00	1094.49%
EU-152	U	8.22E+00	8.45E+00	8.49E+00	1.77E+01	pCi/L	N/A	RD3219	U	-3.08E+00	439.69%
EU-154	U	-1.69E+01	1.59E+01	1.60E+01	2.36E+01	pCi/L	N/A	RD3219	U	8.05E+00	563.84%
EU-155	U	-9.16E-02	8.67E+00	8.67E+00	1.52E+01	pCi/L	N/A	RD3219	U	-1.92E+00	181.79%
FE-59	U	4.73E+00	1.30E+01	1.30E+01	2.70E+01	pCi/L	N/A	RD3219	U	-1.18E+01	467.61%
STRONTIUM	U	-3.44E-02	3.72E-01	3.72E-01	9.77E-01	pCi/L	72.80%	RD3204	U	-1.37E-01	119.72%
C-14		2.63E+02	3.87E+00	1.41E+01	4.72E+00	pCi/L	100.00%	RD3263		2.52E+02	4.27%
TRITIUM		9.86E+04	8.63E+02	7.31E+03	2.38E+02	pCi/L	97.30%	RD3205		9.83E+04	0.30%

Number of Results: 10

Sr 90 RPD on both undetected.
γ scan all nuclides undetected RPD's acceptable
Kmw
8-27-94

0015 CMD 9/6

9613479.1799

IT ANALYTICAL SERVICES
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DUPLICATE RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	F0557301	**MATRIX:**	WATER
CLIENT ID:	B0BMZ8	**DATE RECEIVED:**	5/26/94
ORIG LAB SAMPLE ID:	40557301		

ISOTOPE	DUP RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER	ORIG RESULT	RPD
TC-99	U -1.54E+00	9.00E-01	4.06E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001	-9.09E-01 U	51.53%

Number of Results: 1

OK

6-24-94

0017 CMD 9/19/94

9613479.1800

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(509) 375-3131

BLANK RESULTS

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	L054481B	**MATRIX:**	WATER

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	METHOD NUMBER
AM-241	-4.63E-03	9.27E-03	9.30E-03	2.33E-01	pCi/L	62.70%	RD3302
PU-238	-2.43E-02	3.44E-02	3.46E-02	3.44E-01	pCi/L	68.50%	RD3209
PU239/40	-1.22E-02	2.43E-02	2.44E-02	2.91E-01	pCi/L	68.50%	RD3209
U-234	1.40E-01	2.08E-01	2.09E-01	3.83E-01	pCi/L	70.00%	RD3234
U-235	5.00E-02	1.20E-01	1.20E-01	2.72E-01	pCi/L	70.00%	RD3234
U-238DA	3.57E-02	1.21E-01	1.21E-01	3.36E-01	pCi/L	70.00%	RD3234
CO-58	2.56E+00	3.64E+00	3.65E+00	7.51E+00	pCi/L	N/A	RD3219
CO-60	1.95E+00	3.55E+00	3.55E+00	8.07E+00	pCi/L	N/A	RD3219
CS-137DA	-4.04E+00	4.53E+00	4.55E+00	7.19E+00	pCi/L	N/A	RD3219
EU-152	-1.02E+01	1.27E+01	1.27E+01	1.90E+01	pCi/L	N/A	RD3219
EU-154	-1.84E+00	1.08E+01	1.08E+01	2.07E+01	pCi/L	N/A	RD3219
EU-155	2.18E+00	9.11E+00	9.11E+00	1.49E+01	pCi/L	N/A	RD3219
FE-59	5.02E+00	7.38E+00	7.40E+00	1.58E+01	pCi/L	N/A	RD3219
ALPHA	2.68E-01	3.10E-01	3.13E-01	5.73E-01	pCi/L	100.00%	RD3214
BETA	5.47E-01	1.25E+00	1.25E+00	2.69E+00	pCi/L	100.00%	RD3214
STRONTIUM	6.11E-03	3.02E-01	3.02E-01	7.83E-01	pCi/L	92.40%	RD3204
C-14	-5.63E-01	1.50E+00	3.13E+00	4.72E+00	pCi/L	100.00%	RD3263
TC-99	2.97E+00	1.02E+00	4.41E+00	2.16E+00	pCi/L	95.10%	ITAS-IT-RS-0001

Number of Results: 18

Tc99 detected in method blank.

2.97*5 = 14.85 all detected results ≤ 14.85 are qualified as undetected (U) BOBMW8

pwr 8-25-94

CMO 9/19

0018

9613479.1801

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

LABORATORY CONTROL SAMPLE

LAB NAME:	ITAS-RICHLAND	**SDG:**	W0068
LAB SAMPLE ID:	L054481S	**MATRIX:**	WATER

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	REPORT UNIT	YIELD	EXPECTED	RECOVERY
AM-241	5.94E+00	1.11E+00	1.47E+00	2.10E-01	pCi/L	69.60%	6.80E+00	87.35%
PU239/40	4.50E+00	1.18E+00	1.34E+00	3.66E-01	pCi/L	54.40%	4.58E+00	98.25%
U-234	9.19E+00	1.37E+00	1.80E+00	2.72E-01	pCi/L	81.90%	8.68E+00	105.88%
U-235	2.34E-01	2.28E-01	2.30E-01	2.87E-01	pCi/L	81.90%	1.00E-02	2340.00%
U-238DA	8.03E+00	1.28E+00	1.64E+00	2.32E-01	pCi/L	81.90%	9.09E+00	88.34%
CO-60	5.67E+01	1.37E+01	1.49E+01	N/A	pCi/L	N/A	4.97E+01	114.08%
CS-137DA	1.15E+02	1.45E+01	1.85E+01	N/A	pCi/L	N/A	1.25E+02	92.00%
EU-152	9.18E+01	1.99E+01	2.19E+01	4.20E+01	pCi/L	N/A	9.93E+01	92.45%
ALPHA	1.97E+01	2.01E+00	3.88E+00	6.64E-01	pCi/L	100.00%	2.26E+01	87.17%
BETA	2.40E+01	2.60E+00	3.11E+00	2.76E+00	pCi/L	100.00%	2.27E+01	105.73%
STRONTIUM	1.36E+01	1.10E+00	3.61E+00	8.09E-01	pCi/L	92.20%	1.35E+01	100.74%
C-14	1.82E+03	8.46E+01	1.86E+02	4.72E+00	pCi/L	100.00%	1.82E+03	100.00%
TRITIUM	2.68E+03	1.77E+02	3.59E+02	2.38E+02	pCi/L	97.30%	2.71E+03	98.89%

Number of Results: 13

Expected value for U-235 is .3538 %R = 59.47%
U-235 results for all samples except B0BMG0 are qualified estimated (UJ)

8-28-97

CMO 9/19

0021

MATRIX SPIKE RECOVERY (MS)

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
Tc99 BOBMW8	272.90	3.97	270.24	99.5%

PERCENT RECOVERY (LCS)

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent	Observed value	True value	%R
	OLCS	ALCS	
Alpha	19.7000	22.6280	87.1%
Beta	23.9500	22.6600	105.7%
Co60	59.6900	49.6600	120.2%
Cs137	115.4000	125.2000	92.2%
Eu152	91.8000	99.3200	92.4%
C14	1817.0000	1820.0000	99.8%
Sr total	13.5900	13.5329	100.4%
Tc99	267.4000	270.2162	99.0%
Tritium	2780.0000	2796.0000	99.4%
Am241	5.9410	6.7991	87.4%
Pu239	4.5000	4.5800	98.3%
U234	9.1930	8.6748	106.0%
U235	0.2340	0.3938	59.4%
U238	8.0310	9.0852	88.4%
Co60	78.1100	77.1300	101.3%
Cs127	68.8400	62.6400	109.9%
Eu152	141.7000	153.3600	92.4%
U234	8.5430	8.6793	98.4%
U235	0.3098	0.3960	78.2%
U238	8.2820	9.0898	91.1%
Tritium	26.7500	27.1200	98.6%

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RELATIVE PERCENT DIFFERENCE

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		Original (Sample) concentration	Duplicate concentration	RPD
		OS	D	
Alpha	BOBMY0	1.3660	Undetected	NC
Beta	BOBMY0	36.1500	39.2300	8.17%
Sr total	BOBMQ2	Undetected	Undetected	NC
C14	~~BOBMQ2~~ blank MW8 29-94	251.8000	263.0000	4.35%
Tc99	BOBMQ2 blank MW4-29-94	Undetected	Undetected	NC
Tritium	BOBMQ2 blank MW8-29-94	98300.0000	98580.0000	0.28%
Am241	BOBMY0	Undetected	Undetected	NC
Pu238	BOBMY0	Undetected	Undetected	NC
Pu239	BOBMY0	Undetected	Undetected	NC
U234		NONE	NONE	NC
U235		NONE	NONE	NC
U238		NONE	NONE	NC
GEA	BOBMW8 nuclides	Undetected	Undetected	NC

ALPHA SPEC TRACER RECOVERY

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		Gross counts per minute	Background counts per minute of tracer	Detector efficiency	Activity (pCi) of tracer added to sample	%R
		A.1	B.1	E.1	T.1	
Am243	BOBMY0	0.895	0.0012	3.225	5.0287	0.573211
Pu242	BOBMY0	1.2	0.001	3.7	7.0629	0.628113
U232	BOBMY0	2.215	0.036	3.7	10.003	0.805988
Am243	BOBMZ2	0.975	0.0008	3.225	5.0287	0.624773
Pu242	BOBMZ2	1.1	0.001	3.7	7.061	0.575882
U232	BOBMZ2	2.21	0.0192	3.7	10.059	0.805842
Am243	BOBMZ8	1.01	0.0004	3.225	5.0304	0.647257
Pu242	BOBMZ8	1.125	0.001	3.7	7.0778	0.587584
U232	BOBMZ8	2.225	0.0408	3.7	10.035	0.805335

RESULTS CALCULATION ALPHA SPEC ISOTOPES

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		Gross Counts per minute	Background Counts per minute	Detector Efficiency	Tracer recovery factor	Sample volume (L or g)	Result
		A.7	B.7	E.7	R.7	V.7	
Am241	BOBMY0	0.0050	0.0016	3.225	0.573	0.200	0.0431
Am241	BOBMZ2	0.0100	0.0004	3.225	0.625	0.200	0.1116
Am241	BOBMZ8	0.0050	0.0004	3.225	0.647	0.200	0.0516
Pu238	BOBMY0	0.0000	0.0000	3.703	0.628	0.200	0.0000
Pu238	BOBMZ2	0.0000	0.0000	3.703	0.576	0.200	0.0000
Pu238	BOBMZ8	0.0000	0.0000	3.703	0.588	0.200	0.0000
Pu239	BOBMY0	0.0200	0.0010	3.700	0.628	0.200	0.2521
Pu239	BOBMZ2	0.0000	0.0010	3.700	0.576	0.200	-0.0145
Pu239	BOBMZ8	0.0000	0.0000	3.700	0.588	0.200	0.0000
U234	BOBMY0	0.0500	0.0020	3.700	0.806	0.200	0.4963
U235	BOBMY0	0.0100	0.0012	3.700	0.806	0.200	0.0910
U238	BOBMY0	0.0500	0.0036	3.700	0.806	0.200	0.4797
U234	BOBMZ2	0.0150	0.0016	3.700	0.806	0.200	0.1385
U235	BOBMZ2	0.0050	0.0020	3.700	0.806	0.200	0.0310
U238	BOBMZ2	0.0000	0.0008	3.700	0.806	0.200	-0.0083
U234	BOBMZ8	0.0000	0.0032	3.700	0.805	0.200	-0.0331
U235	BOBMZ8	0.0000	0.0008	3.700	0.805	0.200	-0.0083
U238	BOBMZ8	0.0200	0.0008	3.700	0.805	0.200	0.1988

RESULTS CALCULATION TECHNETIUM-99

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		DPM of the sample	DPM of the blank	Decay Factor	Yield	Sample volume (L or g)	Result
		A.6	B.6	E.6	R.6	V.6	
Tc99	BOBMY0	27.480	27.930	1.000	0.951	0.500	-0.4263
Tc99	BOBMZ2	26.710	27.930	1.000	0.951	0.500	-1.1557
Tc99	BOBMZ8	26.970	27.930	1.000	0.951	0.500	-0.9094

RESULTS CALCULATION TOTAL STRONTIUM

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		Gross Counts per minute	Background Counts per minute	Ingrowth correction Factor	Detector Efficiency	Carrier recovery factor	Sample volume (L or g)	Result
		A.4	B.4	I.4	E.4	R.4	V.4	
Sr total	BOBMY0	18.760	1.000	1.087	2.359	1.000	1.000	17.3615
Sr total	BOBMZ2	1.240	1.062	1.093	2.289	0.956	1.000	0.1756
Sr total	BOBMZ8	1.460	1.068	1.095	2.339	1.000	1.000	0.3772
INGROWTH FACTOR		Sr D/C	Y D/C	delta T (hr)	= e**(-Lt)	L =1.083E-2		
	BOBMY0	2.359	2.006	7.083	0.926	X	X	1.087
	BOBMZ2	2.289	2.021	7.917	0.918	X	X	1.093
	BOBMZ8	2.339	2.013	7.917	0.918	X	X	1.095

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RESULTS CALCULATION GROSS ALPHA/BETA AND TRITIUM

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent		Gross Counts per minute	Background Counts per minute	Yield (for tritium only)	Detector Efficiency	Sample volume (L or g)	Result
		A.3	B.3	C.3	E.3	V.3	
Alpha	BOBMY0	0.210	0.028	1.000	3.333	0.200	1.3662
Alpha	BOBMZ2	0.030	0.050	1.000	2.240	0.200	-0.1009
Alpha	BOBMZ8	0.060	0.052	1.000	2.196	0.200	0.0396
Beta	BOBMY0	7.600	1.260	1.000	2.532	0.200	36.1551
Beta	BOBMZ2	1.140	1.048	1.000	2.430	0.200	0.5035
Beta	BOBMZ8	1.140	1.002	1.000	2.430	0.200	0.7553

LSC		DPM sample	DPM blank	Yield	Decay	Volume	
C14	BOBMY0	20.960	20.910	1.000	1.000	0.200	0.1126
C14	BOBMZ2	20.950	20.910	1.000	1.000	0.200	0.0901
C14	BOBMZ8	21.540	20.910	1.000	1.000	0.200	1.4189
H3	BOBMY0	15.860	14.960	0.973	1.005	0.005	83.7477
H3	BOBMZ2	15.560	14.960	0.973	1.005	0.005	55.8318
H3	BOBMZ8	15.720	14.960	0.973	1.004	0.005	70.6499

MINIMUM DETECTABLE ACTIVITY (MDA)

Analysis: Radiochemistry
SDG: W0068-ITC-079

Date: 28-Aug-94
Validator: MC Webb

Constituent	Background counts per minute (cpm) or Standard Deviation of background (cpm) B.2	Counting time for associated sample T.2	Detector Efficiency E.2	Ingrowth correction factor I.2	Carrier recovery factor R.2	Decay factor D.2	Chemical yield factor Y.2	Sample volume (L or g) V.2	MDA
BOBMY0 alpha	0.028	100.000	3.333	1.000	1.000	1.000	1.000	0.200	0.788
BOBMZ2 alpha	0.050	100.000	2.240	1.000	1.000	1.000	1.000	0.200	0.661
BOBMZ8 alpha	0.052	100.000	2.196	1.000	1.000	1.000	1.000	0.200	0.658
BOBMY0 beta	1.260	100.000	2.532	1.000	1.000	1.000	1.000	0.200	3.131
BOBMZ2 beta	1.048	100.000	2.430	1.000	1.000	1.000	1.000	0.200	2.754
BOBMZ8 beta	1.000	100.000	2.430	1.000	1.000	1.000	1.000	0.200	2.693
BOBMY0 Sr90	1.000	50.000	2.359	1.000	1.000	1.000	1.000	1.000	0.756
BOBMZ2 Sr90	1.062	50.000	2.289	1.000	1.000	1.000	0.956	1.000	0.789
BOBMZ8 Sr90	1.068	50.000	2.339	1.000	1.000	1.000	1.000	1.000	0.773
C14 blank	19.500	125.000	1.072	1.000	1.000	0.951	1.000	0.200	4.718
Tc99 blank	26.570	125.000	1.091	1.000	1.000	0.951	1.000	0.500	2.238
Tritium blank	6.100	125.000	2.452	1.000	1.000	0.973	1.000	0.005	238.132
U234 BOBMY0	0.0020	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.292
U235 BOBMY0	0.0012	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.258
U238 BOBMY0	0.0036	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.344
U234 BOBMZ2	0.0016	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.276
U235 BOBMZ2	0.0020	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.292
U238 BOBMZ2	0.0008	200.000	3.700	1.000	0.806	1.000	1.000	0.200	0.236
U234 BOBMZ8	0.0032	200.000	3.700	1.000	0.805	1.000	1.000	0.200	0.333
U235 BOBMZ8	0.0008	200.000	3.700	1.000	0.805	1.000	1.000	0.200	0.237
U238 BOBMZ8	0.0008	200.000	3.700	1.000	0.805	1.000	1.000	0.200	0.237
Pu238 BOBMY0	0.0000	200.000	3.700	1.000	0.628	1.000	1.000	0.200	0.180
Pu238 BOBMZ2	0.0000	200.000	3.700	1.000	0.576	1.000	1.000	0.200	0.196
Pu238 BOBMZ8	0.0000	200.000	3.700	1.000	0.588	1.000	1.000	0.200	0.192
Pu239 BOBMY0	0.0010	200.000	3.700	1.000	0.628	1.000	1.000	0.200	0.318

Analysis: Radiochemistry
SDG: W0068-ITC-079

MINIMUM DETECTABLE ACTIVITY (MDA)
CONTINUED

Date: 28-Aug-94
Validator: MC Webb

Constituent	Background counts per minute (cpm) or Standard Deviation of background (cpm)	Counting time for associated sample	Detector Efficiency	Ingrowth correction factor	Carrier recovery factor	Decay factor	Chemical yield factor	Sample volume (L or g)	MDA
	B.2	T.2	E.2	I.2	R.2	D.2	Y.2	V.2	
Pu239 BOBMZ2	0.0010	200.000	3.700	1.000	0.576	1.000	1.000	0.200	0.346
Pu239 BOBMZ8	0.0000	200.000	3.700	1.000	0.588	1.000	1.000	0.200	0.192
Am241 BOBMY0	0.0016	200.000	3.225	1.000	0.573	1.000	1.000	0.200	0.338
Am241 BOBMZ2	0.0004	200.000	3.225	1.000	0.625	1.000	1.000	0.200	0.234
Am241 BOBMZ8	0.0004	200.000	3.225	1.000	0.647	1.000	1.000	0.200	0.226

Laboratory Case Narratives

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

IT Corporation
2800 George Washington Way
Richland, WA 99352
Attn: Van Pettey

June 30, 1994

Job Number: 579; 583; 602

This is the Certificate of Analysis for the following samples:

SDG:	W0068
Client Project ID:	WHC SAF-94-087 100-FR-3 Groundwater-5th Round
Date Received by Lab:	May 21, May 25 & May 27, 1994
Number of Samples:	Eighteen (18)
Sample Type:	Water

I. Introduction

On May 21, May 25 and May 27, 1994, eighteen (18) water samples arrived at ITAS-Richland, Washington and were transferred to ITAS-Knoxville for chemical analysis. The list of analytical tests performed, as well as date of receipt and analysis, can be found in the attached report.

II. Analytical Results/Methodology

The analytical results for this report are presented by analytical test. Each set of data will include sample identification information and the analytical results.

The samples were analyzed for Target Compound List (TCL) volatiles and semivolatiles by gas chromatography/mass spectroscopy (GC/MS) in accordance with the EPA CLP 3/90 Statement of Work.

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

II. Analytical Results/Methodology (Continued)

The samples were analyzed for Target Compound List (TCL) pesticides and PCBs by gas chromatography/electron capture detection (GC/ECD) in accordance with the EPA CLP 3/90 Statement of Work.

The samples were analyzed for Target Analyte List (TAL) metals by cold vapor atomic absorption spectroscopy (CVAA), graphite furnace atomic absorption spectroscopy (GFAA), and inductively coupled plasma spectroscopy (ICP) in accordance with the EPA CLP ILM03 Statement of Work.

The samples were analyzed for total cyanide in accordance with the EPA CLP ILM03 Statement of Work.

The samples were analyzed for ammonia based on EPA method 350.2.

The alkalinity of the samples was determined using EPA method 310.1.

The samples were analyzed for chemical oxygen demand (COD) at the ITAS-Knoxville laboratory using the EPA approved HACH procedure, HACH Water Analysis Handbook, HACH Chemical Company, 1980. The samples were analyzed for chemical oxygen demand (COD) at the ITAS ST. Louis laboratory based on EPA method 410.2. A copy of their report is enclosed.

The samples were analyzed for nitrate-nitrite based on EPA method 353.2.

The pH of the samples was determined using EPA method 9040.

The specific conductance of the samples was measured using EPA method 120.1.

The samples were analyzed for sulfide based on EPA method 376.1.

The total dissolved solids (TDS) content of the samples was determined using EPA method 160.1.

The samples were analyzed for total organic carbon (TOC) based on EPA method 9040.

The samples were analyzed for total organic halogens (TOX) based on EPA method 9020A.

The samples were analyzed for anions by ion chromatography using EPA method 300.0.

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5815 MIDDLEBROOK PIKE
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III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Finnigan INCOS 500 GC/MS/DS. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results met method specified limits.

The semivolatiles analyses were performed by direct injection of sample extract on a Restek XTI-5 capillary column on a Finnigan INCOS XL GC/MS/DS. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. The recovery for 4-nitrophenol was slightly high in the matrix spike and matrix spike duplicate for sample BOBMY0.

Data were reported with qualifiers as follows:

U - Compound analyzed for but not detected; value given is quantitation limit.
E - Compound exceeded calibration range.
D - Compound analyzed at a secondary dilution factor.
J - Compound detected but below quantitation limit; value estimated.
S - Spiked compound.
B - Compound found in method blank.
A - Suspected aldol condensation product.
Y - Indistinguishable isomer in tentatively identified compounds.
N - Presumptive evidence of compound presence.

The samples for work order #579 were digested on May 24, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 22, 1994. All run QC was acceptable. A duplicate/spike pair was prepared using sample BOBMY0 (total) and BOB9635 (dissolved). Spike recovery (accuracy) results were within acceptance limits for all requested parameters except for cyanide, where a blank spike was substituted for a spiked sample due to insufficient volume. Duplicate (RPD) precision) results were within acceptance limits for all requested parameters.

The samples for work order #583 were digested on May 26, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 23, 1994. All run QC was acceptable. The samples were batched with QC from work order #579.

The samples for work order #602 were digested on June 7, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on June 10, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from June 8 through June 10, 1994; the remaining metals were analyzed by ICP on June 23, 1994. All run QC was acceptable. The samples were batched with QC from work order #579.

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
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III. Quality Control (Continued)

Data were reported with qualifiers as follows:

"C" Qualifiers

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.
B - Value greater than instrument detection limit, but less than contract required quantitation limit.

"Q" Qualifiers

* - Duplicate analysis outside control limits.
N - Spiked sample recovery outside control limits.
W - Post-digestion spike for GFAA was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
S - The reported value was determined by method of standard additions.

"M" Qualifiers

P - Analysis performed by ICP.
V - Analysis performed by CVAA.
F - Analysis performed by GFAA.
C - Cyanide analysis by manual distillation/colorimetric determination.

Miscellaneous

D - Duplicate.
S - Spike.
NR - Not required.
G - Native analyte > 4 times spike added, therefore, acceptance criteria do not apply.
X - Detection limits higher than normal due to sample matrix interferences.

The samples were analyzed for fluoride, chloride, phosphate and sulfate on June 6 and June 13, 1994 by EPA method 300.0. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMV2. All quality control results were acceptable.

The samples were analyzed for alkalinity on May 27 and June 8, 1994. A duplicate was analyzed using sample BOBMY0. All quality control results were acceptable.

IT ANALYTICAL SERVICES
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III. Quality Control (Continued)

The samples were analyzed for ammonia on June 14 and June 17, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The samples were analyzed for nitrate/nitrite on June 3. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The pH of the samples was determined on May 25, May 26, May 31 and July 6, 1994. A duplicate analysis was performed on July 6, 1994 outside of holding time using sample BOBMY0. All quality control results were acceptable.

The specific conductance of the samples was determined on June 10, 1994. A duplicate was analyzed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for sulfide on May 25, May 26, and May 31, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample BOBMY0. All quality control results were acceptable.

The total dissolved solids (TDS) of the samples was determined on May 26 and May 31, 1994. A duplicate analysis was performed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for total organic carbon (TOC) on June 14, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. All quality control results were acceptable.

The samples were analyzed for total organic halogens (TOX) on June 15, June 16 and June 22, 1994. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. All quality control results were acceptable.

The samples for work orders #579 and #583 were analyzed for chemical oxygen demand (COD) on June 3 and June 6, 1994 at the ITAS-Knoxville laboratory. Matrix spike and matrix spike duplicate analyses were performed using sample number BOBMY0. The samples for work orders #579, #583 and #602 were analyzed for chemical oxygen demand (COD) on June 15 and June 16, 1994 at the ITAS St. Louis laboratory. A duplicate was analyzed using sample number BOBMY0. All quality control results were acceptable. Both sets of results are provided in this report.

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9609	405447-01A-C	BOBMW8	VOC
AA9610	405447-01D-F	"	SVOC
"	405447-01G-I	"	PEST/PCB
AA9611	405447-01J	"	ANIONS
"	"	"	pH
"	"	"	CONDUCTIVITY
AA9612	405447-01L	"	NO3NO2
AA9613	405447-01M	"	ALKALINITY
AA9620	405447-01N	"	TDS
AA9614	405447-01O	"	SULFIDE
AA9615	405447-01P	"	AMMONIA
AA9615 5329-010 (ST. LOUIS)	" "	" "	COD "
AA9616	405447-01Q	"	METALS-T
AA9617	405447-01R-S	"	CYANIDE
AA9618	405447-01T	"	TOC
AA9619	405447-01U	"	TOX
AA9621	405447-02A	BOBMW9	METALS-D
AA9622	405447-03A-C	BOBMX0	VOC
AA9623	405447-04A-C	BOBMY0	VOC

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9624	405447-04D-F	BOBMY0	SVOC
"	405447-04G-I	"	PEST/PCB
AA9625	405447-04J-K	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9626	405447-04L	"	NO3NO2
AA9627	405447-04M	"	ALKALINITY
AA9634	405447-04N	"	TDS
AA9628	405447-04O	"	SULFIDE
AA9629	405447-04P	"	AMMONIA
AA9629 5329-011 (ST. LOUIS)	" "	" "	COD "
AA9630	405447-04Q	"	METAL-T
AA9631	405447-04R-S	"	CYANIDE
AA9632	405447-04T	"	TOC
AA9633	405447-04U	"	TOX
AA9635	405447-05A	BOBMY1	METALS-D
AA9636	405447-06A-C	BOBMY2	VOC
AA9702	405508-01A-C	BOBMP0	VOC
AA9703	405508-01D-E	"	SVOC

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9703	405508-01F-G	BOBMP0	PEST/PCB
AA9704	405508-01H	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9705	405508-01I	"	NO3NO2
AA9706	405508-01J	"	ALKALINITY
AA9707	405508-01K	"	TDS
AA9708	405508-01L	"	SULFIDE
AA9709	405508-01M	"	AMMONIA
AA9709 5329-018 (ST. LOUIS)	" "	" "	COD "
AA9710	405508-01N	"	METALS-T
AA9711	405508-01O	"	CYANIDE
AA9712	405508-01P	"	TOC
AA9713	405508-01Q	"	TOX
AA9715	405508-02A	BOBMP1	METALS-D
AA9716	405508-03A-C	BOBMP2	VOC
AA9718	405508-04A-C	BOBMX2	VOC
AA9719	405508-04D-F	"	SVOC

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9719	405508-04G-I	BOBMX2	PEST/PCB
AA9720	405508-04J	"	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9721	405508-04L	"	NO3NO2
AA9722	405508-04M	"	ALKALINITY
AA9723	405508-04N	"	TDS
AA9724	405508-04O	"	SULFIDE
AA9725	405508-04P	"	AMMONIA
AA9725 5329-019 (ST. LOUIS)	" "	" "	COD "
AA9726	405508-04Q	"	METAL-T
AA9727	405508-04R-S	"	CYANIDE
AA9728	405508-04T	"	TOC
AA9729	405508-04U	"	TOX
AA9731	405508-05A	BOBMX3	METALS-D
AA9733	405508-06A-C	BOBMX4	VOC
AA9735	405508-07A-C	BOBMZ2	VOC
AA9736	405508-07D-F	"	SVOC
"	405508-06G-I	"	PEST/PCB

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9737	405508-07J	BOBMZ2	pH
"	"	"	CONDUCTIVITY
"	"	"	ANIONS
AA9738	405508-07L	"	NO3NO2
AA9739	405508-07M	"	ALKALINITY
AA9740	405508-07N	"	TDS
AA9741	405508-07O	"	SULFIDE
AA9742	405508-07P	"	AMMONIA
AA9742 5329-017 (ST. LOUIS)	" "	" "	COD "
AA9743	405508-07Q	"	METALS-T
AA9745	405508-07R-S	"	CYANIDE
AA9746	405508-07T	"	TOC
AA9747	405508-07U	"	TOX
AA9749	405508-08A	BOBMZ3	METALS-D
AA9752	405508-09A-C	BOBMZ6	VOC
AA9923	405572-01A-C	BOBMZ8	VOC
AA9924	405572-01D-F	"	SVOC
"	405572-01G-I	"	PEST/PCB
AA9925	405572-01J-K	"	pH

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

III. Quality Control (Continued)

Table I is a cross reference between client sample IDs and laboratory sample IDs.

TABLE I

Knoxville ID	Richland ID	WHC ID	Test
AA9925	405572-01J-K	BOBMZ8	CONDUCTIVITY
"	"	"	ANIONS
AA9926	405572-01K	"	NO3NO2
AA9937	405572-01L	"	ALKALINITY
AA9939	405572-01M	"	TDS
AA9927	405572-01N	"	SULFIDE
AA9928	405572-01O	"	AMMONIA
AA9928 5329-020 (ST. LOUIS)	" "	" "	COD "
AA9929	405572-01P	"	METALS-T
AA9930	405572-01Q-R	"	CYANIDE
AA9931	405572-01S	"	TOC
AA9942	405572-01T	"	TOX
AA9951	405572-02A	BOBMZ9	METALS-D
AA9952	405572-03A-C	BOBNO0	VOC

IT Corporation
June 30, 1994
Job Number: 579; 583; 602
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-5th Round

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IV. Certification

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 has been authorized by the laboratory manager or his designee, as verified by the following signature:

Reviewed and Approved:

Sheree' A. Schneider
Project Manager

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

Westinghouse Hanford Company
P.O. Box 1970
Richland, WA 99352

July 18, 1994

Attention: J.A.Lerch

SAF Number	:	94-087
Date SDG Closed	:	June 3, 1994
Number of Samples	:	Six (6)
Sample Type	:	Water
SDG Number	:	W0068
Data Deliverable	:	Stand Alone

I. Introduction

On May 20, 24, and 26, 1994, six water samples were received by ITAS-Richland for radiochemical analysis. Upon receipt, the samples were assigned the following laboratory ID numbers to correspond with the WHC specific IDs:

ITAS-Richland ID	WHC ID	Matrix	Date of Receipt
405448-01A	B0BMW8	Water	5/20/94
405448-02A	B0BMY0	Water	5/20/94
405509-01A	B0BMP0	Water	5/24/94
405509-02A	B0BMX2	Water	5/24/94
405509-03A	B0BMZ2	Water	5/24/94
405573-01A	B0BMZ8	Water	5/27/94

II. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information, analytical results and the appropriate associated statistical errors.

The requested analyses were:

Alpha Spectroscopy
Americium-241 by method ITAS-RD-3302
Plutonium-238, -239/40 by method ITAS-RD-3209
Uranium-234, 235, 238 by method ITAS-RD-3234
Gamma Spectroscopy
Gamma Scan by method ITAS-RD-3219
Gas Proportional Counting
Gross Alpha by method ITAS-RD-3222
Gross Beta by method ITAS-RD-3222
Strontium-90 by method ITAS-RD-3204
Liquid Scintillation Counting
Carbon-14 by method ITAS-RD-3247
Technetium-99 by method ITAS-IT-RS-0001
Tritium by method ITAS-RD-3205

III. Quality Control

The analytical results for each analysis performed under SDG W0068 include a minimum of one Laboratory Control Sample (LCS), one method (reagent) blank, and one duplicate. Any exceptions have been noted in the "Comments" section.

Quality control sample results are reported in the same units as sample results.

IV. Comments

Results from the initial radioactivity screening of these samples classified them as Category I.

Alpha Spectroscopy

Americium-241 by method ITAS-RD-3302
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Plutonium-238, -239/40 by method ITAS-RD-3209
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Uranium-234, 235, 238 by method ITAS-RD-3234
Sample B0BMY0 was not analyzed with the other samples in SDG W0068. An error had been made during the pour-up step for the batch. Sample B0BMX2 had inadvertently been poured up in place of B0BMY0, therefore, it was necessary to analyze sample B0BMY0 by itself. The analysis of B0BMY0 proceeded as intended and the results are accepted and reported. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
Co-57 was detected in both of the LCSs (L054481S and L054482S), however, the Co-57 is not confirmed by the key line for that isotope. The Co-57 is determined to be a falsely detected isotope from a Eu-152 energy line (122 KeV) and is not reported for the LCSs. K-40 was detected in sample B0BMW8 but the result is not reported because the value is less than 2 times the error for the isotope. K-40 and Pb-212 were detected in sample B0BMX2 but the results are not reported because the values are less than 2 times the error for the isotopes. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
Sample B0BMY0 and the duplicate of B0BMY0 were recounted due to results outside of the 3 sigma control limit on the initial count. The recount is accepted and reported. The LCS, batch blank, sample and sample duplicate results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMY0) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

CMO 9/14

Liquid Scintillation Counting

Carbon-14 by method ITAS-RD-3247
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

Technetium-99 by method ITAS-IT-RS-0001
The matrix spike, LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMZ8) results are within contractual requirements.

Tritium by method ITAS-RD-3205
SDG W0068 was batched and analyzed with SDG W0069. Quality Control Samples were prepared and analyzed for each SDG. The LCS (L054481S and L054481M), batch blank (L054481X), sample and sample duplicate (duplicate of sample B0BMW8) results are within contractual requirements.

I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Reviewed and approved:

Suzanne Gaines
Project Manager

Chain-of-Custody Information

WO#579

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/20/94 1260 Client Name WHC

Project/Client # 94-087 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) ER-10

1. Condition of shipping container? OK
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☐ No ☑
7. Number of sample containers in cooler: 36
8. Samples have: ____ tape ____ hazard labels
   ____ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore [signature] Date/Time 5/20/94 1200

FORM NO. LS-042, Rev.0, 2/94

WO#579

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/20/94 1200 Client Name WHC

Project/Client # 94-087 Batch or Case # N/A

Cooler ID (if noted on the outside of cooler) ER-8

1. Condition of shipping container? ok
2. Custody Seals on cooler intact? Yes ☑ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☑ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☑
6. Each sample is in a plastic bag? Yes ☐ No ☑
7. Number of sample containers in cooler: 30
8. Samples have: ____ tape ____ hazard labels
   ✓ custody seals ✓ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 4°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☑
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore Date/Time 5/20/94 1200

FORM NO. LS-042, Rev.0, 2/94

WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-1C

1. Condition of shipping container? OK.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 5-24-94 34 33
8. Samples have: X tape ____ hazard labels
   ____ custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐
    Sample temperature 4°C
11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Achtenberg IT/AS Date/Time 5-24-94 13:15
KAREN ACHTENBERG

FORM NO. LS-042, Rev.0, 2/94

WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER-1D

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 34
8. Samples have: X tape ____ hazard labels
   ____ custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature ~~Karen Atkinson~~ ITAS KAREN ATKINSON Date/Time 5-24-94 1315

FORM NO. LS-042, Rev.0, 2/94

WO#583

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-24-94 13:15 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) SML-516

1. Condition of shipping container? ~~SML-516~~ Good
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☑ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 34
8. Samples have: X tape _____ hazard labels
   _____ custody seals _____ appropriate sample labels
9. Samples are: X in good condition _____ leaking
   _____ broken _____ have air bubbles
   _____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 5°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) n/a
    Request for analysis #(s) n/a
    Airbill # n/a Carrier n/a
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☒

Printed Name/Signature Karen Achtenberg STAS Date/Time 5-24-94
KAREN Achtenberg 13:15

FORM NO. LS-042, Rev.0, 2/94

WO#602

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-26-94 12:05 Client Name WHC

Project/Client # 94-087 Batch or Case # _____

Cooler ID (if noted on the outside of cooler) ER 7D

1. Condition of shipping container? O.K.
2. Custody Seals on cooler intact? Yes ☒ No ☐
3. Custody Seals dated and signed? Yes ☒ No ☐
4. Chain of Custody record is taped on inside of cooler lid? Yes ☒ No ☐
5. Vermiculite/packing material is: Wet ☐ Dry ☒
6. Each sample is in a plastic bag? Yes ☒ No ☐
7. Number of sample containers in cooler: 36
8. Samples have: ✓ tape ____ hazard labels
   ✓ custody seals ____ appropriate sample labels
9. Samples are: ✓ in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☑ No ☐

Sample temperature 3°C

11. The following paperwork should be accounted for (N/A if not applicable):
    Chain of Custody #'(s) N/A
    Request for analysis #(s) N/A
    Airbill # N/A Carrier N/A
12. Have any anomalies been identified above? Yes ☐ No ☐
13. Memos have been initiated for all anomalies identified above? Yes ☐

Printed Name/Signature Tom Gilmore Date/Time 5/26/94 1210

FORM NO. LS-042, Rev.0, 2/94

OFFICE OF SAMPLE MANAGEMENT RECORD OF DISPOSITION	ROD-94-0139 Record of Disposition No.

DATE: 5/31/94	LABORATORY: IT
PROJECT TITLE/NO.: 100-FR-3/94-087	NCR NO.: 052864

SAMPLE IDENTIFICATION NUMBERS:

B0BMP0, B0BMP1, B0BMP2

DESCRIPTION OF EVENT:

Samples were collected on 5/17/94 and arrived at IT-Richland on 5/24/94; IT-Knoxville on 5/25/94. The 7 day holding time for Semi-VOA, PCB/Pests, TDS, and Sulfide analyses were missed.

DISPOSITION OF SAMPLES:

With concurrence from J.M. Ayres, project engineer, do not perform those analyses for which holding times have been missed.

APPROVAL SIGNATURES:

R. C. Smith/ RClayton Smith — 5/31/94
OSM Project Coordinator (Print/Sign Name) — Date

J. M. Ayres/ JMAyres — 6/1/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

W0583

OFFICE OF SAMPLE MANAGEMENT
RECORD OF DISPOSITION

ROD-94-0141
Record of Disposition No.

DATE: 6/6/94	LABORATORY: IT
PROJECT TITLE/NO.: 100-FR-3/94-087	NCR NO.: 052864

SAMPLE IDENTIFICATION NUMBERS:

B0BMP0, B0BMP2

DESCRIPTION OF EVENT:

This ROD replaces ROD-94-0139.

1) Sample B0BMP0 was collected on 5/17/04 and arrived at IT-Richland on 5/24/94; IT-Knoxville on 5/25/94. The 7 day holding time for Semi-VOA, PCB/Pests, TDS, and Sulfide analyses was missed.

2) The chain-of-custody for sample B0BMP2 was incomplete. The chain-of-custody was broken.

DISPOSITION OF SAMPLES:

1) With concurrence from J.M. Ayres, project engineer, do not perform analyses for which holding times have been missed (replacement aliquots for these analyses will be collected, shipped, analyzed, abd reported under B0C1G5).

2) Continue with analysis of B0BMP2 for "informational purposes only".

APPROVAL SIGNATURES:

R. C. Smith/ R Clayton Smith — 6/6/94
OSM Project Coordinator (Print/Sign Name) — Date

J. M. Ayres/ A D Krug for G S Krug — 6/9/94
Technical Representative (Print/Sign Name) — Date

N/A
Quality Assurance (Print/Sign Name) — Date

W0583

CUR#1681

Work Order No.: 579

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: IT Richland

Date: 5-23-94

Project No: Westinghouse Hanford

Initiated by: KAK

Analysis Requested: Sulfide, Cyanide, NO_3/NO_2,

RFA/COC Numbers: 453661 + 453662

Client Sample Numbers Affected: B0BMW8 + B0BMY0

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH B0BMW8 NO_3/NO_2 = 4, Sulfide = 7, Cyanide = 7
   - ☑ other: pH B0BMY0 Cyanide = 11
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): _____

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Kenneth Klemm Date: 5/24/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

BM 9-28-

~~000342~~

000312

CUR # 1685

Work Order No.: 583

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: ITAS Richland

Date: 05-25-94

Project No: Westinghouse Hanford

Initiated by: KAK Lemm

Analysis Requested: CN; Sulfide, TOC, pH KAK 5-25-94

RFA/COC Numbers: 45364, 45666, 45665

Client Sample Numbers Affected: BOBMPØ, BOBMX2, BOBMZ2, Trip Blanks

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH BOBMPØ CN = pH 10, TOC = pH 3; BOBMX2 CN: pH 9, BOBMZ2 S = pH 7 CN = pH 11
   - ☐ ~~Other:~~ pH _____ KAK 5-25-94
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☑ No sample ID on sample container. No labels on 40mL vials not list on RFA/COC; assume these are "Trip Blanks"
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☑ Other (explain below): KAK 5/25/94

Notes:

Corrective Action:

- ☐ Client's Name: _____ Informed verbally on: _____ By: _____
- ☐ Client's Name: _____ Informed in writing on: _____ By: _____
- ☐ Sample(s) processed "as is". Comments: _____
- ☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Bryan Blomquist Date: 5/25/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE.

BM 9-28-94

~~000343~~

000313

WO#583

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 40550801 DATE INITIATED: 5/24/94

INITIATED BY: Karen Achterberg

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/24/94 1315

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOBMP0		

Samples were received with the following deficiencies:

- ☐ 1. Not enough sample received for proper analysis.
- ☐ 2. Sample received without proper preservative.
- ☐ 3. No sample received in container.
- ☐ 4. Sample received without a RFA/COC form.
- ☐ 5. No sample ID on container.
- ☐ 6. Sample received broken or leaking.
- ☐ 7. Holding time exceeded at receipt.
- ☐ 8. Custody tape broken.
- ☐ 9. COC not relinquished by client.
- ☐ 10. Sample information on container does not match sample information on the paper work (Explain below).
- ☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  - ☐ RFA/COC received
  - ☐ RFA/COC not received
- ☒ 12. Other (Explain below).

NOTES: COC has 3 Bottles Revd mkg Two. for Semi Voa. Has Two for PCB/PEST 3 Revd

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

DM 9-26

~~000344~~
000314

WO # 574

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-8	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0594-9	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks:		

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
				Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
				No. of Container(s)	3	3	3	2	1	1	1	1	1	1	3	1	1	3	6
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE				Volume	40ml	1000ml	1000ml	500mL ~~1000ml~~	500ml	250ml	500ml	500ml	1000ml	1000ml	500mL ~~1000ml~~	250ml	500ml	4000ml	500mL ~~1000ml~~
SAMPLE ANALYSIS 4054470					VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
					ABC	DEF	GHI	Jk	L	M	N	O	P	Q R	RS	T	U	4054480	
600AMW8	W	5/19/94	1150		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
600AMW9	W	↓	↓																
600AMX0	W	↓	↓																

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
H. Trapp / K. Trapp	5/19/94 1405	Karen E. Dagel	5-19-94 1405
Karen E. Dagel	5-19-94 1425	Kevin Sweeney	5/19/94 1425
Kevin Sweeney	5/20/94 0700	ITAS	5/20/94 12:00

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

Matrix*

S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solids
DL = Drum Liquids
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0000315 by 0000227

9613479.1811

0000044

W0T574

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-8	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0581-9	Bill of Lading/Air Bill No.: N/A NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	None			HClpH<2									
Type of Container	Gs	G	aGs			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40ml			40ml									
SAMPLE ANALYSIS 405447	TRITIUM C-14 405447 01	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	Activity Scan			VOA (CLP) ~~TRIP~~ KT 5/19/94									

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0B5W8	W	5/19/94	1150	X		X											
B0B5W9 02A	W	↓	↓		X												
B0B5MX03ABC	W	↓	↓						X								

CHAIN OF POSSESSION	Sign/Print Names		
	Relinquished By	Date/Time	Received By	Date/Time
1	K. Trapp / K. Trapp	5/19/94 1405	Loren Rogers	5-19-94 1405
2	Loren Rogers	5-19-94 1425	D Sweeney & Sweeney	5/19/94 1425
3	D Sweeney & Sweeney	5/20/94 1200	ITAS	5/20/94 1200
4				

SPECIAL INSTRUCTIONS

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0003160 0002288 6PM

9613479.1842

0000045

WO#579

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-10	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W74-0-0594-10	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	2 KT 5/19/94	1	1	1	1	1	1	2 KT 5/19/94	1	1	3	6 KT 5/19/94
Volume	40ml	1000ml	1000ml	~~1000ml~~ 500mL KT 5/19/94	500ml	250ml	500ml	500ml	1000ml	1000ml	~~1000ml~~ 500mL KT 5/19/94	250ml	500ml	4000ml	~~1000ml~~ 500mL KT 5/19/94
SAMPLE ANALYSIS 4054470 4	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
	ABC	DEF	GHI	JK	L	M	N	O	P	Q	RS	T	U	4054480 2	

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMY0	W	5/18/94	1200	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B0BMY1	W																
B0BMY2	W																

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/18/94 1605	L Sweeney / L Sweeney	5/18/94 1605
L Sweeney / L Sweeney	5/20/94 1200	IT-FS	5/20/94 1200

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

0003179

0000317

0000229 BM 9-28-94

0000046

WO#579

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: ~~EEL 1055~~ 100 F (KF 5/19/94)	SAF No.: 94-087
Ice Chest No.	Field Logbook No.: EEL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0594-10	Bill of Lading/Air Bill No.: N/A NONE

Possible Sample Hazards/Remarks	Preservative																
		N/A	HNO3<2	None			HClpH<2										
	Type of Container	Gs	G	GGs			Gs										
	No. of Container(s)	1	1	1			3										
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	Volume	1000ml	1000ml	40mL			40ml										
SAMPLE ANALYSIS: 405447		TRITIUM C-14 405448 02	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Gamma			VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMY0	W	5/18/94	1200	X		X											
B0BMY105A	W	↓	↓		X												
B0BMY200ABC	W	↓	↓						X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By / Date/Time	Received By / Date/Time
K. Trapp/K. Trapp 5/18/94 1605	Sweeney/Sweeney 5/18/94 1605
Sweeney/Sweeney 5/20/94 1200	ITAS 5/20/94 1000

SPECIAL INSTRUCTIONS

Matrix*

S	Soil
SE	Sediment
SO	Solid
SL	Sludge
W	Water
O	Oil
A	Air
DS	Drum Solids
DL	Drum Liquids
T	Tissue
WI	Wipe
L	Liquid
V	Vegetation
X	Other

LABORATORY SECTION — Received By / Title / Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method / Disposed By / Date/Time

46-28-94 BM

000318

0044796-0044796

00000047

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO# 583

Page 1 of 2

Data Turnaround: ☐ Priorty ☒ Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: NA	SAF No.: 94-087
Ice Chest No.: ER-IC	Field Logbook No.: EFL 1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: w94-0-0594-12	Bill of Lading/Air Bill No.: NA
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	2	1	1	1	1	1	1	1	1	1	1	6	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	2000 4000ml	1000ml
SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	ABC	DE	FG	H	I	J	K	L	M	N	O	P	Q	40550801	

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMP0	W	5/17/94	1058	X	X	X	X	X	X	X	X	X	X	X	X	X	X
B0BMP1	W																
B0BMP2	W																

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
G G Harrison	5-17-94 1430	L Sweeney	5-17-94 1430
L Sweeney	5/2/1/94 0945	Loren E. Peeples	5-24-94 0940
Loren E. Peeples	5-24-94 1030	Karen Kobelay	5-24-94 13:15

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-0000-828 (12/92)

0003319 DM 0003331 92

9613479.1845

0000048

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 2 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: NA	SAF No.: 94-087
Ice Chest No.: ER-IC	Field Logbook No.: EFL 1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0544-12	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	NONE			HClpH<2									
Type of Container	Gs	G	G			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40ml			40ml									
SAMPLE ANALYSIS: 405508	TRITIUM C-14 405509	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD	Activity Scan			VOA (CLP) TRIP									

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0BMF0	W	5/17/94	1058	X		X												
B0BMF1 02A	W	5/17/94	1058		X													
B0BMF2 03ABC	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
P.C. Hamilton HANFORD	5/17/94 1430	L Sweeney L Sweeney	5/17/94 1430
L Sweeney L Sweeney	5/24/94 0540	Tom Rogers	5-24-94 0940
Tom Rogers	5-24-94 1030	Karen Hattaway	5-24-94 1311

SPECIAL INSTRUCTIONS: SDG W0068

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

LABORATORY SECTION — Received By / Title / Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method / Disposed By / Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 1 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-F	SAF No.: 94-087
Ice Chest No.: SML-516	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: LT	Offsite Property No.: W94-0-0594-12	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	1	1	1	1	1	1	1	1	1	1	6	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
4055080 B4	ABC	DEF	GHI	J	K	L	M	N	O	P	Q	R	S	40550	T02

Sample No.	Matrix*	Date Sampled	Time Sampled													
B0BMX2	W	5/23/94	0930	X	X	X	X	X	X	X	X	X	X	X	X	X
B0BMX3	W															
B0BMX4	W															

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/L. Trapp	5/23/94 1440	Loren E. Dodgen	5-23-94 1440
Loren E. Dodgen	5-24-94 1320	JTAS Dawn Hatlestad	13:15 5-24-94
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SD36668

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/82)

000338 BM 4-28-94 000321

0000050

96139791.1847

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO #583

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: SML-516	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0594-12	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	None			HClpH<2									
Type of Container	Gs	G	uGs			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40mL			40ml									
SAMPLE ANALYSIS	TRITIUM C-14 ✓ 405509 02	ICP ✓ METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan ✓			VOA (CLP) TRIP ✓ KT 5/23/94									
405508															

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMX2	W	5/23/94	0930	X		X											
B0BMX3	W	5/23/94	↓		X												
B0BMX4	W	↓	↓						X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/23/94 1446	Karen E. Rogers	5-23-94 1480
Relinquished By	Date/Time	Received By	Date/Time
Karen E. Rogers	5-24-94 1320	Karen Stebbing TEXAS	5-24-94 13:15
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

SDG W0068

Matrix*

S	=	Soil
SE	=	Sediment
SO	=	Solid
SL	=	Sludge
W	=	Water
O	=	Oil
A	=	Air
DS	=	Drum Solids
DL	=	Drum Liquids
T	=	Tissue
WI	=	Wipe
L	=	Liquid
V	=	Vegetation
X	=	Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 1 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3 ~~ER~~ 5-24-94	Sampling Location: SML	SAF No.: 94-087
Ice Chest No.: ~~ER~~ ER-1D	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W44-0-0594-14	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	1	1	1	1	1	1	1	1	1	1	~~1~~ 6	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	~~4000ml~~ 2L	1000ml
SAMPLE ANALYSIS 40550807	VOA (CLP) ABC	SEMIVOA (CLP) DEF	PCB/ PEST (CLP) GHI	ANIONS (IC)SO4 F,Cl, PO4 COND,pH J	NO2/NO3 K	ALK L	TDS M	SULFIDE N	AMMONIA COD O	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP) P	CYANIDE (CLP) Q	TOC R	TOX S	*3 40550903	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled														
60BMZ2	W	5/20/94	1130	X	X	X	X	X	X	X	X	X	X	X	X	X	X
60BMZ3	W																
~~ONE MISSING~~ 60BMZ4	W																
60BMZ6																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/20/94 1415	Sweeney / Sweeney	5/20/94 1411
Sweeney / Sweeney	5/24/94 0540	Bruce Rogers	5-24-94 0540
Bruce Rogers	5-24-94 1030	FEDEX Karen Hatteberg	5-24-94 13:15

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W0068

Matrix*

S	= Soil
SE	= Sediment
SO	= Solid
SL	= Sludge
W	= Water
O	= Oil
A	= Air
DS	= Drum Solids
DL	= Drum Liquids
T	= Tissue
WI	= Wipe
L	= Liquid
V	= Vegetation
X	= Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479 1849

0000052

000323 94-238

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#583

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: SML	SAF No.: 94-087
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W 94-0-0SCH-14	Bill of Lading/Air Bill No.: N/A

Possible Sample Hazards/Remarks: COOL TO 4 DEGREES CENTIGRADE

SAMPLE ANALYSIS: 405508

Sample No.	Matrix*	Date Sampled	Time Sampled	Preservative	Type of Container	No. of Container(s)	Volume	TRITIUM C-14 405509 03	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan	VOA (CLP) TRIP
				N/A	Gs	1	1000ml				
				HNO3<2	G	1	1000ml				
				Vent	clGs	1	40ml				
				HClpH<2	Gs	3	40ml				
BOBMZ2	W	5/20/94	1130					X		X	
BOBMZ3 08A	W	5/20/94	1130						X		
BOBMZ4 and duplicate	W										
BOBMZ6 09ABC	W	5/20/94	1130								X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K. Trapp/K. Trapp	5/20/94 1415
Received By	D Swaney/Swaney	5/20/94 1415
Relinquished By	D Swaney/Swaney	5/24/94 0940
Received By	Kurt T. Hagels	5-24-94 0940
Relinquished By	Kurt T. Hagels	5-24-94 1030
Received By	Karen Ecklund FDS	5-24-94 15:15
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS: SDGW0068

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

0000053

0091479.1850

0091479.1851

000 324 AM 94

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#602

Page 2 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100 F	SAF No.: 94-087
Ice Chest No.: ER-1D	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A
Possible Sample Hazards/Remarks:		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	None			HClpH<2
Type of Container	Gs	G	aGs			Gs
No. of Container(s)	1	1	1			3
Volume	1000ml	1000ml	40mL			40ml
SAMPLE ANALYSIS 40557301	TRITIUM C-14	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Activity Scan			VOA (CLP) TRIP ABC

Sample No.	Matrix*	Date Sampled	Time Sampled							
~~BOBMZ9~~	W	5/25/94	1145	X		X	KT	5/25/94		
~~BOBN00~~	W	↓	↓		X		KT	5/25/94		
	W									
BOBMZ8	W	5/25/94	1145	X		X				
BOBMZ9 02A	W	↓	↓		X					
BOBN00 03	W	↓	↓						X	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K. Trapp / K. Trapp	5/25/94 1350
Received By	G J Simpson	5/25/94 1400
Relinquished By	G J Simpson	5/26/94 0907
Received By	Karen E. Rogers	5-26-94 0907
Relinquished By	Karen E. Rogers	5-26-94 0921
Received By	[illegible]	5/26/94 1210
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS: SDG W0068

Matrix*
- S = Soil
- SE = Sediment
- SO = Solid
- SL = Sludge
- W = Water
- O = Oil
- A = Air
- DS = Drum Solids
- DL = Drum Liquids
- T = Tissue
- WI = Wipe
- L = Liquid
- V = Vegetation
- X = Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

96134979-1851

0000054

0000325

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST WO#602

Page 1 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 120 F	SAF No.: 94-087
Ice Chest No.: ER-10	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks: COOL TO 4 DEGREES CENTIGRADE		

Preservative	HCL/2pH	COOL 4	pH 5-9	COOL 4	H2SO4<2	COOL 4	COOL 4	ZnAc *1	H2SO4<2	HNO3<2	NaOH>12	HCl<2*2	H2SO4<2	HNO3<2	HClpH<2
Type of Container	Gs	aG	aG	P	G/P	G/P	G/P	P	G	G	P	aGs	aGs	G/P	G/P
No. of Container(s)	3	3	3	2 KT 5/25/94	1	1	1	1	1	1	2 KT 5/25/94	1	1	3	6 KT 5/25/94
Volume	40ml	1000ml	1000ml	~~1000ml~~ 500mL KT 5/25/94	500ml	250ml	500ml	500ml	1000ml	1000ml	~~1000ml~~ 500mL KT 5/25/94	250ml	500ml	4000ml	~~1000ml~~ 500mL KT 5/25/94
SAMPLE ANALYSIS	VOA (CLP)	SEMIVOA (CLP)	PCB/ PEST (CLP)	ANIONS (IC)SO4 F,Cl, PO4 COND,pH	NO2/NO3	ALK	TDS	SULFIDE	AMMONIA COD	ICP METALS+ ARSENIC LEAD Se,Tl, Hg (CLP)	CYANIDE (CLP)	TOC	TOX	*3	Tc-99
40557201	ABC	DEF	GHI	JU	K	L	M	N	O	P	Q R	S	T	40557301 A	

Sample No.	Matrix*	Date Sampled	Time Sampled														
B00MZ8	W	5/25/94	1145	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	W																
	W																

CHAIN OF POSSESSION

Relinquished By / Date/Time	Received By / Date/Time
K. Trapp / K. Trapp 5/25/94 1350	AJ Simpson 5/25/94 1600
AJ Simpson 5/26/94 0907	Laurent Poggi 5-26-94 0907
Laurent Poggi 5-26-94 0921	[illegible] ITAS 5/26/94 1200
Relinquished By / Date/Time	Received By / Date/Time

Sign/Print Names

SPECIAL INSTRUCTIONS

*1 = or NaOH Ph>9 *2 = pH>/= to 12 *3 = GROSS ALPHA,BETA(ITAS-RD-3214), GAMMA SPEC(ITAS-RD-3219), U-235/238(ITAS-RD-3234), Pu-239/240(ITAS-RD-3209), Am-241(ITAS-RD-3302 or ITAS-RD-3206), Sr-90(ITAS-RD-3204). NOTE: LOWEST HOLDING TIME = 7 days

SDG W00068

Matrix*

S	Soil
SE	Sediment
SO	Solid
SL	Sludge
W	Water
O	Oil
A	Air
DS	Drum Solids
DL	Drum Liquids
T	Tissue
WI	Wipe
L	Liquid
V	Vegetation
X	Other

LABORATORY SECTION — Received By / Title / Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method / Disposed By / Date/Time

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

May 23, 1994

VAN PETTY
IT RICHLAND ANALYTICAL SERVICES
2800 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

Re: WESTINGHOUSE HANFORD COMPANY
P.O. #

Dear VAN PETTY:

This confirms the receipt of samples for analysis on May 21, 1994 at our ITAS-KNOXVILLE (MIDDLEBROOK FACILITY) laboratory. These samples were received in good condition unless otherwise noted on an attached Condition Upon Receipt variance form. The samples were logged into our tracking system as Work Order #579. Please review the attached outline for samples received and test assignments for any discrepancies. If you discover any problems please call me at (615) 588-6401.

We appreciate the opportunity to support your analytical requirements. Your report will be sent to you at the above address on or before June 25, 1994 unless advised otherwise.

Again, if you have any questions or comments on our performance, please feel free to call me at (615) 588-6401.

Sincerely,

Sheree Schneider

SHEREE SCHNEIDER
Project Manager
ITAS-KNOXVILLE (MIDDLEBROOK FACILITY)

000327
~~000239~~ BM 9-28-9

July 5, 1994

VAN PETTY
IT RICHLAND ANALYTICAL SERVICES
2800 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

Re: WESTINGHOUSE HANFORD COMPANY
P.O. #

Dear VAN PETTY:

This confirms the receipt of samples for analysis on May 25, 1994 at our ITAS-KNOXVILLE (MIDDLEBROOK FACILITY) laboratory. These samples were received in good condition unless otherwise noted on an attached Condition Upon Receipt variance form. The samples were logged into our tracking system as Work Order #583. Please review the attached outline for samples received and test assignments for any discrepancies. If you discover any problems please call me at (615) 588-6401.

We appreciate the opportunity to support your analytical requirements. Your report will be sent to you at the above address on or before July 1, 1994 unless advised otherwise.

Again, if you have any questions or comments on our performance, please feel free to call me at (615) 588-6401.

Sincerely,

Rebecca Charles for

SHEREE SCHNEIDER
Project Manager
ITAS-KNOXVILLE (MIDDLEBROOK FACILITY)

000328
~~000340~~
9-2

May 27, 1994

VAN PETTY
IT RICHLAND ANALYTICAL SERVICES
2800 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

Re: WESTINGHOUSE HANFORD COMPANY
P.O. #

Dear VAN PETTY:

This confirms the receipt of samples for analysis on May 27, 1994 at our ITAS-KNOXVILLE (MIDDLEBROOK FACILITY) laboratory. These samples were received in good condition unless otherwise noted on an attached Condition Upon Receipt variance form. The samples were logged into our tracking system as Work Order #602. Please review the attached outline for samples received and test assignments for any discrepancies. If you discover any problems please call me at (615) 588-6401.

We appreciate the opportunity to support your analytical requirements. Your report will be sent to you at the above address on or before July 1, 1994 unless advised otherwise.

Again, if you have any questions or comments on our performance, please feel free to call me at (615) 588-6401.

Sincerely,

Sheree Schneider

SHEREE SCHNEIDER
Project Manager
ITAS-KNOXVILLE (MIDDLEBROOK FACILITY)

VEDD Printout

VALIDATION ELECTRONIC DELIVERABLE SDG W0068-ITC-079

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMP0	NCLP	NA	ITC	74-87-3	SW			UJ		
B0BMP2	NCLP	NA	ITC	74-87-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	74-83-9	SW			UJ		
B0BMP2	NCLP	NA	ITC	74-83-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMP2	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-00-3	SW			UJ		
B0BMP2	NCLP	NA	ITC	75-00-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-09-2	SW			UJ		
BOBMP2	NCLP	NA	ITC	75-09-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	67-64-1	SW			UJ		
B0BMP2	NCLP	NA	ITC	67-64-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-15-0	SW	5		J		UG/L
B0BMP2	NCLP	NA	ITC	75-15-0	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-35-4	SW			UJ		
B0BMP2	NCLP	NA	ITC	75-35-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-34-3	SW			UJ		
B0BMP2	NCLP	NA	ITC	75-34-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	40-59-0	SW			UJ		
B0BMP2	NCLP	NA	ITC	40-59-0	SW			UJ		
B0BMP0	NCLP	NA	ITC	67-66-3	SW			UJ		
B0BMP2	NCLP	NA	ITC	67-66-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	07-06-2	SW			UJ		
B0BMP2	NCLP	NA	ITC	07-06-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	78-93-3	SW			UJ		
B0BMP2	NCLP	NA	ITC	78-93-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	71-55-6	SW			UJ		
B0BMP2	NCLP	NA	ITC	71-55-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	56-23-5	SW			UJ		
B0BMP2	NCLP	NA	ITC	56-23-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	75-27-4	SW			UJ		
B0BMP2	NCLP	NA	ITC	75-27-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	78-87-5	SW			UJ		

Entered by: Jm

Checked by: Rad.

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
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B0BMP0	NCLP	NA	ITC	61-01-5	SW			UJ		
B0BMP2	NCLP	NA	ITC	61-01-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	79-01-6	SW			UJ		
B0BMP2	NCLP	NA	ITC	79-01-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	24-48-1	SW			UJ		
B0BMP2	NCLP	NA	ITC	24-48-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	79-00-5	SW			UJ		
B0BMP2	NCLP	NA	ITC	79-00-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	71-43-2	SW			UJ		
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B0BMP0	NCLP	NA	ITC	27-18-4	SW			UJ		
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B0BMP2	NCLP	NA	ITC	08-90-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	00-41-4	SW			UJ		
B0BMP2	NCLP	NA	ITC	00-41-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	00-42-5	SW			UJ		
B0BMP2	NCLP	NA	ITC	00-42-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	30-20-7	SW			UJ		
B0BMP2	NCLP	NA	ITC	30-20-7	SW			UJ		
B0BMW8	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMX0	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMX2	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMX2	NCLP	NA	ITC	79-34-5	SW			UJ		

Entered by: JRT

Checked by: [illegible]

000332

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
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B0BMX4	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMY0	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMZ6	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMX4	NCLP	NA	ITC	79-34-5	SW			UJ		
B0BMY2	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMZ2	NCLP	NA	ITC	75-01-4	SW			UJ		
B0BMZ2	NCLP	NA	ITC	79-34-5	SW			UJ		
B0BMZ8	NCLP	NA	ITC	75-09-2	SW	10		U		
B0BN00	NCLP	NA	ITC	75-09-2	SW	10		U		
B0BMZ8	NCLP	NA	ITC	67-64-1	SW			U		
B0BN00	NCLP	NA	ITC	67-64-1	SW			U		
B0BMZ8	NCLP	NA	ITC	71-55-6	SW			UJ		
B0BN00	NCLP	NA	ITC	71-55-6	SW			UJ		
B0BMZ8	NCLP	NA	ITC	56-23-5	SW			UJ		
B0BN00	NCLP	NA	ITC	56-23-5	SW			UJ		
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B0BMP0	NCLP	NA	ITC	111-44-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	95-57-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	541-73-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	106-46-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	95-50-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	95-48-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	108-60-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMW8	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMX2	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMY0	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMZ2	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMZ8	NCLP	NA	ITC	106-44-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	621-64-7	SW			UJ		
B0BMZ8	NCLP	NA	ITC	621-64-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	97-72-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	98-95-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	78-59-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	88-75-5	SW			UJ		
B0BMW8	NCLP	NA	ITC	88-75-5	SW			UJ		

Entered by: Checked by:

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
BOBMX2	NCLP	NA	ITC	88-75-5	SW			UJ		
BOBMY0	NCLP	NA	ITC	88-75-5	SW			UJ		
BOBMZ2	NCLP	NA	ITC	88-75-5	SW			UJ		
BOBMZ8	NCLP	NA	ITC	88-75-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	105-67-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	111-91-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	120-83-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	120-82-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	91-20-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	106-47-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	87-68-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	59-50-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	91-57-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	77-47-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	88-06-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	95-95-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	91-58-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	88-74-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	131-11-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	208-96-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	606-20-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	99-09-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	83-39-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	51-28-5	SW			UJ		
BOBMW8	NCLP	NA	ITC	51-28-5	SW			UJ		
BOBMX2	NCLP	NA	ITC	51-28-5	SW			UJ		
BOBMY0	NCLP	NA	ITC	51-28-5	SW			UJ		
BOBMZ2	NCLP	NA	ITC	51-28-5	SW			UJ		
BOBMZ8	NCLP	NA	ITC	51-28-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMW8	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMX2	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMY0	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMZ2	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMZ8	NCLP	NA	ITC	100-02-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	132-64-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	121-14-2	SW			UJ		

Entered by: Jm

Checked by: ved

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMP0	NCLP	NA	ITC	84-66-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	005-72-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	86-73-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	100-01-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	534-52-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	86-30-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	101-55-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	118-74-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	87-86-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	85-01-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	120-12-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	85-74-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	84-74-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	206-44-0	SW			UJ		
B0BMP0	NCLP	NA	ITC	129-00-0	SW			UJ		
B0BMW8	NCLP	NA	ITC	129-00-0	SW			UJ		
B0BMX2	NCLP	NA	ITC	129-00-0	SW			UJ		
B0BMY0	NCLP	NA	ITC	129-00-0	SW			UJ		
B0BMZ2	NCLP	NA	ITC	129-00-0	SW			UJ		
B0BMP0	NCLP	NA	ITC	85-68-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	91-94-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	56-55-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	218-01-9	SW			UJ		
B0BMW8	NCLP	NA	ITC	218-01-9	SW			UJ		
B0BMX2	NCLP	NA	ITC	218-01-9	SW			UJ		
B0BMY0	NCLP	NA	ITC	218-01-9	SW			UJ		
B0BMZ2	NCLP	NA	ITC	218-01-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	117-81-7	SW			UJ		
B0BMP0	NCLP	NA	ITC	117-84-0	SW			UJ		
B0BMP0	NCLP	NA	ITC	205-99-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	207-08-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	50-32-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	193-39-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	53-70-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	91-247-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	319-84-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	319-85-7	SW			UJ		

Entered by: JMS

Checked by: RLS

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMP0	NCLP	NA	ITC	319-86-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	58-89-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMW8	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMX2	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMY0	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMZ2	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMZ8	NCLP	NA	ITC	76-44-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	309-00-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMW8	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMX3	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMY0	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMZ2	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMZ8	NCLP	NA	ITC	1024-57-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	959-98-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	60-57-1	SW			UJ		
B0BMZ8	NCLP	NA	ITC	60-57-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	72-55-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	72-20-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	3213-65-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	72-54-8	SW			UJ		
B0BMZ8	NCLP	NA	ITC	72-54-8	SW			UJ		
BOBMW8	NCLP	NA	ITC	72-54-8	SW			UJ		
BOBMX2	NCLP	NA	ITC	72-54-8	SW			UJ		
BOBMY0	NCLP	NA	ITC	72-54-8	SW			UJ		
BOBMZ2	NCLP	NA	ITC	72-54-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	1031-07-8	SW			UJ		
B0BMP0	NCLP	NA	ITC	50-29-3	SW			UJ		
B0BMP0	NCLP	NA	ITC	72-43-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	3494-70-5	SW			UJ		
B0BMZ8	NCLP	NA	ITC	3494-70-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	7421-93-4	SW			UJ		
B0BMP0	NCLP	NA	ITC	5103-71-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	5103-74-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	8001-35-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	2674-11-2	SW			UJ		

Entered by: CMD

Checked by: JM

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMP0	NCLP	NA	ITC	1104-28-2	SW			UJ		
B0BMP0	NCLP	NA	ITC	1141-16-5	SW			UJ		
B0BMP0	NCLP	NA	ITC	3469-21-9	SW			UJ		
B0BMP0	NCLP	NA	ITC	2672-29-6	SW			UJ		
B0BMP0	NCLP	NA	ITC	1097-69-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	1096-82-5	SW			UJ		
B0BMY0	NCLP	NA	ITC	429-90-5	SW			BJ		
BOBMW9	NCLP	NA	ITC	429-90-5	SW			BJ		
B0BMY1	NCLP	NA	ITC	429-90-5	SW			BJ		
B0BMZ2	NCLP	NA	ITC	440-70-2	SW			U		
B0BMZ3	NCLP	NA	ITC	440-70-2	SW			U		
B0BMZ8	NCLP	NA	ITC	440-70-2	SW			U		
B0BMZ9	NCLP	NA	ITC	440-70-2	SW			U		
B0BMW8	NCLP	NA	ITC	440-50-8	SW			UJ		
B0BMW9	NCLP	NA	ITC	440-50-8	SW			UJ		
B0BMY0	NCLP	NA	ITC	440-50-8	SW			UJ		
B0BMY1	NCLP	NA	ITC	440-50-8	SW			UJ		
B0BMW9	NCLP	NA	ITC	439-89-6	SW			U		
B0BMY0	NCLP	NA	ITC	439-89-6	SW			U		
B0BMY1	NCLP	NA	ITC	439-89-6	SW			U		
B0BMP0	NCLP	NA	ITC	439-89-6	SW			U		
B0BMP1	NCLP	NA	ITC	439-89-6	SW			U		
B0BMX2	NCLP	NA	ITC	439-89-6	SW			U		
B0BMX3	NCLP	NA	ITC	439-89-6	SW			U		
B0BMZ2	NCLP	NA	ITC	439-89-6	SW			U		
B0BMZ3	NCLP	NA	ITC	439-89-6	SW			U		
B0BMP0	NCLP	NA	ITC	439-92-1	SW			U		
B0BMP1	NCLP	NA	ITC	439-92-1	SW			U		
B0BMX2	NCLP	NA	ITC	439-92-1	SW			U		
B0BMX3	NCLP	NA	ITC	439-92-1	SW			U		
B0BMZ3	NCLP	NA	ITC	439-92-1	SW			U		
B0BMY0	NCLP	NA	ITC	440-09-7	SW			UJ		
B0BMY1	NCLP	NA	ITC	440-09-7	SW			UJ		
B0BMP1	NCLP	NA	ITC	782-49-2	SW			BJ		
B0BMZ8	NCLP	NA	ITC	440-23-5	SW			U		
B0BMZ9	NCLP	NA	ITC	440-23-5	SW			U		
B0BMP0	NCLP	NA	ITC	440-28-0	SW			UJ		

Entered by: CMO

Checked by: JM

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMP1	NCLP	NA	ITC	440-28-0	SW			UJ		
B0BMX2	NCLP	NA	ITC	440-28-0	SW			UJ		
B0BMX3	NCLP	NA	ITC	440-28-0	SW			UJ		
B0BMW8	NCLP	NA	ITC	440-66-6	SW			U		
B0BMY0	NCLP	NA	ITC	440-66-6	SW			U		
B0BMW8	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMY0	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMZ2	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMP0	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMX2	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMZ8	NCLP	NA	ITC	14265-44-2	SW			UR		
B0BMP0	NCLP	NA	ITC	18496-25-8	SW			J		
B0BMY0	NCLP	NA	ITC	207	SW			J		
BOBMW8	NCLP	NA	ITC	207	SW			J		
B0BMZ2	NCLP	NA	ITC	207	SW			J		
B0BMP0	NCLP	NA	ITC	207	SW			J		
B0BMX2	NCLP	NA	ITC	207	SW			J		
B0BMZ8	NCLP	NA	ITC	207	SW			J		
B0BMW8	NCLP	NA	ITC	TDS	SW			J		
B0BMY0	NCLP	NA	ITC	TDS	SW			J		
B0BMZ2	NCLP	NA	ITC	TDS	SW			J		
B0BMP0	NCLP	NA	ITC	TDS	SW			J		
B0BMX2	NCLP	NA	ITC	TDS	SW			J		
B0BMZ8	NCLP	NA	ITC	TDS	SW			J		
B0BMW8	NCLP	NA	ITC	C68	SW			J		
B0BMZ8	NCLP	NA	ITC	C68	SW			J		
B0BMW8	NCLP	NA	ITC	U-233/234	SW			UJ		
B0BMY0	NCLP	NA	ITC	U-233/234	SW			J		
B0BMZ2	NCLP	NA	ITC	U-233/234	SW			UJ		
B0BMX2	NCLP	NA	ITC	U-233/234	SW			J		
B0BMP0	NCLP	NA	ITC	U-233/234	SW			J		
B0BMZ8	NCLP	NA	ITC	U-233/234	SW			UJ		
B0BMW8	NCLP	NA	ITC	15117-96-1	SW			UJ		
B0BMY0	NCLP	NA	ITC	15117-96-1	SW			UJ		
B0BMZ2	NCLP	NA	ITC	15117-96-1	SW			UJ		
B0BMX2	NCLP	NA	ITC	15117-96-1	SW			UJ		
B0BMP0	NCLP	NA	ITC	15117-96-1	SW			UJ		

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Entered by: CMO

Checked by: JM

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMZ8	NCLP	NA	ITC	15117-96-1	SW			UJ		
B0BMW8	NCLP	NA	ITC	U-238	SW			J		
B0BMY0	NCLP	NA	ITC	U-238	SW			J		
B0BMZ2	NCLP	NA	ITC	U-238	SW			UJ		
B0BMX2	NCLP	NA	ITC	U-238	SW			J		
B0BMP0	NCLP	NA	ITC	U-238	SW			J		
B0BMZ8	NCLP	NA	ITC	U-238	SW			UJ		
B0BMW8	NCLP	NA	ITC	14133-76-7	SW			U		

Entered by: CMD

Checked by: JM

END OF PACKAGE

May 27, 1994

VAN PETTY
IT RICHLAND ANALYTICAL SERVICES
2800 GEORGE WASHINGTON WAY
RICHLAND, WA 99352

Re: WESTINGHOUSE HANFORD COMPANY
P.O. #

Dear VAN PETTY:

This confirms the receipt of samples for analysis on May 27, 1994 at our ITAS-KNOXVILLE (MIDDLEBROOK FACILITY) laboratory. These samples were received in good condition unless otherwise noted on an attached Condition Upon Receipt variance form. The samples were logged into our tracking system as Work Order #602. Please review the attached outline for samples received and test assignments for any discrepancies. If you discover any problems please call me at (615) 588-6401.

We appreciate the opportunity to support your analytical requirements. Your report will be sent to you at the above address on or before July 1, 1994 unless advised otherwise.

Again, if you have any questions or comments on our performance, please feel free to call me at (615) 588-6401.

Sincerely,

Sheree Schneider

SHEREE SCHNEIDER
Project Manager
ITAS-KNOXVILLE (MIDDLEBROOK FACILITY)

CUR#1681

Work Order No.: 579

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: IT Richland

Date: 5-23-94

Project No: Westinghouse Hanford

Initiated by: KAK

Analysis Requested: Sulfide, Cyanide, NO_3/NO_2,

RFA/COC Numbers: 453661 + 453662

Client Sample Numbers Affected: B0BMW8 + B0BMY0

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH B0BMW8 NO_3/NO_2 = 4, Sulfide = 7, Cyanide = 7
   - ☑ other: pH B0BMY0 Cyanide = 11
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☐ No sample ID on sample container.
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☐ Other (explain below): _____

Notes: _____

Corrective Action:

☐ Client's Name: _____ Informed verbally on: _____ By: _____

☐ Client's Name: _____ Informed in writing on: _____ By: _____

☐ Sample(s) processed "as is". Comments: _____

☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Kenneth Klemm Date: 5/24/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

CUR #1685

Work Order No.: 583

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: ITAS Richland

Date: 05-25-94

Project No: Westinghouse Hanford

Initiated by: KAK Lemm

Analysis Requested: CN; Sulfide, TOC, pH KAK 5-25-94

RFA/COC Numbers: 453664, 45666, 45665

Client Sample Numbers Affected: B0BMP0, B0BMX2, B0BMZ2, Trip Blanks

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☐ Sample received broken/leaking.
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH B0BMP0 CN = pH 10, TOC = pH 3; B0BMX2 CN = pH 9; B0BMZ2 S= pH 7 CN = pH 11
   - ☐ ~~other~~ pH: _____ KAK 5-25-94
4. ☐ Sample received in improper container.
5. ☐ Sample received without proper paperwork. Explain: _____
6. ☐ Paperwork received without sample.
7. ☑ No sample ID on sample container. No labels on 40ml VOA vials not list on RFA/COC; assume these are "Trip Blanks"
8. ☐ Custody tape disturbed/broken/missing.
9. ☐ Sample splits performed by lab.
10. ☐ Volatile sample received with approximately _____ mm headspace.
11. ☐ Sample ID on container does not match sample ID on paperwork. Explain: _____
12. ☐ All coolers on airbill not received with shipment.
13. ☑ Other (explain below): KAK 5/25/94

Notes:

Corrective Action:

- ☐ Client's Name: _____ Informed verbally on: _____ By: _____
- ☐ Client's Name: _____ Informed in writing on: _____ By: _____
- ☐ Sample(s) processed "as is". Comments: _____
- ☐ Sample(s) on hold until: _____ If released, notify: _____

Sample Control Supervisor Review: Bryan Blomquist Date: 5/25/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

WO#583

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 40550801 DATE INITIATED: 5/24/94

INITIATED BY: Karen Ashtalung

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/24/94 1315

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
B03MP0		

Samples were received with the following deficiencies:

- ☐ 1. Not enough sample received for proper analysis.
- ☐ 2. Sample received without proper preservative.
- ☐ 3. No sample received in container.
- ☐ 4. Sample received without e RFA/COC form.
- ☐ 5. No sample ID on container.
- ☐ 6. Sample received broken or leaking.
- ☐ 7. Holding time exceeded at receipt.
- ☐ 8. Custody tape broken.
- ☐ 9. COC not relinquished by client.
- ☐ 10. Sample information on container does not match sample information on the paper work (Explain below).
- ☐ 11. All shipping containers (coolers) on waybill not received with shipment.
  - ☐ RFA/COC received
  - ☐ RFA/COC not received
- ☒ 12. Other (Explain below).

NOTES: COC has 3 Bottles Revd only Two. for Semi Voa. Has Two for PCB/PEST 3 Revd

SUPERVISOR REVIEW: _____

PROJECT MANAGER REVIEW: _____

TELEPHONED TO: _____ ON _____ BY _____

TELEFAXED TO: _____ ON _____ BY _____

SIGNED ORIGINAL MUST BE RETAINED IN WORK ORDER FILE

FORM NO. LS-023, 3/92, Rev. 0

VEDD Printout