00055-ITC-060

0045378

START

INTERNATIONAL TECHNOLOGY CORPORATION

OCT 1996 RECEIVED EDMC

JUN 1994 RECEIVED SOLA

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

IT Corporation is a wholly owned subsidiary of International Technology Corporation

i KDD 6/6/96

9613479.2490

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

DATE: October 10, 1994

TO: W0055-ITC-060

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

54-3000-101 (12/92) GEF014

9613479.2491

OFFICE OF SAMPLE MANAGEMENT

RECORD OF DISPOSITION

ROD-94-0125
Record of Disposition No.

DATE: 5/20/94	LABORATORY: ORTEK
PROJECT TITLE/NO.: 100-FR-3/94-087	NCR NO.: 051974

SAMPLE IDENTIFICATION NUMBERS:

B0BMX8, B0BMX9

DESCRIPTION OF EVENT:

The Chain-of-Custody stated sample identification number as B0BMX8. The sample bottle was labeled B0BMX9.. The Chain-of-Custody was broken.

DISPOSITION OF SAMPLES:

With concurrence from J.M. Ayres, cognizant engineer, cancel the analysis for B0BMX9.

APPROVAL SIGNATURES:

R. C. Smith/ R Clayton Smith — 5/20/94
OSM Project Coordinator (Print/Sign Name) — Date

J. M. Ayres/ J M Ayres — 5/25/94
Technical Representative (Print/Sign Name) — Date

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

9613479.2492

Westinghouse Hanford Company

NONCONFORMANCE REPORT

1. Page 1 of 1

2. Preprinted No. 05197

QA Log No. EQA-94-037

3. P. O., W. O., or Job Control No.	4. System/End Use	5. Item/Material	6. Dwg./Spec./Other No.	7. Re
N/A	RI/FS	SAMPLES	BOBMX8, BOBMX9	N/

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: ENVIRONMENTAL FIELD SAMPLING SERVICES

12. Notification of Potential Occurence Requ: ☐ Yes ☒ No

13. Code: Lot/Heat/Serial	14. Lot Size	15. Sample	16. Qty. Acc.	17. Inspection Criteria
N/A	1	1	Ø	☐ Dwg. ☐ Spec. ☐ Insp. Plan ☒ Other WHC-CM-7-7 EII REV 4, SEC 6.2

18. Item	19. Description of Nonconformance (list serial no. where applicable)	22. Disposition, Justification, and Instructions
	AS STATED IN WHC-CM-7-7; EII52, REV.4; SEC.6.2, THE CHAIN-OF-CUSTODY AND SAMPLE ANALYSIS REQUEST SHOULD BE COMPLETED CORRECTLY AND ACCOMPANY THE SAMPLES. CONTRARY TO THE ABOVE, THE SAMPLE NUMBER ON THE CHAIN-OF-CUSTODY (BOBMX8) DID NOT MATCH THE SAMPLE NUMBER ON THE BOTTLE (BOBMX9). THE CHAIN-OF-CUSTODY WAS BROKEN.	Reject: Reference ROD-94-0125, which states that the analysis was cancelled.

20. Originator's Signature	Date	23. Design Document Change Required?
RC SMITH R Clayton Smith	5/20/94	☐ Yes, Doc. No. ☒ N

21. Cognizant QA Manager's Signature	Date	24. Corrective Action Required?
DD VOLKMAN D Volkman	5/24/94	☐ Yes, No. ☒ N

Disp. App.	25. Cognizant Engineer	Date	26. Technical Rep.	Date	Signature/Org.	Date
	JM AYRES A.D. Krug for	6/8/94	NA		NA	
	QA Engineer GS CORRIGAN Gary Corrigan	6-8-94	Signature/Org.	Date	Signature/Org.	Date

Close 27. Accept 0 Reject 1 Follow on NCR NA

Gary L Corrigan 6-8- QA/C Personnel Da

A-7310-104 (10

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

June 17, 1994

JUN 1994 RECEIVED SDLA

Job Number: 534; 535; 537

This is the Certificate of Analysis for the following samples:

SDG:	W0055
Client Project ID:	WHC SAF-94-087 100-FR-3 Groundwater-Round-5
Date Received by Lab:	May 11, May 12 & May 13, 1994
Number of Samples:	Twenty-one (21)
Sample Type:	Water

I. Introduction

On May 11, May 12 & May 13, 1994, twenty-one (21) 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

Sheree' A. Schneider
Project Manager

RECORD COPY

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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 alkalinity of the samples was determined using EPA method 310.1.

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

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

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 9050.

The samples were analyzed for sulfide based on EPA method 9030.

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 9060.

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

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.

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KNOXVILLE, TN

IT Corporation
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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 Hewlett-Packard 5970 GC/MS/DS and a Finnigan INCOS 500 GC/MS/DS. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. 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. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. The matrix spike duplicate showed a slightly high recovery for 4-nitrophenol.

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 #534 were digested on May 17, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on May 19, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from May 20 through May 27, 1994; the remaining metals were analyzed by ICP on June 1, 1994. All run QC was acceptable. A duplicate and a spike were analyzed using sample numbers BOBMQ6 (total) and BOBMQ7 (dissolved). Spike recovery (accuracy) results were within acceptance limits for all parameters for both samples. Duplicate RPD (precision) results were within acceptance limits for all parameters for both samples except for iron by ICP analysis for BOBMQ6. Poor precision for iron appears to be attributable to contamination during sample digestion. There was insufficient sample to perform a spike analysis for cyanide, therefore, a blank spike analysis was performed.

The samples for work order #535 and #537 were digested on May 17, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on May 19, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from May 20 through May 31, 1994; the remaining metals were analyzed by ICP on June 1, 1994. The samples were batched with quality control from work order #534. All quality control results were acceptable.

IT ANALYTICAL SERVICES
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KNOXVILLE, TN

IT Corporation
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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 by EPA method 300.0 from May 31 through June 6, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

IT ANALYTICAL SERVICES
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IT Corporation
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III. Quality Control (Continued)

The alkalinity of the samples was determined on May 16, 1994. A duplicate analysis was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for ammonia on May 24 and June 1, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for nitrate-nitrite on May 25 and June 3, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The pH of the samples was determined on May 17, 1994. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The specific conductance of the samples was determined on May 19, 1994. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for sulfide on May 16, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The total dissolved solids (TDS) of the samples was determined on May 16 and June 16, 1994. Duplicate analyses were performed using sample numbers BOBMQ6 and BOBMX6. All quality control results were acceptable.

The samples were analyzed for total organic carbon (TOC) on May 24 and May 30, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for total organic halogens (TOX) on June 3, June 6 and June 7, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for chemical oxygen demand (COD) on May 19, 1994 at the ITAS-Knoxville laboratory. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. The samples were analyzed for chemical oxygen demand (COD) on June 15, 1994 at the ITAS St. Louis laboratory. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable. Both sets of results are provided in this report.

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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
AA8780	405170-01A-C	BOBMQ6	VOC
AA8781	405170-01D-F	"	SVOC
AA8784	405170-01G-I	"	PEST/PCB
AA8786	405170-01J	"	CONDUCTIVITY
"	"	"	pH
"	"	"	ANIONS
AA8787	405170-01K	"	NO3NO2
AA8788	405170-01L	"	ALKALINITY
AA8789	405170-01M	"	TDS
AA8790	405170-01N	"	SULFIDE
AA8791	405170-01O	"	AMMONIA
AA8791	"	"	COD
AA8792	405170-01P	"	METALS-T
AA8793	405170-01Q	"	CYANIDE
AA8794	405170-01R	"	TOC
AA8795	405170-01S	"	TOX
AA8810	405170-02A	BOBMQ7	METALS-D
AA8812	405170-03A-C	BOBMQ8	VOC
AA8796	405170-04A-C	BOBMX6	VOC

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IT Corporation
June 17, 1994
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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
AA8797	405170-04D-F	BOBMX6	SVOC
AA8798	405170-04G-I	"	PEST/PCB
AA8799	405170-04J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8800	405170-04K	"	NO3NO2
AA8801	405170-04L	"	ALKALINITY
AA8802	405170-04M	"	TDS
AA8803	405170-04N	"	SULFIDE
AA8804	405170-04O	"	AMMONIA
"	"	"	COD
AA8805	405170-04P	"	METALS-T
AA8806	405170-04Q	"	CYANIDE
AA8807	405170-04R	"	TOC
AA8808	405170-04S	"	TOX
AA8811	405170-05A	BOBMX7	METALS-D
AA8813	405170-06A-B	BOBMX8	VOC
AA8822	405215-01A-C	BOBMS2	VOC
AA8826	405215-01D-F	"	SVOC

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IT Corporation
June 17, 1994
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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
AA8828	40521501G-I	BOBMS2	PEST/PCB
AA8831	405215-01J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8832	405215-01K	"	NO3NO2
AA8833	405215-01L	"	ALKALINITY
AA8834	405215-01M	"	TDS
AA8836	405215-01O	"	AMMONIA
AA8830	"	"	COD
AA8838	405215-01Q	"	CYANIDE
AA8839	405215-01R	"	TOC
AA8840	405215-01S	"	TOX
AA8880	405215-02A	BOBMS3	METALS-D
AA8896	405215-03A-C	BOBMS4	VOC
AA8841	405215-04A-C	BOBMS6	VOC
AA8842	405215-04D-F	"	SVOC
AA8843	405215-04G-I	"	PEST/PCB

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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
AA8844	405215-04J	BOBMS6	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8845	405215-04K	"	NO3NO2
AA8846	405215-04L	"	ALKALINITY
AA8847	405215-04M	"	TDS
AA8848	405215-04N	"	SULFIDE
AA8849	405215-04O	"	AMMONIA
"	"	"	COD
AA8850	405215-04P	"	METALS-T
AA8851	405215-04Q	"	CYANIDE
AA8852	405215-04R	"	TOC
AA8853	405215-04S	"	TOX
AA8881	405215-05A	BOBMS7	METALS-D
AA8897	405215-06A-C	BOBMS8	VOC
AA8854	405215-07A-C	BOBMT4	VOC
AA8855	405215-07D-F	"	SVOC
AA8856	405215-07G-I	"	PEST/PCB
AA8857	405215-07J	"	ANIONS

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IT Corporation
June 17, 1994
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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
AA8857	405215-07J	BOBMT4	CONDUCTIVITY
"	"	"	pH
AA8858	405215-07K	"	NO3NO2
AA8859	405215-07L	"	ALKALINITY
AA8860	405215-07M	"	TDS
AA8861	405215-07N	"	SULFIDE
AA8862	405215-07O	"	AMMONIA
"	"	"	COD
AA8863	405215-07P	"	METALS-T
AA8864	405215-07Q	"	CYANIDE
AA8865	405215-07R	"	TOC
AA8866	405215-07S	"	TOX
AA8894	405215-08A	BOBMT5	METALS-D
AA8898	405215-09A-C	BOBMT6	VOC
AA8867	405215-10A-C	BOBMW4	VOC
AA8868	405215-10D-F	"	SVOC
AA8869	405215-10G-I	"	PEST/PCB
AA8870	405215-10J	"	ANIONS
"	"	"	CONDUCTIVITY

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IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
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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
AA8870	405215-10J	BOBMW4	pH
AA8871	405215-10K	"	NO3NO2
AA8872	405215-10L	"	ALKALINITY
AA8873	405215-10M	"	TDS
AA8874	405215-10N	"	SULFIDE
AA8875	405215-10O	"	AMMONIA
"	"	"	COD
AA8876	405215-10P	"	METALS-T
AA8877	405215-10Q	"	CYANIDE
AA8878	405215-10R	"	TOC
AA8879	405215-10S	"	TOX
AA8895	405215-11A	BOBMW5	METALS-D
AA8899	405215-12A-C	BOBMW6	VOC
AA8904	405241-01A-C	BOBMR4	VOC
AA8905	405241-01D-F	"	SVOC
"	405241-01G-I	"	PEST/PCB
AA8906	405241-01J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
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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
AA8907	405241-01K	BOBMR4	NO3NO2
AA8908	405241-01L	"	ALKALINITY
AA8909	405241-01M	"	TDS
AA8910	405241-01N	"	SULFIDE
AA8911	405241-01O	"	AMMONIA
"	"	"	COD
AA8912	405241-01P	"	METALS-T
AA8913	405241-01Q	"	CYANIDE
AA8914	405241-01R	"	TOC
AA8915	405241-01S	"	TOX
AA8916	405241-02A	BOBMR5	METALS-D
AA8917	405241-03A-C	BOBMR6	VOC

IT Corporation
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IT ANALYTICAL SERVICES
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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

Sheree' A. Schneider
Project Manager

Cur. # 1630

Work Order No.: 534

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: WHC

Date: 5/13/94

Project No: 94-087

Initiated by: Bryan Blomquist

Analysis Requested: VOA TOC, TOX, CN, Ammonia, COD Pest/PCB

RFA/COC Numbers: 453641

Client Sample Numbers Affected: BOBMQ6, BOBMX7, Trip Blank

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis.
   Received approximately: _____
2. ☑ Sample received broken/leaking. Pest/PCB BOBMQ6
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☑ pH Ammonia, COD BOBMQ6=5 CN⁻'s = 11
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☑ Sample received without proper paperwork. Explain: Trip Blank Not Listed on RFA/COC.
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: Labels from Richland on BOBMX7, TOC-TOX, switched.
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: Bryan Blomquist Date: 5/16/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

CuR 1631

Work Order No.: 535

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: WHC

Date: 5/14/94

Project No: 94-087

Initiated by: Bryan Blomquist

Analysis Requested: Ammonia, COD, CN, TOC, Sulfide, metals

RFA/COC Numbers: 453648

Client Sample Numbers Affected: BOBMS2, BOBMS6, BOBMT4, BOBMW4

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis. Received approximately: _____
2. ☑ Sample received broken/leaking. BOBMS2, sulfide, metals
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C. Record temperature: _____
   - ☑ pH SEE NOTES Below:
   - ☐ other: _____
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: BOBMS2, Ammonia + COD pH=6, CN^-=11; BOBMS6, CN^-=11; BOBMT4, CN^-=11; BOBMW4, Sulfide = pH 8, CN^- = pH 11; TOC = pH 6

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: Kenyata Denson Date: 5/16/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

9613479.2508

0000016

CUK # 1633

Work Order No.: ~~4~~537

KAC 5-14-94

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: IT Richland

Date: 5-14-94

Project No: Westinghouse Hanford

Initiated by: KAC

Analysis Requested: Cyanide

RFA/COC Numbers: 453650

Client Sample Numbers Affected: BOB MR4

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 Cyanid = pH 11
   - ☐ other: _____
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: Kenyl K Clemm Date: 5/19/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 405215 01-12, 40521701-3 DATE INITIATED: 5/11/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/11/94 1200

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOBMS2		Sulfide
BOBMT4		
BOBMS6		
BOBMW4		
BOBMV2		

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: Samples received in 500ml glass, COC shows 500 ml poly.

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

ITAS-Knoxville
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WO# 534
NCM INITIATED BY (Name/Date): KAKlemm 5-16-94
PARAMETER(S): Sulfide, TSS and BNAs + Pest/PCBs, pH, NO2/NO3, sulfide
SAMPLE NUMBER(S) AFFECTED: AA8781, 84, 86, 87, 89, 90, AA8802, 03, ~~05~~ KAK 5/16/94

AREA:
- [x] SHIP/REC
- [ ] GC
- [ ] GEN CHEM
- [ ] BIOASSAY
- [ ] IH
- [ ] ORG EXT
- [ ] HPLC
- [ ] METALS
- [ ] RADIOCHEM
- [ ] DATA VERIFICATION
- [ ] INORG PREP
- [ ] GCMS
- [ ] GEO
- [ ] COUNTING
- [ ] REPORTING
- [ ] OTHER:

NONCONFORMANCE [check appropriate item(s)]:

1. [ ] Not enough sample received for proper analysis.
2. [ ] Holding time exceeded by _____ days due to:
   - 2.1 [ ] CATEGORY I: Out of Laboratory Control
     - [ ] Holding time expired at receipt.
   - 2.2 [x] CATEGORY II: Laboratory Dependent
     - [x] work backlog
     - [ ] instrument failure
     - [x] communication
     - [x] other (see #10)
   - 2.3 [ ] CATEGORY III: Laboratory Reruns
     - 2.3.1. [ ] *QA/QC:*
       - [ ] surrogates
       - [ ] internal standards
       - [ ] spike recoveries
       - [ ] blank contamination
     - 2.3.2. [ ] *CONFIRMATION:*
       - [ ] second column
       - [ ] contamination check
       - [ ] other (see #10)
     - 2.3.3. [ ] *DILUTION:*
       - [ ] over calibration
       - [ ] under calibration
       - [ ] other (see #10)
     - 2.3.4. [ ] *OTHER: (see #10)*
3. [ ] Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. [ ] QC data reported to client outside of:
   - [ ] method limits
   - [ ] internal limits
   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] regulatory limits
   - [ ] blank criteria
5. [ ] Incorrect procedure(s) used. (See #10)
6. [ ] Invalid instrument calibration. (See #10)
7. [ ] Incorrect/incomplete data reported to client. (See #10)
8. [ ] Reported detection limit(s) higher than:
   - [ ] method limits
   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] other (see #10)

   Due to:
   - [ ] sample matrix
   - [ ] insufficient sample
   - [ ] instrumentation
   - [ ] other (see #10)
9. [x] Other (specify): Westinghouse Hanford samples were received on 5-11-94, but were collected 5-6-94. Also Westinghouse Hanford contract was not updated for new products for SAF# 94-087 until 5-13-94
10. [x] Comments/Explanation: samples were logged-in on Saturday 5-14-94.

NOTIFICATION [check appropriate item(s)]:

1. [ ] Client notified by (name and date): _____
   - [ ] in writing
   - [ ] by FAX
   - [ ] by phone
   - [ ] Other (explain)
2. [ ] Client's name _____ and response:
   - [ ] process "as is"
   - [ ] resample
   - [ ] on hold til ____
   - [ ] Other (explain)

PROJECT MANAGER (signature & date): _____

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

IT CORPORATION

LOG #: KN-94-_____ page 2 of 2

CORRECTIVE ACTION

☑ ROOT CAUSE: INITIALS/DATE_____

1) Samples received five (5) days after collection
2) LIMS Westinghouse Hanford contract was not updated by P.M. until two days after samples were received.

☑ CORRECTIVE ACTION: INITIALS/DATE_____

Samples were logged in as soon as possible after contract was updated.

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE_____

FIRST LEVEL SUPERVISOR: _____ DATE: _____

RESPONSIBLE MANAGER: _____ DATE: _____

QC REVIEW

☐ NONCONFORMANCE ☐ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED: _____

ASSIGNED TO: _____

QC COORDINATOR: _____ DATE: _____

CORRECTIVE ACTION VERIFICATION

☐ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON: _____

NCM CLOSURE

QC COORDINATOR: _____ DATE: _____

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☐ PROJECT FILE

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8780

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP11

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	16	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	1	J
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.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8780

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP11

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMQ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8812

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP15

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	13	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	2	J
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.

BOBMQ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8812

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP15

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8796R

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8796R

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	BJ
67-64-1	Acetone	7	BJ
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	1	J
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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8796R

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8796R

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMX8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8813

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP16

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	BJ
67-64-1	Acetone	56	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	6	J
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	1	BJ
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.

BOBMX8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8813

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP16

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	9.15	5	J

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8822

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP18

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	12	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	8	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	1	J
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	4	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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8822

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP18

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMS4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8896

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AES07

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/19/94

GC Column: DB-624 ID: 0.250 (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	4	BJ
67-64-1	Acetone	26	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	3	BJ
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.

BOBMS4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8896

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AES07

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/19/94

GC Column: DB-624 ID: 0.250 (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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8841

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP19

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	5	BJ
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	7	J
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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8841

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP19

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMS8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8897

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8897

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	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	2	J
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.
BOBMS8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8897

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8897

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8854

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP20

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	5	BJ
67-64-1	Acetone	15	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	1	J
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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8854

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP20

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMT6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8898

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8898

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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	BJ
67-64-1	Acetone	13	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	4	J
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.
BOBMT6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8898

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8898

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8867

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8867

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	BJ
67-64-1	Acetone	7	BJ
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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8867

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8867

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMW6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8899

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8899

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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	BJ
67-64-1	Acetone	12	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	3	J
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.

BOBMW6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8899

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8899

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8904

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX12

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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	9	BJ
67-64-1	Acetone	8	BJ
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	7	J
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	1	J
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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8904

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX12

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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.

BOBMR6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8917

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX13

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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	8	BJ
67-64-1	Acetone	17	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	2	J
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	6	J
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.

BOBMR6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8917

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX13

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.	1-PROPENE, TRICHLORO-	5.40	2	JY

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.
BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	4	J
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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1-PROPENE,TRICHLORO	5.42	7	JY
2.	UNKNOWN	6.25	2	J

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	3	J
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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	16.23	49	JN

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	3	J
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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.	UNKNOWN	17.37	2	J

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8784

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/11/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/13/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8828

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8843

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8856

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8869

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8798

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/11/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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.: WO534 SAS No.: _____ SDG No.:W0055_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
BOBMQ6	AA8792
BOBMQ6D	AA8793D
BOBMQ6D	AA8792D
BOBMQ6S	AA8792S
BOBMQ6	AA8793
BOBMQ7	AA8810
BOBMQ7D	AA8810D
BOBMQ7S	AA8810S
BOBMX6	AA8806
BOBMX6	AA8805
BOBMX7	AA8811
BLKSPKS	AA8793S

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 10, 1994 Title: Chemist

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0534 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8792

Level (low/med): LOW Date Received: 05/11/94

% 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	28.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	50800			P
7440-47-3	Chromium	54.0			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	1420		*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	7390			P
7439-96-5	Manganese	9.0	B		P
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	20.0	U		P
7440-09-7	Potassium	2100	B		P
7782-49-2	Selenium	2.1	B	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	6900			P
7440-28-0	Thallium	2.0	U	W	F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	10.2	B		P
	Titanium	3.0	U		P
5955-70-0	Cyanide				NR

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

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM I - IN

ILM02.1

8/10/94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0534 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8793

Level (low/med): LOW Date Received: 05/11/94

% 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
	Titanium				NR
5955-70-0	Cyanide	10.0	U		AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CYANIDE ONLY.

FORM I - IN

ILM02.1

8-2/10/94

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMQ7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO534 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8810

Level (low/med): LOW Date Received: 05/11/94

% 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	27.6	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	51900			P
7440-47-3	Chromium	47.6			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	23.8	B		P
7439-92-1	Lead	2.4	B	W	F
7439-95-4	Magnesium	7470			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	2400	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	7200			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
	Titanium	3.0	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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EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0534 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8806

Level (low/med): LOW Date Received: 05/11/94

% 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
	Titanium				NR
5955-70-0	Cyanide	10.0	U		AS

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

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

CYANIDE ONLY.

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO534 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8805
Level (low/med): LOW Date Received: 05/11/94
% 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	41.3	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	27.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	52600			P
7440-47-3	Chromium	44.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	40.3	B	*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	7600			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	1710	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	7170			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	9.4	B		P
	Titanium	3.0	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.

BOBMX7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO534 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8811
Level (low/med): LOW Date Received: 05/11/94
% 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	46.2	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	27.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	52000			P
7440-47-3	Chromium	48.7			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	17.0	B		P
7439-92-1	Lead	32.5			F
7439-95-4	Magnesium	7490			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	2610	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	7020			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	24.5			P
	Titanium	3.0	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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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO535 SAS No.: _____ SDG No.:W0055_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
BOBMS2	AA8838
BOBMS3	AA8880
BOBMS6	AA8851
BOBMS6	AA8850
BOBMS7	AA8881
BOBMT4	AA8863
BOBMT4	AA8864
BOBMT5	AA8894
BOBMW4	AA8877
BOBMW4	AA8876
BOBMW5	AA8895

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:
Samples are batched w/ QC from WO#534.

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 Kauler Name: Christopher Kauler

Date: June 14, 1994 Title: Chemist

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8838

Level (low/med): LOW Date Received: 05/12/94

% 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		AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

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EPA SAMPLE NO.

BOBMS3

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO535 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Lab Sample ID: AA8880

Level (low/med): LOW__ Date Received: 05/12/94

% 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__	3.4	B		F
7440-39-3	Barium__	27.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium__	5.0	U		P
7440-70-2	Calcium__	60500			P
7440-47-3	Chromium_	33.4			P
7440-48-4	Cobalt___	10.0	U		P
7440-50-8	Copper___	10.0	U		P
7439-89-6	Iron____	25.1	B		P
7439-92-1	Lead____	2.0	U		F
7439-95-4	Magnesium	13600			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	4510	B		P
7782-49-2	Selenium_	2.0	U	W	F
7440-22-4	Silver___	5.0	U		P
7440-23-5	Sodium___	17000			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.

BOBMS6

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0535 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Lab Sample ID: AA8851

Level (low/med): LOW__ Date Received: 05/12/94

% 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		AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY._____

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EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8850
Level (low/med): LOW Date Received: 05/12/94
% 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	2.5	B		F
7440-39-3	Barium	36.5	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	71800			P
7440-47-3	Chromium	334			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	23.6	B	*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	10200			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	3870	B		P
7782-49-2	Selenium	2.0	U	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	16300			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.

BOBMS7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8881
Level (low/med): LOW Date Received: 05/12/94
% 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	2.4	B		F
7440-39-3	Barium	39.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	78900			P
7440-47-3	Chromium	366			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	45.6	B		P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	11200			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	4420	B		P
7782-49-2	Selenium	2.0	U	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	17800			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.8	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.

BOBMT4

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO535 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Lab Sample ID: AA8864

Level (low/med): LOW__ Date Received: 05/12/94

% 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		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.

BOBMT4

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8863

Level (low/med): LOW Date Received: 05/12/94

% 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	41.3	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	42.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	92600			P
7440-47-3	Chromium	27.1			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	19.9	B	*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	20700			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	5980			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	24900			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.

BOBMT5

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8894

Level (low/med): LOW Date Received: 05/12/94

% 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	2.3	B		F
7440-39-3	Barium	36.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	77400			P
7440-47-3	Chromium	21.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	19.9	B		P
7439-92-1	Lead	2.0	B		F
7439-95-4	Magnesium	17100			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	5770			P
7782-49-2	Selenium	2.5	B	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	20500			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.

BOBMW4

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0535 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Lab Sample ID: AA8877

Level (low/med): LOW__ Date Received: 05/12/94

% 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		AS

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments:

CYANIDE_ONLY.

FORM I - IN

ILM02.1

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO535 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8876
Level (low/med): LOW__ Date Received: 05/12/94
% 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_	50.6	B		P_
7440-36-0	Antimony_	50.0	U		P_
7440-38-2	Arsenic__	2.5	B		F_
7440-39-3	Barium___	48.2	B		P_
7440-41-7	Beryllium	1.0	U		P_
7440-43-9	Cadmium__	5.0	U		P_
7440-70-2	Calcium__	104000			P_
7440-47-3	Chromium_	10.4			P_
7440-48-4	Cobalt___	10.0	U		P_
7440-50-8	Copper___	10.0	U		P_
7439-89-6	Iron____	10.0	U	*	P_
7439-92-1	Lead____	2.0	U		F_
7439-95-4	Magnesium	25700			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	7470			P_
7782-49-2	Selenium_	2.0	U		F_
7440-22-4	Silver___	5.0	U		P_
7440-23-5	Sodium___	32300			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:

FORM I - IN

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW5

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8895

Level (low/med): LOW Date Received: 05/12/94

% 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	61.6	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.3	B		F
7440-39-3	Barium	45.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	97000			P
7440-47-3	Chromium	11.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	114			P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	23800			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	7140			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	29800			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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COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD___

Lab Code: ITSTU_ Case No.: WO537 SAS No.: _____ SDG No.:W0055_

SOW No.: ILM02

EPA Sample No.	Lab Sample ID
BOBMR4	AA8912
BOBMR4	AA8913
BOBMR5	AA8916

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: Samples are batched with QC from WO534.

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 Kauker Name: Christopher Kauker

Date: June 14, 1994 Title: Chemist

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS KNOXVILLE Contract: HANFORD
Lab Code: ITSTU Case No.: W0537 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8912
Level (low/med): LOW Date Received: 05/13/94
% 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	50.2	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	15.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	22000			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	53.3	B	*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	3830	B		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	1030	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2110	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
TOTAL

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS_KNOXVILLE Contract: HANFORD
Lab Code: ITSTU Case No.: W0537 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8913
Level (low/med): LOW Date Received: 05/13/94
% 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		AS

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
TOTAL CYANIDE

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMR5

Lab Name: ITAS KNOXVILLE Contract: HANFORD
Lab Code: ITSTU Case No.: WO537 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8916
Level (low/med): LOW Date Received: 05/13/94
% 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	15.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	21700			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	25.8	B		P
7439-92-1	Lead	6.2			F
7439-95-4	Magnesium	3820	B		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	1110	B		P
7782-49-2	Selenium	2.0	U	W	F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2180	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:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED

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ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6221	2	U
BOBMQ6	AA8788	110	+
BOBMX6	AA8801	110	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6221	2	U
BOBMW4	AA8872	258	+
BOBMT4	AA8859	192	+
BOBMS2	AA8833	158	+
BOBMS6	AA8846	176	+

\+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6222	2	U
BOBMR4	AA8908	66	+

\+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6248	0.1	U
BOBMQ6	AA8791	0.1	U
BOBMX6	AA8804	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/01/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6261	0.1	U
BOBMS2	AA8836	0.2	+
BOBMS6	AA8849	0.1	U
BOBMT4	AA8862	0.1	U
BOBMW4	AA8875	0.1	U

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/01/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6261	0.1	U
BOBMR4	AA8911	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMQ6	AA8791	1	U
BOBMX6	AA8804	1	U

*. - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMW4	AA8875	4	+
BOBMT4	AA8862	1	U
BOBMS2	AA8836	4	+
BOBMS6	AA8849	1	U

* - A method blank is not applicable for this analysis.
\+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMR4	AA8911	2	+

* - A method blank is not applicable for this analysis.
\+ - Positive result.

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-St. Louis	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534, 535, 537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/15/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	QCBLK39506-2	5.0	U
BOBMR4	5329-001	5.0	U
BOBMX6	5329-002	5.0	U
BOBMS2	5329-003	5.0	U
BOBMS6	5329-004	5.0	U
BOBMT4	5329-005	5.0	U
BOBMW4	5329-006	5.0	U
BOBMQ6	5329-007	5.0	U

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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
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	P6241	0.02	U
BOBMQ6	AA8787	4.56	+
BOBMX6	AA8800	4.58	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
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	P6241	0.02	U
BOBMS2	AA8832	10.1	+
BOBMS6	AA8845	9.2	+
BOBMT4	AA8858	17.6	+
BOBMW4	AA8871	22.3	+

\+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
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
BOBMR4	AA8907	0.21	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMQ6	AA8786	7.53	-
BOBMX6	AA8799	7.59	-

* - A method blank is not applicable for this analysis.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMW4	AA8870	7.66	-
BOBMT4	AA8857	7.72	-
BOBMS2	AA8831	7.79	-
BOBMS6	AA8844	7.73	-

* - A method blank is not applicable for this analysis.

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMR4	AA8906	7.64	-

* - A method blank is not applicable for this analysis.

SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMQ6	AA8786	389	+
BOBMX6	AA8799	387	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMW4	AA8870	898	+
BOBMT4	AA8857	778	+
BOBMS2	AA8831	555	+
BOBMS6	AA8844	602	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMR4	AA8906	167	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6210	1	U
BOBMQ6	AA8790	13	+
BOBMX6	AA8803	12	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6210	1	U
BOBMW4	AA8874	5	+
BOBMT4	AA8861	5	+
BOBMS6	AA8848	85	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6211	1	U
BOBMR4	AA8910	8	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6317	1	U
BOBMQ6	AA8789	28	+
BOBMX6	AA8802	29	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6203	1	U
BOBMS6	AA8847	379	+
BOBMW4	AA8873	642	+
BOBMT4	AA8860	476	+
BOBMS2	AA8834	374	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6203	1	U
BOBMR4	AA8909	197	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6255	1	U
BOBMQ6	AA8794	1	U
BOBMX6	AA8807	1	U

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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6255	1	U
BOBMS2	AA8839	2	+
BOBMS6	AA8852	2	+
BOBMT4	AA8865	2	+
BOBMW4	AA8878	2	+

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/30/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6279	1	U
BOBMR4	AA8914	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6291	20	U
BOBMQ6	AA8795	20	U
BOBMX6	AA8808	21	+

Note: Blank subtraction per method.

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/06/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6302	20	U
BOBMT4	AA8866	20	U
BOBMW4	AA8879	20	U
BOBMS2	AA8840	20	U
BOBMS6	AA8853	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/07/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6303	20	U
BOBMR4	AA8915	20	U

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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Client Sample ID:	BOBMQ6	Preparation Date:	05/31/94
Lab Sample ID:	AA8786	Analysis Date:	05/31/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.5	+	0.40
chloride	11	+	2.0
phosphate	1.0	U	1.0
sulfate	48	+	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Client Sample ID:	BOBMX6	Preparation Date:	05/31/94
Lab Sample ID:	AA8799	Analysis Date:	05/31/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	10	+	2.0
phosphate	1.0	U	1.0
sulfate	52	+	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMS2	Preparation Date:	06/02/94
Lab Sample ID:	AA8831	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	16	+	4.0
phosphate	1.0	U	1.0
sulfate	62	+	15

+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMS6	Preparation Date:	06/02/94
Lab Sample ID:	AA8844	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	1.50	+	0.40
chloride	16	+	2.0
phosphate	2.0	U *	2.0
sulfate	69	+	7.5

* - Elevated detection limit due to matrix interference.
\+ - 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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMT4	Preparation Date:	06/02/94
Lab Sample ID:	AA8857	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	29	+	2.0
phosphate	1.0	U	1.0
sulfate	93	+	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMW4	Preparation Date:	06/02/94
Lab Sample ID:	AA8870	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.50	+	0.40
chloride	19	+	2.0
phosphate	1.0	U	1.0
sulfate	112	+	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:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Client Sample ID:	BOBMR4	Preparation Date:	06/06/94
Lab Sample ID:	AA8906	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	1.3	+	0.40
phosphate	1.0	U	1.0
sulfate	12	+	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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INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/9/94 1145 Client Name WHC

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

Cooler ID (if noted on the outside of cooler) ER-9

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: 31
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°

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 R Boyd R Boyd Date/Time 5/9/94 1145

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

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/9/94 1145 Client Name WHC

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

Cooler ID (if noted on the outside of cooler) ER-15

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: 32
8. Samples have: ____ tape ____ hazard labels
   X custody seals X appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   ____ other
10. Coolant present? Yes ☒ No ☐

Sample temperature 30

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 L. Boyd L. Boyd Date/Time 5/9/94 1145

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

WO-333

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/11/94 1200 Client Name WAC

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

Cooler ID (if noted on the outside of cooler) ER-9

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: 31
8. Samples have: ____ tape ____ hazard labels
   1 custody seals 1 appropriate sample labels
9. Samples are: 1 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 [signature] Date/Time 5/11/94 1200

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

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INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

WO #535

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/11/94 1200 Client Name WHC

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

Cooler ID (if noted on the outside of cooler) ER-16

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: 31
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 2°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 5/11/94 1200

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

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INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2300 George Washington Way
Richland, Washington 99352

WO #535

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/11/94 1200 Client Name WHC

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

Cooler ID (if noted on the outside of cooler) ~~100ER3~~ 5/11/94 ER-17

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: 31
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 ☐ ~~5/11/94~~
13. Memos have been initiated for all anomalies identified above? Yes ☑

Printed Name/Signature Tom Gilmore Date/Time 5/11/94 1200

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

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WO# 537

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5-12-94 12:00 Client Name WHC

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

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

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: 31
8. Samples have: X tape ____ hazard labels
   X custody seals ____ appropriate sample labels
9. Samples are: X in good condition ____ leaking
   ____ broken ____ have air bubbles
   X 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 _____
12. Have any anomalies been identified above? Yes ☐ No ☒
13. Memos have been initiated for all anomalies identified above? Yes ☑

Printed Name/Signature Karen Stettenburg ITAS Date/Time 5/12/94 1200

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

W0#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: ☐ Priorty ☒ Normal

Collector: K. D. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-FR-3	SAF No.: 94-087
Ice Chest No.: ER-9	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0518-36	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE RIC 20 LCS 5/6/94 1400

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40517004	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 40517102	Tc-99
	ABC	DEF	GHI	J	K	L	M	N	O	P	Q	R	S		

Sample No.	Matrix*	Date Sampled	Time Sampled	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
B0BMX6	W	05/06/94	1045	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
~~B0BMX7~~	W	05/06/94	1045 3KOK															
~~B0BMX8~~	W	05/06/94	1045 5/6/94															

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K.D. Lee	5/6/94 1315
Received By	L Sweeney	5/6/94 1315
Relinquished By	L Sweeney	5/9/94 1145
Received By	A. Boyd	5/9/94 1145
Relinquished By		
Received By		
Relinquished By		
Received By		

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)

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WO#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Date Turnaround: [ ] Priorty [X] Normal

Collector: K.O Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-FR-3	SAF No.: 94-087
Ice Chest No.: ER-9	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0 0518-36	Bill of Lading/Air Bill No.: N/A NONE

Possible Sample Hazards/Remarks

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

SAMPLE ANALYSIS: 4051700

Preservative	N/A	HNO3<2	N/A			HCl pH<2										
Type of Container	Gs	G	G			Gs										
No. of Container(s)	1	1	1			2										
Volume	1000ml	1000ml	4oz			40ml										
	TRITIUM C-14 4051702	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	TOC material			VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMX6	W	05/06/94	1045	X		X											
~~B0BMX7~~	~~W~~	05/06/94	1045		X												
B0BMX8	W	05/06/94	1045						X								
									AB								

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS
Relinquished By: K.O Lee Date/Time: 5/6/94 1315	Received By: L Sweeney Date/Time: 5/6/94 1315	
Relinquished By: L Sweeney Date/Time: 5/9/94 1145	Received By: C. Boyd Jr Date/Time: 5/9/94 1145	
Relinquished By: Date/Time:	Received By: Date/Time:	
Relinquished By: Date/Time:	Received By: Date/Time:	

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)

9613479.2636

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WO#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Data Turnaround: ☐ Priority ☒ Normal

Collector: K.D. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 197-F5-6	SAF No.: 94-087
Ice Chest No.: ER-15	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0518-36	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE — Rof 3A LCS 5/6/94 1315

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	HCl pH<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	3	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
40517001	ABC	DEF	GHI	J	k	L	M	N	O	P	Q	R	S	40517/01	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
B0BMQ6	W	05/06/94	1045	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
~~B0BMQ7~~	~~W~~	~~05/06/94~~	~~1045~~															
~~B0BMQ8~~	~~W~~	~~05/06/94~~	~~1045~~															

KDL 5/6/94

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kitty Lee K.D. Lee	5/6/94 1310	L Sweeney / L Sweeney	5/6/94 1310
L Sweeney / L Sweeney	5/9/94 1145	R. Boyd IT	5/9/94 1145

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)

9613479.2637

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WO #534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Data Turnaround: [ ] Priority [X] Normal

Collector: K.O. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 199-F5-6	SAF No.: 94-087
Ice Chest No.: ER-15	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0518-36	Bill of Lading/Air Bill No.: N/A DONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2				HClpH<2	N/A									
Type of Container	Gs	G				Gs	G									
No. of Container(s)	1	1				3	1									
Volume	1000ml	1000ml				40ml	40ml									
SAMPLE ANALYSIS 405170	TRITIUM C-14 405170	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD				VOA (CLP) TRIP										
Sample No. / Matrix* / Date Sampled / Time Sampled																
B0BMQ6 / W / 05/06/94 / 1045	X															
B0BMQ702 / W / 05/06/94 / 1045		XA					B X									
B0BMQ803 / W / 05/06/94 / 1045						ABC										

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
Kathy Lee K.O. Lee	5/6/94 1310	T. Sweeney T Sweeney	5/6/94 1310
Relinquished By	Date/Time	Received By	Date/Time
T. Sweeney T Sweeney	5/9/94 1445	P. Boyd	5/9/94 1145
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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2638

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround: [ ] Priorty [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-9	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W24-0-0518-40	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	1	1	1	1	1	1	1	1	1	1	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521504	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 40521602	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled	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 40521602	Tc-99
BOBM56 04	W	5/10/94	1200	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BOBM57	W																	
BOBM58	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/10/94 1110	S Sweeney / Sweeney	5/10/94 1440
S Sweeney / Sweeney	5-11-94 1200	TGilmore	5/11/94 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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2639

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100F	SAF No.: 94-087
Ice Chest No.: EA-7	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0518-40	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			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	TRITIUM C-14 405 216 02	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	Activity Scan			VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled														
B0BMSL	W	5/10/94	1200	X		X											
B0BMS705A	W	↓	↓		X												
B0BMS8 06ABG	W	↓	↓						X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/10/94 1440	J. Sweeney / J. Sweeney	5/10/94 1440
J. Sweeney / J. Sweeney	5-11-94 1200	T. Gilmore	5/11/94 1200

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)

0492-6/45196

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100F	SAF No.: 94-087
Ice Chest No.: ER-16	Field Logbook No.: EFL-1034	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: IW94-0-0518-41	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE Ref 2B LCS 5/9/94

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521507	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	J	k	L	m	N	O	P	Q	R	S	40521603	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
BOBMT4 07	W	5/9/94	1315	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Y
BOBMT5	W																	
BOBMT6	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/9/94 1430	J. Sweeney / J. Sweeney	5-9-94 1430
J. Sweeney / J. Sweeney	5-11-94 1200	TGilmore	5/11/94 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: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2641

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Tipp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100E	SAF No.: 94-087
Ice Chest No.: ER-16	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A BOBM 494-0-05-18-41 LSS 5-11-94	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	in Gs			Gs
No. of Container(s)	1	1	1			3
Volume	1000ml	1000ml	40oz			40ml
SAMPLE ANALYSIS	TRITIUM C-14 405 21603	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	Acidity Scan			VOA (CLP) TRIP

Sample No.	Matrix*	Date Sampled	Time Sampled														
BOBMT4	W	5/9/94	1315	X	~~X~~ AT 4 BIAS	X											
BOBMT5 08A	W	↓	↓		X												
BOBMT6 09ABC	W	↓	↓						X								

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Tipp / K. Tipp	5/9/94 1430	L Sweeney / L Sweeney	5-9-94 1430
L Sweeney / L Sweeney	5-11-94 1200	T Gilmore	5/11/94 1200

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)

9613479.2612

000051

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround: [ ] Priorty [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-17	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: WP4-0-0518-010	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE Ref 2B LCS 5/9/94		

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521510	VOA (CLP) ABC	SEMIVOA (CLP) DEF	PCB/ PEST (CLP) GHI	ANIONS (IC)SO4 F,Cl, PO4 COND,pH, JKL	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 40521604	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled	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
60BMW4 10	W	5/9/94	0940	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
~~60BMW5~~	W	5/9/94																
~~60BMW6~~	W	5/9/94																

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/9/94 1430	J. Sweeney / J. Sweeney	5/9/94 1430
J. Sweeney / J. Sweeney	5-11-94 1200	TGilmore	5/11/94 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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2613

0000052

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Date Turnaround: [ ] Priorty [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-17	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A 1094-0-0518-40	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			HCl pH<2
Type of Container	Gs	G	gGS			Gs
No. of Container(s)	1	1	1			3
Volume	1000ml	1000ml	40ml			40ml
SAMPLE ANALYSIS	TRITIUM C-14 405 21604	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP) FI FILTERD	Airing Scan			VOA (CLP) ~~TRIP~~ KTJ 5/9/94

Sample No.	Matrix*	Date Sampled	Time Sampled															
60BMW4	W	5/9/94	0940	X		X												
60BMW5 11A	W				X													
60BMW6 12ABC	W								X									

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/9/94 1430	L Sweeney / L Sweeney	5/9/94 1430
L Sweeney / L Sweeney	5-11-94 1200	TGilmore	5/11/94 1200

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)

9613479.2644

000053

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Data Turnaround: [ ] Priorty [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-19	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: LW94-0-0518-35	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	1	1	1	1	1	1	1	1	1	1	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 405215 01	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	J	K	L	M	N	O	P	Q	R	S	405215 01	60

Sample No.	Matrix*	Date Sampled	Time Sampled	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
BOBMS2	W	5/10/94	1000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BOBMS3	W																	
BOBMS4	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/10/94 1440	AJ Simpson / AJ Simpson	5/10/94 1445
AJ Simpson / AJ Simpson	5/10/94 1020	L Sweeney / L Sweeney	5/11/94 1020
L Sweeney / L Sweeney	5/11/94 1200	JG Gilmore	5/11/94 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: ____

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2645

000054

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround: [ ] Priority [X] Normal

Collector	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.: FR-19	Field Logbook No.: EFL-1074	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0518-39	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			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 405215	TRITIUM C-14 405 21601	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	Activity Scan			VOA (CLP) KTS/10/94 ~~TRIP~~									

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOBMS2	W	5/10/94	1000	X		X												
BOBMS3 02A	W	↓	↓		X													
BOBMS4 03ABC	W	↓	↓						X									

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: K. J. Mary / K. Tiapp		5/10/94 1440
Received By: A J Simpson / A J Simpson		5/10/94 1445
Relinquished By: A J Simpson / A J Simpson		5/11/94 1020
Received By: T Sweeney / T Sweeney		5/11/94 1020
Relinquished By: T Sweeney / T Sweeney		5-11-94 1200
Received By: TGilmore		5/11/94 1200
Relinquished By		
Received By		

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)

9413479.2646

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [ ] Priorty [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-1D	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0518-44	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	RCD LCS 1520 5-11-94	

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 405241	VOA (CLP) A B C	SEMIVOA (CLP) D E F	PCB/ PEST (CLP) G H I	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 P (CLP)	CYANIDE (CLP) Q	TOC R	TOX S	*3 405241	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOBMR4 01	W	5/11/94	1150	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BOBMR5 02	W																	
BOBMR6 03	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/11/94 1437	Robert E. Bergens	5-11-94 1435
Robert Bergens	5-11-94 1520	K Sweeney / K Sweeney	1520 5-11-94
T Sweeney / T Sweeney	5/12/94 1200	[illegible]	12:00 5-12-94
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 W00062 55 TH 5/12/94

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)

9613479.2647

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WO#55T

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 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: 100F	SAF No.: 94-087
Ice Chest No.	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0518-44	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			HCl pH<2									
Type of Container	Gs	G	Gs			Gs									
No. of Container(s)	1	1	1			3									
Volume	1000ml	1000ml	40ml			40ml									
SAMPLE ANALYSIS 405241	TRITIUM C-14 WD24201	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	Activity Con			VOA (CLP) TRIP A,B,C									

Sample No.	Matrix*	Date Sampled	Time Sampled															
BOBMR4 01	W	5/11/94	1150	X		X												
BOBMR5 02A	W	↓	↓		X													
BOBMR6 03	W	↓	↓						X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/11/94 1435	[illegible]	5-11-94 1435
[illegible]	5-11-94 1535	[illegible] / K Sweeney	1535 5-11-94
K Sweeney / K Sweeney	1200 5/12/94	[illegible] / Kam Fothkha	12:00 5/12/94
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)

9613479.2648

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000058

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0518-36

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
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BMXL, B0BMX7, B0BMX8, B0BMX9 Cooler ID: ER-9 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B0BMG6, B0BMG7, B0BMG8, B0BMG9 Cooler ID: ER-15 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 AREA

Bill of lading # NONE

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

RM Clearance for Public Release	RM Survey No	Date
[illegible]	15-18-IC	5-4-94

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
5/9/94	8B410 PD3AA	NA

Originated By	Date	Authorized By	Date
PH Butcher	5/9/94	[illegible]	5/9/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	5/9/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
A. Boyd JT				
Date 5-9-94 1145				

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

54-3000-479 (09/89)

9613479.2650

000059

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0518-40

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

IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: BOBM56, BOBM57, BOBM58 Cooler ID: ER-9 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: BOBMW4, BOBMW5, BOBMW6 Cooler ID: ER-17 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 AREA

Bill of lading # NONE

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

RM Clearance for Public Release	RM Survey No.	Date
[illegible]	178804	5/11/94

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

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
LCS 5/11/94	8B410 PD3AA	NA

Originated By	Date	Authorized By	Date
PH Butcher	5/11/94	[illegible]	5/11/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		[illegible]	5/11/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date				

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

Received [illegible] ITAS 5/11/94 1200

54-3000-479 (09/89)

9813179.2651

000060

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0518-~~39~~ 42

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

IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BM1V2, B0BM1V3, B0BM1V4 Cooler ID: ER-18 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: B0BMS3, B0BM1S3, ~~B0BM~~ B0BMS4 Cooler ID: ER-19 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-AREA

Bill of lading # NONE

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
R. Motherwell	178804	5/11/94

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
5/11/94	8B410 PD3AA	NA

Originated By	Date	Authorized By	Date
PH Butcher	5/11/94	G. Simpson	5/11/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		J. Hankel	5/11/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date				

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

Received ITAS 5/11/94 1200

54-3000-479 (09/89)

000061

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0518-41

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
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BMT4, B0BMT5, B0BMT6 Cooler ID: ER-16 Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: NA 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 AREA

Bill of lading # None

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

RM Clearance for Public Release	RM Survey No.	Date
[illegible]	17504	5/11/94

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
5-11-94	8B410 PD3M	NA

Originated By	Date	Authorized By	Date
DH Butcher	5/11/94	CA Spor	5/11/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		JP Hankel	5/11/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
Date				

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

Received [illegible] ITAS 5/11/94 [illegible]

54-3000-479 (09/89)

9613479.2653

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Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NUMBER (To be obtained from PROPERTY MANAGEMENT)
WHC		W94-0-0518-44

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
IT Analytical Services
2800 George Washington Way
Richland, WA 99352

Off-site Custodian

Full Title

Quantity	Description (Include Serial and any Government Tag Numbers)	Original Cost
1 lbs.	Sample #: B0BMR1, B0BM125, B0BM126 Cooler ID: ER-1D Polycooler with groundwater samples packed in wet ice and vermiculite	N/A
1 lbs.	Sample #: Cooler ID: NA 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 AREA

Bill of lading # NONE

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
	175012	5/12/94

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

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
5-12-94	8B410 P03AA	NA

Originated By	Date	Authorized By	Date
PH Butcher	5/12/94	AJ Stringer	5/12/94

Signature and Name of Property Control	Custodian Date	Property Management Approval	Date
		W Hankel	5/12/94

PART II – TO BE COMPLETED BY SHIPPING

Signature of Recipient	Return Order No.	Date Issued	Purchase Order No.	Date Issued
K. Hall / JTAS				
Date 5-12-94 5:00				

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)

INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001630*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#534 RL#674

Reference Document No. 453641

Page 1 of 3

Project Name/No.[1] 94-087

Sample Team Members[2]

Profit Center No.[3] 4637

Project Manager[4] Van Pettey

Purchase Order No.[6]

Required Report Date[11]

Samples Shipment Date[7] 5/9/94

Lab Destination[8] Middlebrook

Lab Contact[9]

Project Contact/Phone[12]

Carrier/Waybill No.[13] 206 3575 193

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]
40517001 A	BOBMQ6 /Hr2	5/6/94 1045	Glass	40ml	HCL 4°C	Voa	4°C KAK 5/11/94	
B							FOR LAB USE ONLY	
C								
D				1000ml		SEMI Voa		
E							FOR LAB USE ONLY	
F								
G						Pest/PCB	broken	
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 W0055

1. Relinquished by[28] (Signature/Affiliation) Tom ITAS	Date: ~~5/9/94~~ 5/10/94 Time: 1600	1. Received by[28] (Signature/Affiliation) Kenny A Klemm ITASKN	Date: 5-11-94 Time: 08:45
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.

9613479.2654

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wo#534

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453641

Page 2 of 3

Project Name

Project No. 94-087

Samples Shipment Date 5/9/94

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.
40517001I	BGBMQ6/H_2O	5/6/94 1045	Glass	1000ml	4°C	PCB/Pest	4°C KMC 5-11-94	
J			Poly			Anions SO4, F, Cl Pb Cond. pH	FOR LAB USE ONLY	
K				500ml	H_2SO_4	NO2/NO3		
L				250ml		Alk		
M				500ml		TDS		
N					ZnAc	Sulfide		
O			Glass	1000ml	H_2SO_4	Ammonia COD		
P					HNO_3	ICP, As, Pb, SE, Tl Hg		
Q			Poly		NaOH	CN		
R			Glass	250ml	HCL	TOC		
S				500ml	H_2SO_4	TOX		
40517002A	BOBMQ7/H_2O		Glass	1000ml		Metals, ICP, As Pb SE Tl Hg		
~~B~~	~~BOBMQ7/H_2O~~			~~40ml~~		~~Screen~~	5/9/94	
40517003A	BOBMQ8/H_2O				HCL	Voa		
B								
C								
40517004 A	BOBMX6/H_2O	5/6/94 1045	Glass	40ml		Voa	FOR LAB USE ONLY	
B								
C								
D				1000ml		SemiVoa		

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

9613479.2655

0000064

WO# 534

INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453641

Project Name

Project No. 94-087

Samples Shipment Date 5/9/94

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.
40517005E	BOBMX6/H_2O	5/6/94 1045	Glass	1000ml	4°C	SEMI VOA	4°C KAK 5-11-94	
5/9/94 F							FOR	LAB
G						PCB/Pest	USE	ONLY
H								
I								
J			Poly			Anions: SO_4 F Cl Poly cond pH		
K				500ml	H_2SO_4	NO_2/NO_3	FOR	LAB
L				250ml		ALK	USE	ONLY
M				500ml		TDS		
N					ZnAc	Sulfide		
O			Glass	1000ml	H_2SO_4	Ammonia, COD		
P					HNO_3	Metals ICP As Pb Se Tl Hg	FOR	LAB
Q			Poly		NaOH	CN	USE	ONLY
R			Glass	250ml	HCL	TOC		
S				500ml	H_2SO_4	TOX		
40517005A	BOBMX7/H_2O			1000ml	HNO_3	Metals ICP, As Pb Se Tl Hg		
40517006A	BOB MX8/H_2O			40ml	HCL	VOA	FOR	LAB
B							USE	ONLY
5/9/94								

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2656

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INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001631*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#535 RC#675

Reference Document No. 453648
Page 1 of 6

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

Samples Shipment Date 7 5/4/94
Lab Destination 8 Middlebrook
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13 8875576124

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
40521501A	BOBMS2 /H_2O	5/10/94 1000	Glass	40ml	HCl 4°C	Voa	5°C BBB 5/10/94	
B								
C								
D				1000ml		Semi Voa		
E								
F								
G						PCB/Pest		
H								

FOR LAB USE ONLY

FOR LAB USE ONLY

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 W0055

1. Relinquished by 28 (Signature/Affiliation) [signature] ITAS	Date: 5/11/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Kerry A Flemm ITAS-KW	Date: 05-12-94 Time: 09:10
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.

9613479.2657

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INTERNATIONAL TECHNOLOGY CORPORATION

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

WO#535

Reference Document No.[30] 453648

Page 2 of 6

Project Name

Project No. 94-084

Samples Shipment Date 5/11/94

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.
40521501 I	BOBMS2/ H_2O	5/10/94 1000	Glass	1000 ml	4°C	PCB/Pest	5°C BOB 5/13/94	
J			Poly			Anions SO4 F Cl PO4 pH Cond		FOR LAB
K				500 ml	H_2SO_4	NO2/NO3	<2	USE ONLY
L				250 ml		Alk		
M				500 ml		TDS		FOR LAB
N			Glass		ZnAc	Sulfide	BROKEN	USE ONLY
O				1000 ml	H_2SO_4	Ammonia COD	6	
P					HNO_3	Metals ICP, As Pb Se Tl Hg	BROKEN	
Q			Poly		NaOH	CN	11	
R			Glass	250 ml	HCL	TOC	<2	FOR LAB
S				500 ml	H_2SO_4	TOX	<2	USE ONLY
40521502 A	BOBMS3/ H_2O (5/11/94)			1000 ml	HNO_3	Metals ICP As Pb Se Tl Hg	<2	FOR LAB
40521503 A	BOBMS4/ H_2O			40 ml	HCL	Voa		USE ONLY
B								FOR LAB
C								USE ONLY
40521504 A	BOBMS6/ H_2O	5/10/94 1200	Glass	40 ml	HCL	Voa		
B								FOR LAB
C								USE ONLY
D				1000 ml		Semi Voa		
E								

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2658

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INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453648

Page 3 of 6

Project Name

Project No. 94-087

Samples Shipment Date 5/11/94

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.
40521504 F	BOBMS6/H2O	5/10/94 1200	Glass	1000ml	4°C	SemiVoc	5° [illegible]	
G						PCB/Pest		FOR LAB USE ONLY
H								
I								
J			Poly			Anions SO4 F Cl PO4 pH, Cond		
K				500ml	H_2SO_4	NO2/NO3	<2	
L				250ml		Alk		
M				500ml		TDS		
N			Glass	500ml	ZnAC	Sulfide	9	
O			Glass	1000ml	H_2SO_4	Ammonia COD	<2	
P					HNO_3	ICP Metals As Pb Se Tl Hg	<2	
Q			Poly		NaOH	CN		FOR LAB USE ONLY
R			Glass	250ml	HCL	TOC	<2	
S				500ml	H_2SO_4	TOX	<2	
40521505A	BOBMS7/H2O			1000ml	HNO_3	Metals ICP, As Pb Se Tl Hg	<2	
40521506A	BOBMS8/H2O			40ml	HCL	Voc		
B								FOR LAB USE ONLY
C								
40521507 A	BOBMT4/H2O	5/11/94 1315	Glass	40ml	HCL	VOA		
B								

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2659

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INTERNATIONAL TECHNOLOGY CORPORATION

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

Reference Document No.[30] 453648

Page 4 of 6

Project Name

Project No. 94-087

Samples Shipment Date 5/11/94

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.
40521507C	BOBMT4/H_2O	5/9/94 1315	Glass	40 ml	HCL 4°C	Voa	5°C	
D				1000ml		SemiVoa	FOR	LAB
E							USE	ONLY
F								
G						PCB/Pest		
H								
I								
J			Poly			Anions SO4, F, Cl PO4 PH cond		
K				500ml	H_2SO_4	NO2/NO3	L2	
L				250ml		A/K		
M				500ml		TDS		
N			Glass		ZnAc	Sulfide	FOR	LAB
O				1000ml	H_2SO_4	Ammonia COD	USE L2	ONLY
P					HNO_3	ICP Metals As, Pb, Se, Tl Hg	L2	
Q			Poly		NaOH	CN	FOR USE L1	LAB ONLY
R			Glass	250ml	HCL	TOC	L2	
S				500ml	H_2SO_4	TOX	FOR L2	LAB
40521508A	BOBMT5/H_2O			1000ml	HNO_3	Metals ICP As Pb Se Tl Hg	USE L2	ONLY
40521509A	BOBMT6/H_2O			40ml	HCL	Voa		
B								

White: To accompany samples Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2660

0000069

INTERNATIONAL TECHNOLOGY CORPORATION

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

WO#535

Reference Document No.[30] 453648

Page 5 of 6

Project Name

Project No.: 94-087

Samples Shipment Date 5/11/94

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.
40521510 C	BOB MW6 /H_2O	5/9/94 1315	Glass	40ml	HCL 4°C	Voa	5°C BIB 5/12/94	
40521510 A	BOB MW4 /H_2O	5/9/94 0940						FOR LAB USE ONLY
B								
C								FOR LAB USE ONLY
D				1000ml		SemiVoa		
E								
F								FOR LAB USE ONLY
G						PCB/Pest		
H								FOR LAB USE ONLY
I								
J			Poly			Anions pH Cond		
K				500ml	H_2SO_4	NO2/NO3	<2	FOR LAB USE ONLY
L				250ml		Alk		
M				500ml		TDS		
N			Glass		ZnAc	Sulfide	8	FOR LAB USE ONLY
O				1000ml	H_2SO_4	Ammonia/COD	<2	
P					HNO_3	metals ICP As Pb Se Tl Hg	<2	FOR LAB USE ONLY
Q			Poly		NaOH	CN	11	
R			Glass	250ml	HCL	TOC	6	
S				500ml	H_2SO_4	TOX X 5/14/94	<2	

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2661

0000070

INTERNATIONAL TECHNOLOGY CORPORATION

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

WO #535

Reference Document No.[30] 453648

Page 6 of 6

Project Name

Project No. 94-087

Samples Shipment Date 5/11/94

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.
40521511 A	BOBMW5/H2O	5/9/94 0940	glass	1000 ml	HNO3 4°C	Metals ICP As Pb Se Tl Hg	5°C BB 5/10/94	
40521512 A	BOBMW6/H2O	|	|	40 ml	HCl	VOA	|	
B	|	|	|	|	|	|		
C								
	(Ex) 5/11/94							

FOR LAB USE ONLY

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

96134792662

0000071

INTERNATIONAL TECHNOLOGY CORPORATION

COC NO. *0001633*

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD*

WO#537 RL#677

Reference Document No. 453650
Page 1 of 2

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

Samples Shipment Date 7 5/12/94
Lab Destination 8 Middlebrook
Lab Contact 9
Project Contact/Phone 12
Carrier/Waybill No. 13 206 4717 776

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

ONE CONTAINER PER LINE

Sample 14 Number	Sample 15 Description/Type	Date/Time 16 Collected	Container 17 Type	Sample 18 Volume	Pre-servative 19	Requested Testing Program 20	Condition on Receipt 21	Disposal 22 Record No.
40524101 A	BOBMR4/H2O	5/11/94 1150	Glass	40ml	HCL 4°C	Voa	Rec'd at 5°c KAK 5-13-94	
B								
C								
D				1000ml		Semi Voa		
E								
F								
G						PCB/Pest		
H								

FOR LAB USE ONLY

FOR LAB USE ONLY

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 W0055

1. Relinquished by 28 (Signature/Affiliation) ITAS	Date: 5/12/94 Time: 1600	1. Received by 28 (Signature/Affiliation) Kenny Klemm ITAS-KN	Date: 05-13-94 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.

9613479.2663

0000072

INTERNATIONAL TECHNOLOGY CORPORATION

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

WO#537 RL#677

Reference Document No.[30] 453650

Page 2 of 2

Project Name SDG-W0055

Project No. 94-087

Samples Shipment Date 5/12/94

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.
8905	40524101 I	BOBMR4 /H_2O	5/11/94 1150	Glass	1000ml	4°C	PCB/Pest	Rec'd at 5°C KMC 5-12-94	
8906	J			Poly	1		Anions SO4 Fcl Po4 pH Cond		
8907	k				500ml	H_2SO_4	No2/NO3	pH=<2	
8908	L				250 ml		Alk		
8909	M				500ml		TDS		
8910	N			Glass	500ml	ZnAc	Sulfide	pH=10	
8911	O				1000 ml	H_2SO_4	Ammonia COD	pH=<2	
8912	P					HNO_3	ICP metals As Pb SeTL Hg	pH=<2	
8913	Q			Poly		NaOH	CN	pH=11	
8914	R			Glass	250ml	HCL	TOC	pH=<2	
8915	S				500ml	H_2SO_4	TOX	pH=<2	
8916	40524102A	BOBMR5/H_2O			1000ml	HNO_3	ICP Metals As, Pb Se TL Hg	pH=<2	
8917	40524103A	BOBMR6/H_2O			40ml	HCL	VOA		
	B								
	C								
		5/12/94							

FOR LAB USE ONLY

White: To accompany samples

Yellow: Field copy

*See back of form for special instructions.

MCA 3/15/91

9613479.2664

0000073

5-Lab# 534

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

O.K. JRN
9 May 94

Customer Code	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC			50994		509	10	15	250	240

Customer ID WHC/WATER	pH <2 Rcvd/Relq	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
B0BTW4		0.2	5		2.0		1	7	98	0.64	8.76	2.2E+00	1.8E+01	3.9E-04	3.3E-03	3.9E-07	8.1E-07	2.0E+02	1.6E+03	Yes	5.1E+01	6.1E+01
B0BTW5		0.7	5		0.1		2	0	5	-0.06	-0.54	-2E-01	-1E+00	-1E-06	-5E-06	-3E-09	-5E-09	-2E+01	-1E+02	Yes	-5E+02	-1E+03
B0BTW6		0.0	5		0.1		3	0	13	-0.08	0.26	-2E-01	5.9E-01	-1E-06	2.7E-06	-3E-09	7.5E-09	-2E+01	5.3E+01	Yes	-4E+02	1.9E+03
B0BMX6		1.0	5		4.0		4	5	15	0.44	0.46	1.7E+00	6.9E-01	6.1E-04	2.5E-04	6.5E-07	1.5E-07	1.5E+02	6.2E+01	Yes	6.5E+01	1.6E+03
B0BMQ7		1.2	5		1.0		5	1	13	0.04	0.28	1.4E-01	5.3E-01	1.3E-05	4.7E-05	4.5E-08	2.4E-07	1.3E+01	4.7E+01	Yes	8.0E+02	2.1E+03
TOTAL	uCi									-0.06	-1.04	-2E-01	-2E+00	1.0E-03	3.6E-03	ERR	ERR	ERR	ERR	Yes	ERR	ERR

9413.766

DATE 11-May-94 CALCULATED RESULTS SUMMARY dir$era_caldat:BOBMS6 WO#535 PAGE 1

(NUM)	LT #	ISOTOPE	RESULT	ERROR*	COUNT ERROR*	YIELD	CALC MDA	UNITS	COMMENTS	DIAGNOSTICS
(1)	BOBMS6	ALPHA	4.967E-04	3.244E-04	3.166E-04	1.000	8.15E-04	UCI/SA		No Contr Valu
(2)	BOBMS6	ALPHA	4.967E-04	3.244E-04	3.166E-04	1.000	8.15E-04	UCI/SA	AVER	No Contr Valu
(3)	BOBMS6	BETA	9.099E-04	8.411E-04	8.403E-04	1.000	2.94E-03	UCI/SA		No Contr Valu
(4)	BOBMS6	BETA	9.099E-04	8.411E-04	8.403E-04	1.000	2.94E-03	UCI/SA	AVER	No Contr Valu
(5)	BOBMT4	ALPHA	4.856E-04	3.278E-04	3.239E-04	1.000	8.98E-04	UCI/SA		No Contr Valu
(6)	BOBMT4	ALPHA	4.856E-04	3.278E-04	3.239E-04	1.000	8.98E-04	UCI/SA	AVER	No Contr Valu
(7)	BOBMT4	BETA	2.030E-03	9.761E-04	9.731E-04	1.000	2.93E-03	UCI/SA		No Contr Valu
(8)	BOBMT4	BETA	2.030E-03	9.761E-04	9.731E-04	1.000	2.93E-03	UCI/SA	AVER	No Contr Valu
(9)	BOBMS2	ALPHA	7.114E-04	4.107E-04	4.001E-04	1.000	9.81E-04	UCI/SA		No Contr Valu
(10)	BOBMS2	ALPHA	7.114E-04	4.107E-04	4.001E-04	1.000	9.81E-04	UCI/SA	AVER	No Contr Valu
(11)	BOBMS2	BETA	2.308E-03	1.034E-03	1.030E-03	1.000	2.99E-03	UCI/SA		No Contr Valu
(12)	BOBMS2	BETA	2.308E-03	1.034E-03	1.030E-03	1.000	2.99E-03	UCI/SA	AVER	No Contr Valu
(13)	BOBMW4	ALPHA	1.417E-04	9.303E-05	9.097E-05	1.000	2.37E-04	UCI/SA		No Contr Valu
(14)	BOBMW4	ALPHA	1.417E-04	9.303E-05	9.097E-05	1.000	2.37E-04	UCI/SA	AVER	No Contr Valu
(15)	BOBMW4	BETA	5.852E-05	1.930E-04	1.930E-04	1.000	7.56E-04	UCI/SA		No Contr Valu
(16)	BOBMW4	BETA	5.852E-05	1.930E-04	1.930E-04	1.000	7.56E-04	UCI/SA	AVER	No Contr Valu
(17)	BOBMV2	ALPHA	5.308E-04	3.602E-04	3.569E-04	1.000	1.09E-03	UCI/SA		No Contr Valu
(18)	BOBMV2	ALPHA	5.308E-04	3.602E-04	3.569E-04	1.000	1.09E-03	UCI/SA	AVER	No Contr Valu
(19)	BOBMV2	BETA	-2.128E-05	6.798E-04	6.798E-04	1.000	2.82E-03	UCI/SA		No Contr Valu
(20)	BOBMV2	BETA	-2.128E-05	6.798E-04	6.798E-04	1.000	2.82E-03	UCI/SA	AVER	No Contr Valu

All are Category I.
JRN 11 May 94

```
****************** MDA Calculations ********************
Calculations are based on average background counts and
average count times.  Results are in Act/Unit
MDA = 2 * 1.645 * sqrt(bkg c/m * (1/Ts + 1/Tb)) + 2.71/Ts * Constants.
The MDA value above is lower than the True MDA.
Only counting errors are considered!  Calculation does not
include Xo, the mean value of blank samples!

 * Errors are one standard deviation (1s) !
The average error is calculated as follows.
SQR(SUM(Random var) / N + SUM(Sym var) / N)
*******************************************************
```

0000075

WO#537

TENNELEC #1

SCREENING CALCULATION SPREADSHEET

Customer Code	Recieved Date	Time	Screening Prep Date	Time	Count Date	Mnts. Cntd	BACKGROUND Alpha	Beta	Mnts
WHC			51294		512	10	14	221	240

Customer ID WHC/WATER	pH <2 Rcvd/Relq	RESIDUE Wght (mGrms)	Vol. Anal. mG mL	Sample Size Gm L	SMPLE CNT DATA Hldr Num	Total Counts Alpha	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
B0BMR0		0.7	5	4.0	11	6	30	0.54	2.08	2.0E+00	4.1E+00	7.4E-04	1.5E-03	7.2E-07	7.5E-07	1.8E+02	3.7E+02	Yes	5.4E+01	2.7E+02
B0BMR4		0.8	5	4.0	12	3	31	0.24	2.18	8.8E-01	4.5E+00	3.2E-04	1.6E-03	4.7E-07	7.6E-07	7.9E+01	4.0E+02	Yes	1.9E+02	2.5E+02
B0BMR8		0.9	5	4.0	13	6	18	0.54	0.88	2.1E+00	1.5E+00	7.5E-04	5.5E-04	7.3E-07	3.5E-07	1.9E+02	1.4E+02	Yes	5.3E+01	7.3E+02
TOTAL	uCi							-0.06	-0.92	-2E-01	-2E+00	1.8E-03	3.6E-03	ERR	ERR	ERR	ERR	Yes	ERR	ERR

O.K. 9/5/94
12 May 94

0000076

SAMPLE STATUS REPORT FOR E 6443. E-BLANK 1-F5-6 TIME: 5/ 9/94 7:56
DISPATCHED: 4/ 5/94 13: 9 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/ 6/94 15:14

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

BOBMX6
BOBMX7
BOBMX8
BOBMX9
LCS
5/9/94

SAMPLE STATUS REPORT FOR E 6443. E-BLANK 1-F5-6 TIME: 5/ 9/94 7:56
DISPATCHED: 4/ 5/94 13: 9 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/ 6/94 15:14

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

BOBMQ6
BOBMQ7
BOBMQ8
BOBMQ9
LCS
~~5/9/8~~
5/9/94

SAMPLE STATUS REPORT FOR E 6455. E-BLANK 1-F8-2 TIME: 5/10/94 8:19
DISPATCHED: 4/ 5/94 13:20 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/10/94 7:57

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 BMW1
BO BM W5
BO BM W6
BO BM W7

AJS
5/10/94

SAMPLE STATUS REPORT FOR E 6450. E-BLANK 1-F5-48 TIME: 5/10/94 8:19
DISPATCHED: 4/ 5/94 13:16 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/10/94 7:57

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 BMT4
BO BMT5
BO BMT6
BO BMT7

AJS 5/10/94

BO BMY4
BO BMY5
BO BMY6
BO BMY7

05/12/94 08:00 ☎373 3176 222S 3B 003

SAMPLE STATUS REPORT FOR. E 6445. E-BLANK 1-F5-43A TIME: 5/12/94 8:39
DISPATCHED: 4/ 5/94 13:11 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/12/94 8:34

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

BOBMR4
BOBMR5
BOBMR6
BOBMR7
LCS
5/12/94

9613479.2673

INTERNATIONAL TECHNOLOGY CORPORATION

Analytical Data Package Prepared For

RECORD COPY

Westinghouse Hanford

Radiochemical Analysis By

IT Analytical Services
Richland Laboratory

Sample Delivery Group Number: W0055

WHC IDENTIFICATION NUMBER	ITAS RICHLAND ID NUMBER
B0BMQ6	40517101
B0BMX6	40517102
B0BMS2	40521601
B0BMS6	40521602
B0BMT4	40521603
B0BMW4	40521604
B0BMR4	40524201

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

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INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

June 27, 1994

Attention: J.A.Lerch

SAF Number	:	94-087
Date SDG Closed	:	May 12, 1994
Number of Samples	:	Seven (7)
Sample Type	:	Water
SDG Number	:	W0055
Data Deliverable	:	Stand Alone

I. Introduction

On May 9, 11, and 12, 1994, seven 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
405171-01A	B0BMQ6	Water	5/9/94
405171-02A	B0BMX6	Water	5/9/94
405216-01A	B0BMS2	Water	5/11/94
405216-02A	B0BMS6	Water	5/11/94
405216-03A	B0BMT4	Water	5/11/94
405216-04A	B0BMW4	Water	5/11/94
405242-01A	B0BMR4	Water	5/12/94

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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, Curium-244 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 W0055 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, Curium-244 by method ITAS-RD-3302
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMX6) 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 B0BMX6) results are within contractual limits.

Uranium-234, 235, 238 by method ITAS-RD-3234
The LCS results are acceptable for U-234 and U-238. The U-235 recovery is outside of the contract limits. The data are accepted based on the acceptable U-234 and U-238 recoveries. The batch blank, sample and sample duplicate (duplicate of sample B0BMS6) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The Eu-152 detection limit was not met for samples B0BMX6 and B0BMR4. The batch blank MDCs were met, therefore, the sample MDCs are accepted. The LCS was recounted because the original Eu-152 result was out of limits. The recounted LCS results are within limits. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMS2) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMS2) 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 B0BMT4) results are within contractual requirements.

Technetium-99 by method ITAS-IT-RS-0001
The matrix spikes, LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual requirements.

Tritium by method ITAS-RD-3205
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMQ6) 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

9613479.2678

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

AB NAME: ITAS-RICHLAND
SDG NO.: W0055
AB SAMPLE ID: 40517101
MATRIX: WATER
/HC ID: B0BMQ6
DATE RECEIVED 5/9/94
EPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	-1.32E-02	1.32E-02	1.34E-02	2.21E-01	0.878	RD3302
PU239/40	-2.14E-02	3.02E-02	3.04E-02	3.02E-01	0.78	RD3209
PU-238	0.00E+00	0.00E+00	1.60E-01	1.45E-01	0.78	RD3209
U-234	2.97E+00	7.29E-01	8.16E-01	3.13E-01	0.943	RD3234
U-235	1.26E-01	1.54E-01	1.54E-01	2.02E-01	0.943	RD3234
U-238DA	1.98E+00	5.93E-01	6.42E-01	2.36E-01	0.943	RD3234
CO-60	-2.74E+00	3.46E+00	3.47E+00	5.54E+00	N/A	RD3219
FE-59	-1.95E+00	1.21E+01	1.21E+01	2.26E+01	N/A	RD3219
EU-152	-1.12E+01	1.81E+01	1.81E+01	3.14E+01	N/A	RD3219
CO-58	2.33E-01	4.32E+00	4.32E+00	8.44E+00	N/A	RD3219
CS-137DA	2.23E+00	3.78E+00	3.78E+00	7.67E+00	N/A	RD3219
RU-106DA	4.40E+01	2.99E+01	3.02E+01	6.92E+01	N/A	RD3219
CE-144	9.83E+00	1.85E+01	1.86E+01	3.39E+01	N/A	RD3219
EU-154	9.73E+00	7.35E+00	7.42E+00	2.09E+01	N/A	RD3219
ALPHA	3.69E+00	1.21E+00	1.30E+00	9.99E-01	1	~~RD3222~~ 3214
BETA	1.67E+01	2.43E+00	2.69E+00	3.02E+00	1	~~RD3222~~ DS 6/27/94
TOTAL-SR	7.18E+00	6.19E-01	1.89E+00	7.88E-01	0.871	RD3204
C-14	3.74E+00	1.56E+00	3.21E+00	3.51E+00	1	RD3263
TC-99	2.46E-01	9.29E-01	4.22E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.33E+03	1.41E+02	2.69E+02	2.39E+02	0.973	RD3205

682A-6-93

9613479.2679

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND **SDG NO.:** W0055

LAB SAMPLE ID: 40517102 **MATRIX:** WATER

WHC ID: B0BMX6 **DATE RECEIVED** 5/9/94

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	-3.78E-03	7.55E-03	7.57E-03	1.90E-01	0.77	RD3302
PU239/40	1.07E-02	1.15E-01	1.15E-01	3.67E-01	0.78	RD3209
PU-238	-1.07E-02	2.14E-02	2.15E-02	2.56E-01	0.78	RD3209
U-234	2.40E+00	6.57E-01	7.21E-01	2.53E-01	0.932	RD3234
U-235	3.04E-02	9.06E-02	9.06E-02	2.39E-01	0.932	RD3234
U-238DA	1.63E+00	5.44E-01	5.80E-01	2.77E-01	0.932	RD3234
CO-60	4.77E+00	3.37E+00	3.41E+00	9.46E+00	N/A	RD3219
FE-59	8.99E+00	7.34E+00	7.39E+00	2.11E+01	N/A	RD3219
EU-152	-1.30E+01	3.08E+01	3.08E+01	5.44E+01	N/A	RD3219
CO-58	-3.23E+00	6.10E+00	6.10E+00	1.02E+01	N/A	RD3219
CS-137DA	-1.89E+00	4.08E+00	4.09E+00	6.89E+00	N/A	RD3219
RU-106DA	-1.60E+01	3.92E+01	3.92E+01	6.82E+01	N/A	RD3219
CE-144	2.05E+01	1.61E+01	1.62E+01	3.23E+01	N/A	RD3219
EU-154	9.65E+00	7.88E+00	7.94E+00	2.27E+01	N/A	RD3219
ALPHA	4.36E+00	1.30E+00	1.42E+00	9.50E-01	1	~~RD3222~~ 3214
BETA	1.76E+01	2.54E+00	2.80E+00	3.24E+00	1	~~RD3222~~ ↓
TOTAL-SR	6.73E+00	6.18E-01	1.76E+00	8.89E-01	0.832	RD3204
C-14	8.94E+00	1.64E+00	3.35E+00	3.51E+00	1	RD3263 DS 6/27/94
TC-99	-3.88E-01	9.26E-01	4.17E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.33E+03	1.41E+02	2.69E+02	2.39E+02	0.973	RD3205

682A-6-93

9613479.2680

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND **SDG NO.:** W0055

LAB SAMPLE ID: 40521601 **MATRIX:** WATER

WHC ID: B0BMS2 **DATE RECEIVED** 5/11/94

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	-4.13E-03	8.27E-03	8.29E-03	2.08E-01	0.703	RD3302
PU239/40	-2.50E-02	3.54E-02	3.56E-02	3.53E-01	0.667	RD3209
PU-238	0.00E+00	0.00E+00	1.88E-01	1.69E-01	0.667	RD3209
U-234	2.61E+00	7.03E-01	7.75E-01	2.78E-01	0.887	RD3234
U-235	2.74E-01	2.30E-01	2.33E-01	2.14E-01	0.887	RD3234
U-238DA	1.82E+00	5.87E-01	6.29E-01	2.34E-01	0.887	RD3234
CO-60	-1.11E+00	3.83E+00	3.83E+00	6.60E+00	N/A	RD3219
FE-59	6.45E+00	1.13E+01	1.13E+01	2.38E+01	N/A	RD3219
EU-152	-9.74E+00	2.33E+01	2.33E+01	4.18E+01	N/A	RD3219
CO-58	-7.87E-01	4.59E+00	4.59E+00	8.06E+00	N/A	RD3219
CS-137DA	-3.04E+00	3.83E+00	3.84E+00	6.21E+00	N/A	RD3219
RU-106DA	1.34E+01	2.77E+01	2.77E+01	5.80E+01	N/A	RD3219
CE-144	1.10E+01	1.51E+01	1.51E+01	2.82E+01	N/A	RD3219
EU-154	8.21E+00	1.06E+01	1.06E+01	2.47E+01	N/A	RD3219
ALPHA	1.35E+00	8.75E-01	8.88E-01	1.16E+00	1	~~RD3222~~ 3214
BETA	7.16E+00	1.92E+00	1.99E+00	3.10E+00	1	~~RD3222~~ DS
TOTAL-SR	2.04E-02	1.91E-01	1.91E-01	8.46E-01	0.83	RD3204 4/27/94
C-14	4.12E+00	1.56E+00	3.22E+00	3.51E+00	1	RD3263
TC-99	-1.15E+00	9.08E-01	4.12E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	2.62E+03	1.71E+02	3.51E+02	2.39E+02	0.973	RD3205

682A-6-93

9613479.2681

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521602
MATRIX: WATER
WHC ID: B0BMS6
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	3.40E-02	9.04E-02	9.05E-02	2.23E-01	0.812	RD3302
PU239/40	0.00E+00	0.00E+00	1.39E-01	1.25E-01	0.899	RD3209
PU-238	-9.27E-03	1.86E-02	1.86E-02	2.22E-01	0.899	RD3209
U-234	4.24E+00	9.70E-01	1.12E+00	2.95E-01	0.754	RD3234
U-235	3.60E-01	2.93E-01	2.97E-01	3.28E-01	0.754	RD3234
U-238DA	2.41E+00	7.34E-01	7.99E-01	3.12E-01	0.754	RD3234
CO-60	-2.82E+00	4.54E+00	4.54E+00	7.07E+00	N/A	RD3219
FE-59	-1.21E+01	1.45E+01	1.46E+01	2.25E+01	N/A	RD3219
EU-152	-8.58E+00	1.88E+01	1.88E+01	3.38E+01	N/A	RD3219
CO-58	2.89E+00	4.67E+00	4.67E+00	9.58E+00	N/A	RD3219
CS-137DA	4.36E+00	3.28E+00	3.30E+00	7.43E+00	N/A	RD3219
RU-106DA	3.44E+01	3.42E+01	3.44E+01	7.11E+01	N/A	RD3219
CE-144	-1.51E+01	1.92E+01	1.92E+01	3.01E+01	N/A	RD3219
EU-154	-4.63E-01	1.12E+01	1.12E+01	2.20E+01	N/A	RD3219
ALPHA	8.90E+00	2.08E+00	2.30E+00	1.33E+00	1	~~RD3222~~ 3214
BETA	3.04E+01	3.12E+00	3.80E+00	3.21E+00	1	~~RD3222~~ ↓
TOTAL-SR	9.70E+00	6.91E-01	2.56E+00	7.38E-01	0.929	RD3204 DS
C-14	7.03E+00	1.61E+00	3.30E+00	3.51E+00	1	RD3263 6/27/94
TC-99	-7.48E-01	9.24E-01	4.15E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.42E+04	3.39E+02	1.18E+03	2.39E+02	0.973	RD3205

682A-6-93

9613479.2682

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521603
MATRIX: WATER
WHC ID: B0BMT4
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	-1.41E-02	2.81E-02	2.82E-02	3.37E-01	0.517	RD3302
PU239/40	0.00E+00	0.00E+00	1.74E-01	1.57E-01	0.718	RD3209
PU-238	-1.16E-02	2.32E-02	2.33E-02	2.78E-01	0.718	RD3209
U-234	4.30E+00	9.09E-01	1.06E+00	2.39E-01	0.87	RD3234
U-235	2.20E-01	2.15E-01	2.17E-01	2.71E-01	0.87	RD3234
U-238DA	3.48E+00	8.18E-01	9.28E-01	2.39E-01	0.87	RD3234
CO-60	6.06E+00	5.03E+00	5.07E+00	1.18E+01	N/A	RD3219
FE-59	-2.34E+01	1.61E+01	1.63E+01	2.07E+01	N/A	RD3219
EU-152	9.99E-01	2.37E+01	2.37E+01	4.64E+01	N/A	RD3219
CO-58	-1.39E+00	4.95E+00	4.95E+00	8.92E+00	N/A	RD3219
CS-137DA	-2.59E+00	4.34E+00	4.35E+00	7.24E+00	N/A	RD3219
RU-106DA	4.12E+01	3.58E+01	3.60E+01	7.86E+01	N/A	RD3219
CE-144	7.35E+00	1.52E+01	1.52E+01	2.79E+01	N/A	RD3219
EU-154	6.43E+00	6.43E+00	6.46E+00	1.93E+01	N/A	RD3219
ALPHA	1.01E+01	2.65E+00	2.79E+00	2.06E+00	1	~~RD3222~~ 3214
BETA	8.50E+00	2.07E+00	2.15E+00	3.27E+00	1	~~RD3222~~ ↓ DJ 6/21/94
TOTAL-SR	2.34E+00	3.96E-01	6.97E-01	8.74E-01	0.833	RD3204
C-14	1.04E+01	1.66E+00	3.40E+00	3.51E+00	1	RD3263
TC-99	-5.87E-01	9.23E-01	4.16E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.01E+04	2.91E+02	8.77E+02	2.39E+02	0.973	RD3205

682A-6-93

9613479.2683

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521604
MATRIX: WATER
WHC ID: B0BMW4
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	1.21E-01	2.19E-01	2.20E-01	4.28E-01	0.479	RD3302
PU239/40	-9.75E-03	1.95E-02	1.96E-02	2.33E-01	0.854	RD3209
PU-238	0.00E+00	0.00E+00	1.46E-01	1.32E-01	0.854	RD3209
U-234	9.73E+00	1.87E+00	2.39E+00	5.50E-01	0.469	RD3234
U-235	6.01E-01	4.71E-01	4.80E-01	4.43E-01	0.469	RD3234
U-238DA	1.10E+01	1.98E+00	2.60E+00	4.06E-01	0.469	RD3234
CO-60	-2.83E+00	4.54E+00	4.55E+00	7.34E+00	N/A	RD3219
FE-59	5.34E+00	1.09E+01	1.09E+01	2.26E+01	N/A	RD3219
EU-152	4.72E+00	1.64E+01	1.64E+01	3.63E+01	N/A	RD3219
CO-58	5.40E+00	4.59E+00	4.62E+00	1.03E+01	N/A	RD3219
CS-137DA	-1.06E+00	4.39E+00	4.39E+00	7.49E+00	N/A	RD3219
RU-106DA	2.79E+01	3.87E+01	3.88E+01	7.39E+01	N/A	RD3219
CE-144	8.73E-01	1.79E+01	1.79E+01	2.99E+01	N/A	RD3219
EU-154	9.49E+00	1.08E+01	1.09E+01	2.42E+01	N/A	RD3219
ALPHA	1.70E+01	3.37E+00	3.67E+00	1.82E+00	1	~~RD3222~~ 3214
BETA	1.58E+01	2.46E+00	2.69E+00	3.18E+00	1	~~RD3222~~ D3
TOTAL-SR	-6.68E-02	1.84E-01	1.85E-01	8.77E-01	0.761	RD3204 6/27/94
C-14	3.94E+00	1.56E+00	3.21E+00	3.51E+00	1	RD3263
TC-99	-1.42E-01	9.24E-01	4.19E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	2.52E+03	1.70E+02	3.45E+02	2.39E+02	0.973	RD3205

682A-6-93

9613479.2684

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

AB NAME: ITAS-RICHLAND
SDG NO.: W0055
AB SAMPLE ID: 40524201
MATRIX: WATER
/HC ID: B0BMR4
DATE RECEIVED 5/12/94
EPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	-1.46E-02	2.91E-02	2.92E-02	3.48E-01	0.499	RD3302
PU239/40	-4.74E-02	4.74E-02	4.79E-02	4.07E-01	0.703	RD3209
PU-238	-1.19E-02	2.37E-02	2.38E-02	2.84E-01	0.703	RD3209
U-234	4.44E-01	3.75E-01	3.81E-01	4.70E-01	0.59	RD3234
U-235	4.81E-02	1.43E-01	1.43E-01	3.77E-01	0.59	RD3234
U-238DA	4.49E-01	3.75E-01	3.81E-01	4.54E-01	0.59	RD3234
CO-60	-9.21E-01	4.09E+00	4.09E+00	7.61E+00	N/A	RD3219
FE-59	-1.28E+00	9.24E+00	9.24E+00	1.81E+01	N/A	RD3219
EU-152	2.27E+01	2.22E+01	2.23E+01	5.20E+01	N/A	RD3219
CO-58	1.57E+00	5.03E+00	5.04E+00	9.80E+00	N/A	RD3219
CS-137DA	2.53E+00	2.98E+00	2.99E+00	6.71E+00	N/A	RD3219
RU-106DA	-3.52E+01	3.14E+01	3.16E+01	4.77E+01	N/A	RD3219
CE-144	-7.44E+00	1.61E+01	1.61E+01	2.58E+01	N/A	RD3219
EU-154	8.95E+00	7.31E+00	7.36E+00	2.10E+01	N/A	RD3219
ALPHA	5.73E-01	4.75E-01	4.83E-01	7.33E-01	1	~~RD3222~~ 3214 6/27/94 DS
BETA	8.23E+00	1.88E+00	1.97E+00	2.87E+00	1	~~RD3222~~
TOTAL-SR	2.34E+00	3.68E-01	7.09E-01	7.95E-01	0.974	RD3204
C-14	8.33E-01	1.51E+00	3.13E+00	3.51E+00	1	RD3263
TC-99	-3.88E-01	9.34E-01	4.18E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	-3.26E+01	9.99E+01	1.90E+02	2.39E+02	.973 6/27/94	RD3205

682A-6-93

9613479.2685

SAMPLE STATUS REPORT FOR E 6448. E-BLANK 1-F5-46 TIME: 5/11/94 8:16
DISPATCHED: 4/ 5/94 13:14 SAMPLE HAS NOT BEEN SLURPED
RECEIVED: 5/11/94 7:53

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

LCS
5/11/94
BOBMS6
BOBMS7
BOBMS8
BOBMS9

9613479.2686

AMPLE STATUS REPORT FOR E 6447. E-BLANK 1-F5-45 TIME: 5/11/94 8:16
ISPATCHED: 4/ 5/94 13:13 SAMPLE HAS NOT BEEN SLURPED
ECEIVED: 5/11/94 7:53

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

END OF REPORT

BOBMS2
BOBMS3
BOBMS4
BOBMS5
LCS
5/11/94

9613479.2687

INTERNATIONAL TECHNOLOGY CORPORATION

Regional Office
2800 George Washington Way
Richland, Washington 99352

SAMPLE CHECK-IN LIST

(1 Per Shipping Container)

Date/Time Received 5/11/94 1200 Client Name WHC

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

Cooler ID (if noted on the outside of cooler) ER-19

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: 31
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 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 Tom Gilmore [signature] Date/Time 5/11/94 1200

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

9613479.2688

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 405215 01-12, 405217 01-3 DATE INITIATED: 5/11/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/11/94 1200

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOBMS2		Sulfide
BOBMT4		
BOBMS6		
BOBMW4		
BOBMV2		

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: Samples received in 500ml glass, COC shows 500 ml poly.

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

9613479.2689

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 6/16/94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS Gamma

NAME/DATE [illegible] / 6/10/94

CUSTOMER WHC

SAMPLE DELIVERY GROUP W0055

MATRIX WATER

BATCH NUMBER 5-216

ITAS ID	CUSTOMER ID	COMMENTS
1) L0521615	N/A	Reagent Spike
2)		
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 _____ ☐

6/16 [illegible]

SEPARATION LAB _____

COUNTING/MEASUREMENT _____

DATA REVIEWED _____

ANALYTICAL PREP STORED _____

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT [illegible] 10 Jun 94

DATA REVIEWED [illegible] 6/13/94

ANALYTICAL PREP STORED _____

ADDITIONAL COMMENTS:

RC-048 12/92 REV 2

0094

9613479.2690

INTERNATIONAL TECHNOLOGY CORPORATION

DUE DATE 6/16/94

REANALYSIS / RECOUNT

CHAIN-OF-CUSTODY BATCH ANALYSIS RECORD

ANALYSIS Gamma

NAME/DATE [illegible] / 6/10/94

CUSTOMER WHC

SAMPLE DELIVERY GROUP W0055

MATRIX WATER

BATCH NUMBER 5-216

ITAS ID	CUSTOMER ID	COMMENTS
1) L0521615	N/A	Reagent Spike
2)		
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 SCGL ☐ (CHECK ONE)

NO SAMPLE REMAINING ☐

6/16/94

SEPARATION LAB

COUNTING/MEASUREMENT

DATA REVIEWED

ANALYTICAL PREP STORED

RECOUNT

ACTIONS (Initial & Date)

COUNTING/MEASUREMENT [illegible]

DATA REVIEWED [illegible] 6/13/94

ANALYTICAL PREP STORED

ADDITIONAL COMMENTS:

RC-048 12/92 REV 2

0700

9613479.2691

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 W0055-ITC-060). The package was received by Los Alamos Technical Associates on August 3, 1994. Validation of this package began on August 29, and was completed on September 19, 1994.

If you have any questions, please let me know.

Sincerely,

Donald J. Smith
Project Manager

cc: Judy Pottmeyer, LATA
VW402.67 file

RECEIVED
SEP 20 1994
VALIDATION DOCUMENTATION
SDLA

9613479.2692

DATA VALIDATION REPORT
for
100-FR-3 Groundwater Operable Unit
SDG W0055-ITC-060
LATA VW402.67

RECEIVED
SEP 2 0 1
VALIDATION DOCUMENTATION
SDLA

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

September 19, 1994

9613479.2693

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100-FR-3 Groundwater Operable Unit
Data Validation Narrative

INTRODUCTION

All samples in Sample Delivery Group (SDG) W0055-ITC-060 were validated at level "D" as defined in the Data Validation Procedures for Chemical Analyses (WHC-SD-EN-SPP-002) and Data Validation Procedures for Radiochemical Analyses (WHC-SD-EN-SPP-001).

The data package was received by Los Alamos Technical Associates (LATA) on August 3, 1994. The package was placed on hold August 29 and 31, 1994 because the Wet Chemistry and GC/HPLC sections of the raw data were missing. The missing sections were later found in LATA VW402.66 and validation was completed on September 12, 1994.

The chemical analyses were performed by IT Analytical Services-Knoxville. The radiochemical analyses were performed by IT Analytical Services-Richland.

ANALYSES REQUESTED

Twenty (21) water samples numbered BOBMX6, BOBMX7, BOBMX8, BOBMQ6, BOBMQ7, BOBMQ8, BOBMR4, BOBMR5, BOBMR6, BOBMS2, BOBMS3, BOBMS4, BOBMS6, BOBMS7, BOBMS8, BOBMW4, BOBMW5, BOBMW6, BOBMT4, BOBMT5 and BOBMT6 were collected by WHC and transferred to ITC for analysis. The following determinations were conducted 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 IC (F, Cl, PO_4 & SO_4)		Method 300.0
	Specific Conductance		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

Corresponding List of Analyses Requested (cont.)

11	Cyanide		Method CLP
12	Total Organic Carbon		Method 9040
13	Total Organic Halide		Method 9020A
14	Gross Alpha/Beta		Method ITAS-RD-3222
	Gamma Spectroscopy		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 -89/90		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
18	Volatile Organics (TRIP)		

ANALYSES REQUESTED (Cont.)

Sample ID	Date Collected by WHC	Date Received by Lab	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
BOBMX6	5/06/94	5/09/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMX7	5/06/94	5/09/94																	X	
BOBMX8	5/06/94	5/09/94																		X
BOBMQ6	5/06/94	5/09/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMQ7	5/06/94	5/09/94																	X	
BOBMQ8	5/06/94	5/09/94																		X
BOBMR4	5/11/94	5/12/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMR5	5/11/94	5/12/94																	X	
BOBMR6	5/11/94	5/12/94																		X
BOBMS2	5/10/94	5/11/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMS3	5/10/94	5/11/94																	X	
BOBMS4	5/10/94	5/11/94																		X
BOBMS6	5/10/94	5/11/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMS7	5/10/94	5/11/94																	X	
BOBMS8	5/10/94	5/11/94																		X
BOBMW4	5/09/94	5/11/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMW5	5/09/94	5/11/94																	X	
BOBMW6	5/09/94	5/11/94																		X
BOBMT4	5/09/94	5/11/94	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
BOBMT5	5/09/94	5/11/94																	X	
BOBMT6	5/09/94	5/11/94																		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. Precision, accuracy, and detection limit requirements for the project have been derived from the Third Edition of SW-846 (EPA, 1992). Maximum holding times are listed in the 3rd Edition, Final Update I of SW-846 (EPA, July 1992).

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 those items discussed under "**MINOR DEFICIENCIES**".
Accuracy.	Goals for accuracy were met with the exception of those items discussed under "**MINOR DEFICIENCIES**".
Sample Result Verification.	All sample results were supported in the raw data.
Detection Limits.	Detection limits goals were met with the exception of those items discussed under "**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.

MAJOR DEFICIENCIES (REJECTED DATA)

The following major deficiencies resulted in the qualification of the results as unusable.

- The phosphate analysis exceeded the maximum hold time by greater than two times. All sample results are qualified as rejected (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 method blank contained methylene chloride and acetone. The results < 10 times the blank were qualified non-detects, and the results were raised to the CRQL (10 ug/L). All sample results were qualified for methylene chloride. All samples except BOBMX8 were qualified for acetone.

- The method blank contained 2-Butanone and 2-Hexanone. The 2-Butanone results for sample BOBMS4 and the 2-Hexanone results for sample BOBMX8 were qualified non-detects (U) and raised to the CRQL.

SEMIVOLATILES

- The initial calibration criteria was exceeded for benzo(k)fluoranthene and chrysene. All sample results are qualified as estimated (UJ).

- The continuing calibration criteria was exceeded for fluoranthene. All sample results are qualified as estimated (UJ).

- The holding time was exceeded form BOBMX6 and BOBMQ6. The results were qualified as estimated (UJ).

PESTICIDES/PCBs

- The holding time until extraction was exceeded for BOBMQ6 and BOBMX6. The results are qualified as estimated (UJ).

Comments

- The maximum hold time for the Pesticide/PCBs extraction expired while the laboratory waited for an updated contract for SAF #94-087.

METALS

- Iron was detected at a positive concentration in the preparation blank. All sample results < 5 times the blank are qualified as non-detects (U). All samples were affected except BOBMQ6 and BOBMW5 .

MINOR DEFICIENCIES (Cont.)

PESTICIDES/PCBs (Cont.)

Comments

- The maximum hold time for the Pesticide/PCBs extraction expired while the laboratory waited for an updated contract for SAF #94-087.

METALS

- Iron was detected at a positive concentration in the preparation blank. All sample results < 5 times the blank are qualified as non-detects (U). All samples were affected except BOBMQ6 and BOBMW5 .

- Iron was qualified as estimated (J) in BOBMQ6 and BOBMW5 for exceeding the 20% RPD limit for duplicate precision.

- The analytical spike recoveries of selenium were less than the 85% limit for samples BOBMR5, BOBMS6, BOBMS3, BOBMS7, BOBMT5 and BOBMQ6. The results are qualified as estimated (J/BJ/UJ).

- The analytical spike recovery of thallium was less than the 85% limit for sample BOBMQ6. The result is qualified as estimated (UJ).

- The analytical spike recovery of lead was less than the 85% limit for sample BOBMQ7. The result is qualified as estimated (BJ).

Comments

- The container for metals analysis of BOBMS2 was received broken. The analysis was not done.

GENERAL CHEMISTRY

- The pH analysis exceeded the holding time for all samples. The results are qualified as estimated (J).

- A check of titrant normality for the Alkalinity analysis could not be supported in the raw data. All sample results are qualified as estimated (J).

- A LCS or blank spike was not included in the COD and Alkalinity analyses. All sample results are qualified as estimated (J/UJ).

MINOR DEFICIENCIES (Cont.)

GENERAL CHEMISTRY (Cont.)

- An analytical balance check prior to TDS analysis could not be supported in the raw data. All sample results are qualified as estimated (J).

- The TOX result for BOBMX6 was qualified as estimated (J) because the RPD was greater than 20%

Comments

- The QAPjP indicates a CRDL of 5 µg/L for TOX, while the laboratory reports the detection limit as 20 µg/L.

Comments

- The container for the sulfide analysis of BOBMS2 was received broken. The analysis was not done.

RADIOCHEMISTRY

- The LCS recovery for U-235 was less than the 70% limit. All results are qualified as estimated (J/UJ).

Comments

- The gamma spikes were calculated and reported incorrectly. The Form 1s are corrected by the validator. Europium-155 was analyzed, but was not reported. The Form 1 results were edited to include this information.

- The RDLs used by the lab in evaluating the MDAs are the contract RDLs, not the QAPjP RDL for the gamma scan. The QAPjP has a RDL for 5 pCi/L for the gamma nuclides. If it is assumed that this is the RDL for Cs-137, then the MDA was not achieved for the samples. Using the contract MDAs, the MDA for Europium-152 was not met for samples BOBMX6 and BOBRM4.

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.

9615479.2704

Data Qualification Summary

VOLATILES QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Methylene chloride	10U	ALL	BLANKS	Method blank positive result < CRDL
Acetone	U	BOBMQ6 BOBMQ8 BOBMS4 BOBMS8 BOBMT6 BOBMR6 BOBMS2 BOBMT4 BOBMW6	BLANKS	Method blank positive result > CRDL and < 10x blank
Acetone	10U	BOBMX6 BOBMW4 BOBMR4 BOBMS6	BLANKS	Method blank positive result < CRDL
2-Hexanone	10U	BOBMX8	BLANKS	Method blank positive, result < CRDL
2-Butanone	10U	BOBMS4	BLANKS	Method blank positive, result < CRDL
Unknown @ RT 9.15	JN	BOBMX8	N/A	Identified as a valid result using data validation procedures

SEMIVOLATILES QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Fluoranthene	UJ	ALL	OTHER	%D > 25
Benzo(k)-fluoranthene	UJ	ALL	OTHER	%RSD > 20.5
All compounds	UJ	BOBMX6, BOBMQ6	HOLD TIME	Holding time was exceeded for the
Chrysene	UJ	ALL	OTHER	%RSD > 20.5
Unknown @ RT 17.37	JN	BOBMR4	N/A	Identified as a valid result using data validation procedures
Trichloro 1-propene @ RT 5.40, 5.42	JN	BOBMT4 BOBMS2	N/A	Identified as a valid result using data validation procedures
Unknown @ RT 6.25	JN	BOBMT4	N/A	Identified as a valid result using data validation procedures

PESTICIDES/PCBs QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
ALL	UJ	BOBMX6, BOBMQ6	HOLD TIME	Hold time exceeded

entered by: BM
date: 10-5-94

checked by: WJC
date: 10-5-9

INORGANICS QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Iron	J	BOBMQ6, BOBMW5	PRECISION	RPD > 20%
Thallium	UJ	BOBMQ6	ACCURACY	Analytical Spike < 85%
Lead	BJ	BOBMQ7	ACCURACY	Analytical Spike < 85%
Iron	U	BOBMQ7, BOBMR4 BOBMS3, BOBMS6 BOBMS7, BOBMT4 BOBMT5, BOBMX6 BOBMX7, BOBMR5	BLANKS	Preparation blank positive
Selenium	UJ	BOBMR5 BOBMS3 BOBMS6 BOBMS7	ACCURACY	Analytical Spike < 85%
Selenium	BJ	BOBMT5 BOBMQ6	ACCURACY	Analytical Spike < 85%

GENERAL CHEMISTRY QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
pH	J	ALL	HOLD TIME	Hold time exceeded
Phosphate	UR	ALL	HOLD TIME	Hold time exceeded by >2x with non-detect results
Alkalinity	J	ALL	OTHER	No initial check of titrant normality
TDS	J	ALL	OTHER	No analytical balance check
COD	J/UJ	ALL	ACCURACY	No LCS or blank spike
Alkalinity	J	ALL	ACCURACY	No LCS or blank spike
TOX	J	BOBMX6	PRECISION	RPD > 20%

RADIOCHEMISTRY QUALIFICATION SUMMARY

ANALYTE	QUALIFIER	SAMPLES AFFECTED	DQO	REASON
Uranium-235	UJ	BOBMQ6 BOBMX6 BOBMT4 BOBMR4	ACCURACY	LCS recovery < 70%
Uranium-235	J	BOBMS2 BOBMS6 BOBMW4	ACCURACY	LCS recovery < 70%

entered by: [illegible]
date: 6-30-[illegible]

40267QLS.XLS, Qualification Summary

checked by: [illegible]
date: 6-2-97

9613479.2707

Data Summary Tables

9613479.2708

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMQ6		B0BMQ8		B0BMX6	
		Date:	6-May-94		6-May-94		6-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	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	U	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	***10***	***U***	***10***	***U***	***10***	***U***
Acetone	67-64-1	µg/L	16	***U***	13	***U***	***10***	***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)	540-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	1	J	10	U	1	J
1,2-Dichloroethane	107-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	2	J	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	10061-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	10	U	10	U
Dibromochloromethane	124-48-1	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	10061-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyyl-2-Pentanone	108-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	U	10	U
Toluene	108-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	108-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	100-41-4	µg/L	10	U	10	U	10	U
Styrene	100-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	1330-20-7	µg/L	10	U	10	U	10	U

entered by: 9-19-94
date:

shaded areas indicate changesby validator
ITC060.XLS

checked by:
date:

9613479.2709

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMX8		B0BMS2		B0BMS4	
		Date:	6-May-94		10-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	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	U	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	10	U	10	U	10	U
Acetone	67-64-1	µg/L	56	B	12	U	26	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)	540-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	10	U	8	J	10	U
1,2-Dichloroethane	107-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	6	J	1	J	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	10061-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	4	J	10	U
Dibromochloromethane	124-48-1	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	10061-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyyl-2-Pentanone	108-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	U	10	U
Toluene	108-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	108-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	100-41-4	µg/L	10	U	10	U	10	U
Styrene	100-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	1330-20-7	µg/L	10	U	10	U	10	U

entered by: 9-19-94
date:

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ITC060.XLS

checked by:
date:

9613479.2710

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMS6		B0BMS8		B0BMT4	
		Date:	10-May-94		10-May-94		9-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	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	U	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	***10***	***U***	***10***	***U***	***10***	***U***
Acetone	67-64-1	µg/L	***10***	***U***	14	***U***	15	***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)	540-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	7	J	10	U	1	J
1,2-Dichloroethane	107-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	2	J	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	10061-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	2	J	10	U	2	J
Dibromochloromethane	124-48-1	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	10061-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyyl-2-Pentanone	108-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	U	10	U
Toluene	108-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	108-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	100-41-4	µg/L	10	U	10	U	10	U
Styrene	100-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	1330-20-7	µg/L	10	U	10	U	10	U

entered by: WJC
date: 9 15 94

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ITC060.XLS

checked by:
date:

9613479.2711

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMT6		B0BMW4		B0BMW6	
		Date:	9-May-94		9-May-94		9-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	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	U	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U	10	U
Methylene Chloride	75-09-2	µg/L	10	U	10	U	10	U
Acetone	67-64-1	µg/L	13	U	10	U	12	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)	540-59-0	µg/L	10	U	10	U	10	U
Chloroform	67-66-3	µg/L	10	J	10	U	10	U
1,2-Dichloroethane	107-06-2	µg/L	10	U	10	U	10	U
2-Butanone	78-93-3	µg/L	4	J	10	U	3	J
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	10061-01-5	µg/L	10	U	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	10	U	10	U
Dibromochloromethane	124-48-1	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	10061-02-6	µg/L	10	U	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U	10	U
4-Methyyl-2-Pentanone	108-10-1	µg/L	10	U	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	U	10	U
Toluene	108-88-3	µg/L	10	U	10	U	10	U
Chlorobenzene	108-90-7	µg/L	10	U	10	U	10	U
Ethylbenzene	100-41-4	µg/L	10	U	10	U	10	U
Styrene	100-42-5	µg/L	10	U	10	U	10	U
Xylene (Total)	1330-20-7	µg/L	10	U	10	U	10	U

entered by: WOC
date: 9-15-94

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ITC060.XLS

checked by:
date: 9-15-

9613479.2712

VOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMR4		B0BMR6	
		Date:	11-May-94		11-May-94	
		Matrix:	WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q
Chloromethane	74-87-3	µg/L	10	U	10	U
Bromomethane	74-83-9	µg/L	10	U	10	U
Vinyl Chloride	75-01-4	µg/L	10	U	10	U
Chloroethane	75-00-3	µg/L	10	U	10	U
Methylene Chloride	75-09-2	µg/L	***10***	***U***	***10***	***U***
Acetone	67-64-1	µg/L	***10***	***U***	17	***U***
Carbon Disulfide	75-15-0	µg/L	10	U	10	U
1,1-Dichloroethene	75-35-4	µg/L	10	U	10	U
1,1-Dichloroethane	75-34-3	µg/L	10	U	10	U
1,2-Dichloroethene (total)	540-59-0	µg/L	10	U	10	U
Chloroform	67-66-3	µg/L	10	U	10	U
1,2-Dichloroethane	107-06-2	µg/L	10	U	10	U
2-Butanone	78-93-3	µg/L	10	U	2	J
1,1,1-Trichloroethane	71-55-6	µg/L	10	U	10	U
Carbon Tetrachloride	56-23-5	µg/L	7	J	6	J
Bromodichloromethane	75-27-4	µg/L	10	U	10	U
1,2-Dichloropropane	78-87-5	µg/L	10	U	10	U
cis-1,3-Dichloropropene	10061-01-5	µg/L	10	U	10	U
Trichloroethene	79-01-6	µg/L	10	U	10	U
Dibromochloromethane	124-48-1	µg/L	10	U	10	U
1,1,2-Trichloroethane	79-00-5	µg/L	10	U	10	U
Benzene	71-43-2	µg/L	10	U	10	U
trans-1,3-Dichloropropene	10061-02-6	µg/L	10	U	10	U
Bromoform	75-25-2	µg/L	10	U	10	U
4-Methyyl-2-Pentanone	108-10-1	µg/L	10	U	10	U
2-Hexanone	591-78-6	µg/L	10	U	10	U
Tetrachloroethene	127-18-4	µg/L	1	J	10	U
1,1,2,2-Tetrachloroethane	79-34-5	µg/L	10	U	10	U
Toluene	108-88-3	µg/L	10	U	10	U
Chlorobenzene	108-90-7	µg/L	10	U	10	U
Ethylbenzene	100-41-4	µg/L	10	U	10	U
Styrene	100-42-5	µg/L	10	U	10	U
Xylene (Total)	1330-20-7	µg/L	10	U	10	U

entered by: WJC
date: 9-15-94

shaded areas indicate changesby validator
ITC060.XLS

checked by: [illegible]
date: 9-14-94

9613479.2713

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMQ6		B0BMX6		B0BMS2	
		Date:	6-May-94		6-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Phenol	108-95-2	µg/L	10	UJ	10	UJ	10	U
bis (2-Chloroethyl) ether	111-44-4	µg/L	10	UJ	10	UJ	10	U
2-Chlorophenol	95-57-8	µg/L	10	UJ	10	UJ	10	U
1,3-Dichlorobenzene	541-73-1	µg/L	10	UJ	10	UJ	10	U
1,4-Dichlorobenzene	106-46-7	µg/L	10	UJ	10	UJ	10	U
1,2-Dichlorobenzene	95-50-1	µg/L	10	UJ	10	UJ	10	U
2-Methylphenol	95-48-7	µg/L	10	UJ	10	UJ	10	U
2,2'-oxybis (1-Chloropropane)	108-60-1	µg/L	10	UJ	10	UJ	10	U
4-Methylphenol	106-44-5	µg/L	10	UJ	10	UJ	10	U
N-Nitroso-Di-n-propylamine	621-64-7	µg/L	10	UJ	10	UJ	10	U
Hexachloroethane	67-72-1	µg/L	10	UJ	10	UJ	10	U
Nitrobenzene	98-95-3	µg/L	10	UJ	10	UJ	10	U
Isophorone	78-59-1	µg/L	10	UJ	10	UJ	10	U
2-Nitrophenol	88-75-5	µg/L	10	UJ	10	UJ	10	U
2,4-Dimethylphenol	105-67-9	µg/L	10	UJ	10	UJ	10	U
bis (2-chloroethoxy) methane	111-91-1	µg/L	10	UJ	10	UJ	10	U
2,4-Dichlorophenol	120-83-2	µg/L	10	UJ	10	UJ	10	U
1,2,4-Trichlorobenzene	120-82-1	µg/L	10	UJ	10	UJ	10	U
Naphthalene	91-20-3	µg/L	10	UJ	10	UJ	10	U
4-Chloroaniline	106-47-8	µg/L	10	UJ	10	UJ	10	U
Hexachlorobutadiene	87-68-3	µg/L	10	UJ	10	UJ	10	U
4-Chloro-3-methylphenol	59-50-7	µg/L	10	UJ	10	UJ	10	U
2-Methylnaphthalene	91-57-6	µg/L	10	UJ	10	UJ	10	U
Hexachlorocyclopentadiene	77-47-4	µg/L	10	UJ	10	UJ	10	U
2,4,6-Trichlorophenol	88-06-2	µg/L	10	UJ	10	UJ	10	U
2,4,5-Trichlorophenol	95-95-4	µg/L	25	UJ	25	UJ	25	U
2-Chloronaphthalene	91-58-7	µg/L	10	UJ	10	UJ	10	U
2-Nitroaniline	88-74-4	µg/L	25	UJ	25	UJ	25	U
Dimethylphthalate	131-11-3	µg/L	10	UJ	10	UJ	10	U
Acenaphthylene	208-96-8	µg/L	10	UJ	10	UJ	10	U
2,6-Dinitrotoluene	606-20-2	µg/L	10	UJ	10	UJ	10	U
3-Nitroaniline	99-09-2	µg/L	25	UJ	25	UJ	25	U
Acenaphthene	83-32-9	µg/L	10	UJ	10	UJ	10	U
2,4-Dinitrophenol	51-28-5	µg/L	25	UJ	25	UJ	25	U
4-Nitrophenol	100-02-7	µg/L	25	UJ	25	UJ	25	U
Dibenzofuran	132-64-9	µg/L	10	UJ	10	UJ	10	U
2,4-Dinitrotoluene	121-14-2	µg/L	10	UJ	10	UJ	10	U
Diethylphthalate	84-66-2	µg/L	10	UJ	10	UJ	10	U
4-Chlorophenyl-phenylether	7005-72-3	µg/L	10	UJ	10	UJ	10	U
Fluorene	86-73-7	µg/L	10	UJ	10	UJ	10	U
4-Nitroaniline	100-01-6	µg/L	25	UJ	25	UJ	25	U
4,6-Dinitro-2-Methylphenol	534-52-1	µg/L	25	UJ	25	UJ	25	U
N-Nitrosodiphenylamine (1)	86-30-6	µg/L	10	UJ	10	UJ	10	U
4-Bromophyl-phenylether	101-55-3	µg/L	10	UJ	10	UJ	10	U
Hexachlorobenzene	118-74-1	µg/L	10	UJ	10	UJ	10	U
Pentachlorophenol	87-86-5	µg/L	25	UJ	25	UJ	25	U

shaded areas indicate changes by the validator

40267TBL.XLS

entered by: MW
date: 9-30-94

checked by: JM
date: 10/9/94

9613479.2714

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMQ6		B0BMX6		B0BMS2	
		Date:	6-May-94		6-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Phenanthrene	85-01-8	µg/L	10	UJ	10	UJ	10	U
Anthracene	120-12-7	µg/L	10	UJ	10	UJ	10	U
Carbazole	86-74-8	µg/L	10	UJ	10	UJ	10	U
Di-n-Butylphthalate	84-74-2	µg/L	10	UJ	10	UJ	10	U
Fluroanthene	206-44-0	µg/L	10	UJ	10	UJ	10	UJ
Pyrene	129-00-0	µg/L	10	UJ	10	UJ	10	U
Butylebenzylphthalate	85-68-7	µg/L	10	UJ	10	UJ	10	U
3,3'-Dichlorobenzidine	91-94-1	µg/L	10	UJ	10	UJ	10	U
Benzo (a) Anthracene	56-55-3	µg/L	10	UJ	10	UJ	10	U
Chrysene	218-01-9	µg/L	10	UJ	10	UJ	10	UJ
bis (2-Ethylhexyl) Phthalate	117-81-7	µg/L	10	UJ	10	UJ	10	U
Di-n-Octyle Phthalate	117-84-0	µg/L	10	UJ	10	UJ	10	U
Benzo (b) Fluoranthene	205-99-2	µg/L	10	UJ	10	UJ	10	U
Benzo (k) Fluoranthene	207-08-9	µg/L	10	UJ	10	UJ	10	UJ
Benzo (a) Pyrene	50-32-8	µg/L	10	UJ	10	UJ	10	U
Indeno (1,2,3-cd) Pyrene	193-39-5	µg/L	10	UJ	10	UJ	10	U
Dibenze (a,h) Anthracene	53-70-3	µg/L	10	UJ	10	UJ	10	U
Benzo (g,h,i) Perylene	191-247-2	µg/L	10	UJ	10	UJ	10	U

shaded areas indicate changes by the validator
40267TBL.XLS

entered by: [illegible]
date: 9-30-94

checked by: JM
date: 10/3/94

9613479.2715

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMS6		B0BMT4		B0BMW4	
		Date:	10-May-94		9-May-94		9-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Phenol	108-95-2	µg/L	10	U	10	U	10	U
bis (2-Chloroethyl) ether	111-44-4	µg/L	10	U	10	U	10	U
2-Chlorophenol	95-57-8	µg/L	10	U	10	U	10	U
1,3-Dichlorobenzene	541-73-1	µg/L	10	U	10	U	10	U
1,4-Dichlorobenzene	106-46-7	µg/L	10	U	10	U	10	U
1,2-Dichlorobenzene	95-50-1	µg/L	10	U	10	U	10	U
2-Methylphenol	95-48-7	µg/L	10	U	10	U	10	U
2,2'-oxybis (1-Chloropropane)	108-60-1	µg/L	10	U	10	U	10	U
4-Methylphenol	106-44-5	µg/L	10	U	10	U	10	U
N-Nitroso-Di-n-propylamine	621-64-7	µg/L	10	U	10	U	10	U
Hexachloroethane	67-72-1	µg/L	10	U	10	U	10	U
Nitrobenzene	98-95-3	µg/L	10	U	10	U	10	U
Isophorone	78-59-1	µg/L	10	U	10	U	10	U
2-Nitrophenol	88-75-5	µg/L	10	U	10	U	10	U
2,4-Dimethylphenol	105-67-9	µg/L	10	U	10	U	10	U
bis (2-chloroethoxy) methane	111-91-1	µg/L	10	U	10	U	10	U
2,4-Dichlorophenol	120-83-2	µg/L	10	U	10	U	10	U
1,2,4-Trichlorobenzene	120-82-1	µg/L	10	U	10	U	10	U
Naphthalene	91-20-3	µg/L	10	U	10	U	10	U
4-Chloroaniline	106-47-8	µg/L	10	U	10	U	10	U
Hexachlorobutadiene	87-68-3	µg/L	10	U	10	U	10	U
4-Chloro-3-methylphenol	59-50-7	µg/L	10	U	10	U	10	U
2-Methylnaphthalene	91-57-6	µg/L	10	U	10	U	10	U
Hexachlorocyclopentadiene	77-47-4	µg/L	10	U	10	U	10	U
2,4,6-Trichlorophenol	88-06-2	µg/L	10	U	10	U	10	U
2,4,5-Trichlorophenol	95-95-4	µg/L	25	U	25	U	25	U
2-Chloronaphthalene	91-58-7	µg/L	10	U	10	U	10	U
2-Nitroaniline	88-74-4	µg/L	25	U	25	U	25	U
Dimethylphthalate	131-11-3	µg/L	10	U	10	U	10	U
Acenaphthylene	208-96-8	µg/L	10	U	10	U	10	U
2,6-Dinitrotoluene	606-20-2	µg/L	10	U	10	U	10	U
3-Nitroaniline	99-09-2	µg/L	25	U	25	U	25	U
Acenaphthene	83-32-9	µg/L	10	U	10	U	10	U
2,4-Dinitrophenol	51-28-5	µg/L	25	U	25	U	25	U
4-Nitrophenol	100-02-7	µg/L	25	U	25	U	25	U
Dibenzofuran	132-64-9	µg/L	10	U	10	U	10	U
2,4-Dinitrotoluene	121-14-2	µg/L	10	U	10	U	10	U
Diethylphthalate	84-66-2	µg/L	10	U	10	U	10	U
4-Chlorophenyl-phenylether	7005-72-3	µg/L	10	U	10	U	10	U
Fluorene	86-73-7	µg/L	10	U	10	U	10	U
4-Nitroaniline	100-01-6	µg/L	25	U	25	U	25	U
4,6-Dinitro-2-Methylphenol	534-52-1	µg/L	25	U	25	U	25	U
N-Nitrosodiphenylamine (1)	86-30-6	µg/L	10	U	10	U	10	U
4-Bromophyl-phenylether	101-55-3	µg/L	10	U	10	U	10	U
Hexachlorobenzene	118-74-1	µg/L	10	U	10	U	10	U
Pentachlorophenol	87-86-5	µg/L	25	U	25	U	25	U

shaded areas indicate changes by the validator

ITC060.XLS

entered by:
date: 9-15-94 (WC)

checked by:
date:

9613479.2716

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMS6		B0BMT4		B0BMW4	
		Date:	6-May-94		6-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Phenanthrene	85-01-8	µg/L	10	U	10	U	10	U
Anthracene	120-12-7	µg/L	10	U	10	U	10	U
Carbazole	86-74-8	µg/L	10	U	10	U	10	U
Di-n-Butylphthalate	84-74-2	µg/L	10	U	10	U	10	U
Fluroanthene	206-44-0	µg/L	10	UJ	10	UJ	10	UJ
Pyrene	129-00-0	µg/L	10	U	10	U	10	U
Butylebenzylphthalate	85-68-7	µg/L	10	U	10	U	10	U
3,3'-Dichlorobenzidine	91-94-1	µg/L	10	U		U	10	U
Benzo (a) Anthracene	56-55-3	µg/L	10	U	10	U	10	U
Chrysene	218-01-9	µg/L	10	UJ	10	UJ	10	UJ
bis (2-Ethylhexyl) Phthalate	117-81-7	µg/L	10	U	4	J	3	J
Di-n-Octyle Phthalate	117-84-0	µg/L	10	U	10	U	10	U
Benzo (b) Fluoranthene	205-99-2	µg/L	10	U	10	U	10	U
Benzo (k) Fluoranthene	207-08-9	µg/L	10	UJ	10	UJ	10	UJ
Benzo (a) Pyrene	50-32-8	µg/L	10	U	10	U	10	U
Indeno (1,2,3-cd) Pyrene	193-39-5	µg/L	10	U	10	U	10	U
Dibenze (a,h) Anthracene	53-70-3	µg/L	10	U	10	U	10	U
Benzo (g,h,i) Perylene	191-247-2	µg/L	10	U	10	U	10	U

shaded areas indicate changes by the validator
ITC060.XLS

entered by: BN
date: 6-19-94

checked by: AJ
date: 9/20/94

9613479.2717

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMR4	
		Date:	11-May-94	
		Matrix:	WATER	
Constituent	CAS #	Units	Results	Q
Phenol	108-95-2	µg/L	10	U
bis (2-Chloroethyl) ether	111-44-4	µg/L	10	U
2-Chlorophenol	95-57-8	µg/L	10	U
1,3-Dichlorobenzene	541-73-1	µg/L	10	U
1,4-Dichlorobenzene	106-46-7	µg/L	10	U
1,2-Dichlorobenzene	95-50-1	µg/L	10	U
2-Methylphenol	95-48-7	µg/L	10	U
2,2'-oxybis (1-Chloropropane)	108-60-1	µg/L	10	U
4-Methylphenol	106-44-5	µg/L	10	U
N-Nitroso-Di-n-propylamine	621-64-7	µg/L	10	U
Hexachloroethane	67-72-1	µg/L	10	U
Nitrobenzene	98-95-3	µg/L	10	U
Isophorone	78-59-1	µg/L	10	U
2-Nitrophenol	88-75-5	µg/L	10	U
2,4-Dimethylphenol	105-67-9	µg/L	10	U
bis (2-chloroethoxy) methane	111-91-1	µg/L	10	U
2,4-Dichlorophenol	120-83-2	µg/L	10	U
1,2,4-Trichlorobenzene	120-82-1	µg/L	10	U
Naphthalene	91-20-3	µg/L	10	U
4-Chloroaniline	106-47-8	µg/L	10	U
Hexachlorobutadiene	87-68-3	µg/L	10	U
4-Chloro-3-methylphenol	59-50-7	µg/L	10	U
2-Methylnaphthalene	91-57-6	µg/L	10	U
Hexachlorocyclopentadiene	77-47-4	µg/L	10	U
2,4,6-Trichlorophenol	88-06-2	µg/L	10	U
2,4,5-Trichlorophenol	95-95-4	µg/L	25	U
2-Chloronaphthalene	91-58-7	µg/L	10	U
2-Nitroaniline	88-74-4	µg/L	25	U
Dimethylphthalate	131-11-3	µg/L	10	U
Acenaphthylene	208-96-8	µg/L	10	U
2,6-Dinitrotoluene	606-20-2	µg/L	10	U
3-Nitroaniline	99-09-2	µg/L	25	U
Acenaphthene	83-32-9	µg/L	10	U
2,4-Dinitrophenol	51-28-5	µg/L	25	U
4-Nitrophenol	100-02-7	µg/L	25	U
Dibenzofuran	132-64-9	µg/L	10	U
2,4-Dinitrotoluene	121-14-2	µg/L	10	U
Diethylphthalate	84-66-2	µg/L	10	U
4-Chlorophenyl-phenylether	7005-72-3	µg/L	10	U
Fluorene	86-73-7	µg/L	10	U
4-Nitroaniline	100-01-6	µg/L	25	U
4,6-Dinitro-2-Methylphenol	534-52-1	µg/L	25	U
N-Nitrosodiphenylamine (1)	86-30-6	µg/L	10	U
4-Bromophyl-phenylether	101-55-3	µg/L	10	U
Hexachlorobenzene	118-74-1	µg/L	10	U
Pentachlorophenol	87-86-5	µg/L	25	U

shaded areas indicate changes by the validator

ITC060.XLS

entered by:
date: 9-15-94

checked by:
date: 9-15-

9613479.2718

SEMIVOLATILE ORGANICS DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMR4	
		Date:	11-May-94	
		Matrix:	WATER	
Constituent	CAS #	Units	Results	Q
Phenanthrene	85-01-8	µg/L	10	U
Anthracene	120-12-7	µg/L	10	U
Carbazole	86-74-8	µg/L	10	U
Di-n-Butylphthalate	84-74-2	µg/L	10	U
Fluroanthene	206-44-0	µg/L	10	UJ
Pyrene	129-00-0	µg/L	10	U
Butylebenzylphthalate	85-68-7	µg/L	10	U
3,3'-Dichlorobenzidine	91-94-1	µg/L	10	U
Benzo (a) Anthracene	56-55-3	µg/L	10	U
Chrysene	218-01-9	µg/L	10	UJ
bis (2-Ethylhexyl) Phthalate	117-81-7	µg/L	3	J
Di-n-Octyle Phthalate	117-84-0	µg/L	10	U
Benzo (b) Fluoranthene	205-99-2	µg/L	10	U
Benzo (k) Fluoranthene	207-08-9	µg/L	10	UJ
Benzo (a) Pyrene	50-32-8	µg/L	10	U
Indeno (1,2,3-cd) Pyrene	193-39-5	µg/L	10	U
Dibenze (a,h) Anthracene	53-70-3	µg/L	10	U
Benzo (g,h,i) Perylene	191-247-2	µg/L	10	U

shaded areas indicate changes by the validator
ITC060.XLS

entered by: DM
date: 5-19-94

checked by: AT
date: 9/20

9613479.2719

PESTICIDE/PCB DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMT4		B0BMW4		B0BMX6	
		Date:	9-May-94		9-May-94		6-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
alpha-BHC	319-84-6	µg/L	0.050	U	0.050	U	0.050	UJ
beta-BHC	319-85-7	µg/L	0.050	U	0.050	U	0.050	UJ
delta-BHC	319-86-8	µg/L	0.050	U	0.050	U	0.050	UJ
gamma-BHC (Lindane)	58-89-9	µg/L	0.050	U	0.050	U	0.050	UJ
Heptachlor	76-44-8	µg/L	0.050	U	0.050	U	0.050	UJ
Aldrin	309-00-2	µg/L	0.050	U	0.050	U	0.050	UJ
Heptachlor epoxide	1024-57-3	µg/L	0.050	U	0.050	U	0.050	UJ
Endosulfan I	959-98-8	µg/L	0.050	U	0.050	U	0.050	UJ
Dieldrin	60-57-1	µg/L	0.10	U	0.10	U	0.10	UJ
4,4'-DDE	72-55-9	µg/L	0.10	U	0.10	U	0.10	UJ
Endrin	72-20-8	µg/L	0.10	U	0.10	U	0.10	UJ
Endosulfan II	33213-65-9	µg/L	0.10	U	0.10	U	0.10	UJ
4,4'-DDD	72-54-8	µg/L	0.10	U	0.10	U	0.10	UJ
Endosulfan sulfate	1031-07-8	µg/L	0.10	U	0.10	U	0.10	UJ
4,4'-DDT	50-29-3	µg/L	0.10	U	0.10	U	0.10	UJ
Methoxychlor	72-43-5	µg/L	0.50	U	0.50	U	0.50	UJ
Endrin ketone	53494-70-5	µg/L	0.10	U	0.10	U	0.10	UJ
Endrin aldehyde	7421-93-4	µg/L	0.10	U	0.10	U	0.10	UJ
alpha-Chlordane	5103-71-9	µg/L	0.050	U	0.050	U	0.050	UJ
gamma-Chlordane	51003-74-2	µg/L	0.050	U	0.050	U	0.050	UJ
Toxaphene	8001-35-2	µg/L	5.0	U	5.0	U	5.0	UJ
Aroclor-1016	12674-11-2	µg/L	1.0	U	1.0	U	1.0	UJ
Aroclor-1221	11104-28-2	µg/L	2.0	U	2.0	U	2.0	UJ
Aroclor-1232	11141-16-5	µg/L	1.0	U	1.0	U	1.0	UJ
Aroclor-1242	53469-21-9	µg/L	1.0	U	1.0	U	1.0	UJ
Aroclor-1248	12672-29-6	µg/L	1.0	U	1.0	U	1.0	UJ
Aroclor-1254	11097-69-1	µg/L	1.0	U	1.0	U	1.0	UJ
Aroclor-1260	11096-82-5	µg/L	1.0	U	1.0	U	1.0	UJ

entered by: [illegible]
date: 6-30-94

Shaded areas indicate changes by the validator.
40267TBL.XLS

checked by: [illegible]
date: 7/3/94

9613479.2720

PESTICIDE/PCB DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMQ6		B0BMR4		B0BMS2		B0BMS6	
		Date:	6-May-94		11-May-94		10-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q
alpha-BHC	319-84-6	µg/L	0.050	UJ	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
delta-BHC	319-86-8	µg/L	0.050	UJ	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
Heptachlor	76-44-8	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U
Aldrin	309-00-2	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U
Heptachlor epoxide	1024-57-3	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U
Endosulfan I	959-98-8	µg/L	0.050	UJ	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
4,4'-DDE	72-55-9	µg/L	0.10	UJ	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
Endosulfan II	33213-65-9	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U
4,4'-DDD	72-54-8	µg/L	0.10	UJ	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	1031-07-8	µg/L	0.10	UJ	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
Methoxychlor	72-43-5	µg/L	0.50	UJ	0.50	U	0.50	U	0.50	U
Endrin ketone	53494-70-5	µg/L	0.10	UJ	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
alpha-Chlordane	5103-71-9	µg/L	0.050	UJ	0.050	U	0.050	U	0.050	U
gamma-Chlordane	51003-74-2	µg/L	0.050	UJ	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
Aroclor-1016	12674-11-2	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U
Aroclor-1221	11104-28-2	µg/L	2.0	UJ	2.0	U	2.0	U	2.0	U
Aroclor-1232	11141-16-5	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U
Aroclor-1242	53469-21-9	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U
Aroclor-1248	12672-29-6	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U
Aroclor-1254	11097-69-1	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U
Aroclor-1260	11096-82-5	µg/L	1.0	UJ	1.0	U	1.0	U	1.0	U

entered by: [illegible]
date: 9-30-94

Shaded areas indicate changes by the validator.
40267TBL.XLS

checked by: GM
date: 10/3/9

9613479.2721

METALS/CYANIDE DATA SUMMARY TABLE

FILE#:VW402.67		HEIS #:	B0BMT5		B0BMW4		B0BMW5		B0BMR4		B0BMR5	
		Date:	9-May-94		9-May-94		9-May-94		11-May-94		11-May-94	
		Matrix:	WATER		WATER		WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aluminum	7429-90-5	ug/L	40.0	U	50.6	B	61.6	B	50.2	B	40.0	U
Antimony	7440-36-0	ug/L	50.0	U	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	7440-38-2	ug/L	2.3	B	2.5	B	2.3	B	2.0	U	2.0	U
Barium	7440-39-3	ug/L	36.2	B	48.2	B	45.1	B	15.8	B	15.4	B
Beryllium	7440-41-7	ug/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	7440-43-9	ug/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Calcium	7440-70-2	ug/L	77400		104000		97000		22000		21700	
Chromium	7440-47-3	ug/L	21.8		10.4		11.8		10.0	U	10.0	U
Cobalt	7440-48-4	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Copper	7440-50-8	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Iron	7439-89-6	ug/L	19.9	U	10.0	U	114	J	53.3	U	25.8	U
Lead	7439-92-1	ug/L	2.0	B	2.0	U	2.0	U	2.0	U	6.2	
Magnesium	7439-95-4	ug/L	17100		25700		23800		3830	B	3820	B
Manganese	7439-96-5	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Mercury	7439-97-6	ug/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	7440-02-0	ug/L	20.0	U	20.0	U	20.0	U	20.0	U	20.0	U
Potassium	7440-09-7	ug/L	5770		7470		7140		1030	B	1110	B
Selenium	7782-49-2	ug/L	2.5	BJ	2.0	U	2.0	U	2.0	U	2.0	UJ
Silver	7440-22-4	ug/L	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Sodium	7440-23-5	ug/L	20500		32300		29800		2110	B	2180	B
Thallium	7440-28-0	ug/L	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	7440-62-2	ug/L	10.0	U	10.0	U	10.0	U	10.0	U	10.0	U
Zinc	7440-66-6	ug/L	5.0	U	5.0	U	5.0	U	5.1	B	5.0	U
Cyanide	5955-70-0	ug/L			10.0	U			10.0	U		

entered by: 9-15-94
date: (WC)

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ITC060

checked by:
date: 9-15-

9613479.2722

METALS/CYANIDE DATA SUMMARY TABLE

FILE#:VW402.67		HEIS #:	B0BMQ6		B0BMQ7		B0BMX6		B0BMX7	
		Date:	6-May-94		6-May-94		6-May-94		6-May-94	
		Matrix:	WATER		WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q
Aluminum	7429-90-5	ug/L	40.0	U	40.0	U	41.3	B	46.2	B
Antimony	7440-36-0	ug/L	50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	7440-38-2	ug/L	2.0	U	2.0	U	2.0	U	2.0	U
Barium	7440-39-3	ug/L	28.6	B	27.6	B	27.8	B	27.0	B
Beryllium	7440-41-7	ug/L	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	7440-43-9	ug/L	5.0	U	5.0	U	5.0	U	5.0	U
Calcium	7440-70-2	ug/L	50800		51900		52600		52000	
Chromium	7440-47-3	ug/L	54.0		47.6		44.8		48.7	
Cobalt	7440-48-4	ug/L	10.0	U	10.0	U	10.0	U	10.0	U
Copper	7440-50-8	ug/L	10.0	U	10.0	U	10.0	U	10.0	U
Iron	7439-89-6	ug/L	1420	J	23.8	U	40.3	U	17.0	U
Lead	7439-92-1	ug/L	2.0	U	2.4	BJ	2.0	U	32.5	
Magnesium	7439-95-4	ug/L	7390		7470		7600		7490	
Manganese	7439-96-5	ug/L	9.0	B	2.0	U	2.0	U	2.0	U
Mercury	7439-97-6	ug/L	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	7440-02-0	ug/L	20.0	U	20.0	U	20.0	U	20.0	U
Potassium	7440-09-7	ug/L	2100	B	2400	B	1710	B	2610	B
Selenium	7782-49-2	ug/L	2.1	BJ	2.0	U	2.0	U	2.0	U
Silver	7440-22-4	ug/L	5.0	U	5.0	U	5.0	U	5.0	U
Sodium	7440-23-5	ug/L	6900		7200		7170		7020	
Thallium	7440-28-0	ug/L	2.0	UJ	2.0	U	2.0	U	2.0	U
Vanadium	7440-62-2	ug/L	10.0	U	10.0	U	10.0	U	10.0	U
Zinc	7440-66-6	ug/L	10.2	B	5.0	U	9.4	B	24.5	
Titanium	7440-32-6	ug/L	3.0	U	3.0	U	3.0	U	3.0	U
Cyanide	5955-70-0	ug/L	10.0	U			10.0	U		

entered by: 9-19-94
date: MTC

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ITC060

checked by: [illegible]
date: 9-8-9

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METALS/CYANIDE DATA SUMMARY TABLE

FILE#:VW402.67		HEIS #:	B0BMS2		B0BMS3		B0BMS6		B0BMS7		B0BMT4	
		Date:	10-May-94		10-May-94		10-May-94		10-May-94		9-May-94	
		Matrix:	WATER		WATER		WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aluminum	7429-90-5	ug/L			40.0	U	40.0	U	40.0	U	41.3	B
Antimony	7440-36-0	ug/L			50.0	U	50.0	U	50.0	U	50.0	U
Arsenic	7440-38-2	ug/L			3.4	B	2.5	B	2.4	B	2.0	U
Barium	7440-39-3	ug/L			27.4	B	36.5	B	39.4	B	42.2	B
Beryllium	7440-41-7	ug/L			1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	7440-43-9	ug/L			5.0	U	5.0	U	5.0	U	5.0	U
Calcium	7440-70-2	ug/L			60500		71800		78900		92600	
Chromium	7440-47-3	ug/L			33.4		334		366		27.1	
Cobalt	7440-48-4	ug/L			10.0	U	10.0	U	10.0	U	10.0	U
Copper	7440-50-8	ug/L			10.0	U	10.0	U	10.0	U	10.0	U
Iron	7439-89-6	ug/L			25.1	U	23.6	U	45.6	U	19.9	U
Lead	7439-92-1	ug/L			2.0	U	2.0	U	2.0	U	2.0	U
Magnesium	7439-95-4	ug/L			13600		10200		11200		20700	
Manganese	7439-96-5	ug/L			2.0	U	2.0	U	2.0	U	2.0	U
Mercury	7439-97-6	ug/L			0.20	U	0.20	U	0.20	U	0.20	U
Nickel	7440-02-0	ug/L			20.0	U	20.0	U	20.0	U	20.0	U
Potassium	7440-09-7	ug/L			4510	B	3870	B	4420	B	5980	
Selenium	7782-49-2	ug/L			2.0	UJ	2.0	UJ	2.0	UJ	2.0	U
Silver	7440-22-4	ug/L			5.0	U	5.0	U	5.0	U	5.0	U
Sodium	7440-23-5	ug/L			17000		16300		17800		24900	
Thallium	7440-28-0	ug/L			2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	7440-62-2	ug/L			10.0	U	10.0	U	10.0	U	10.0	U
Zinc	7440-66-6	ug/L			5.0	U	5.0	U	5.8	B	5.0	U
Cyanide	5955-70-0	ug/L	10.0	U			10.0	U			10.0	U

entered by:
date: 9-15-94 (WBC)

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ITC060

checked by:
date: 9-19-

9613479.2724

GENERAL CHEMISTRY DATA SUMMARY TABLE

FILE #: VW402.67		HEIS #:	B0BMQ6		B0BMX6		B0BMS2	
		Date:	6-May-94		6-May-94		10-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Fluoride	16984-48-8	mg/L	0.5		0.40	U	0.40	U
Chloride	16884-00-6	mg/L	11		10		16	
Phosphate	14265-44-2	mg/L	1.0	UR	1.0	UR	1.0	UR
Sulfate	14808-79-8	mg/L	48		52		62	
Total Organic Halogens	C68	ug/L	20	U	21	J	20	U
Total Organic Carbon	TOC	mg/L	1	U	1	U	2	
Total Dissolved Solids	TDS	mg/L	28	J	29	J	374	J
Sulfide	18496-25-8	mg/L	13		12			
Specific Conductivity	191	umhos/cm	389		387		555	
pH	207	pH units	7.53	J	7.59	J	7.79	J
Nitrate/Nitrite	NO3-NO2-N	mg/L	4.56		4.58		10.1	
Chemical Oxygen Demand	COD	mg/L	1	UJ	1	UJ	4	J
Ammonia	7664-41-7	mg/L	0.1	U	0.1	U	0.2	
Alkalinity	ALKALINITY	mg/L	110	J	110	J	158	J

FILE #: VW402.67		HEIS #:	B0BMS6		B0BMT4		B0BMW4	
		Date:	10-May-94		9-May-94		9-May-94	
		Matrix:	WATER		WATER		WATER	
Constituent	CAS #	Units	Results	Q	Results	Q	Results	Q
Fluoride	16984-48-8	mg/L	1.50		0.40	U	0.50	
Chloride	16884-00-6	mg/L	16		29		19	
Phosphate	14265-44-2	mg/L	2.0	UR	1.0	UR	1.0	UR
Sulfate	14808-79-8	mg/L	69		93		112	
Total Organic Halogens	C68	ug/L	20	U	20	U	20	U
Total Organic Carbon	TOC	mg/L	2		2		2	
Total Dissolved Solids	TDS	mg/L	379	J	476	J	642	J
Sulfide	18496-25-8	mg/L	85		5		5	
Specific Conductivity	191	umhos/cm	602		778		898	
pH	207	pH units	7.73	J	7.72	J	7.66	J
Nitrate Nitrite	NO3-NO2-N	mg/L	9.2		17.6		22.3	
Chemical Oxygen Demand	COD	mg/L	1	UJ	1	UJ	4	J
Ammonia	7664-41-7	mg/L	0.1	U	0.1	U	0.1	U
Alkalinity	ALKALINITY	mg/L	176	J	192	J	258	J

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date: 9-15-94 atx

checked by:
date: 9-15-9

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GENERAL CHEMISTRY DATA SUMMARY TABLE

FILE #: VW402.67		HEIS #:	B0BMR4	
		Date:	11-May-94	
		Matrix:	WATER	
Constituent	CAS #	Units	Results	Q
Fluoride	16984-48-8	mg/L	0.40	U
Chloride	16884-00-6	mg/L	1.3	
Phosphate	14265-44-2	mg/L	1.0	UR
Sulfate	14808-79-8	mg/L	12	
Total Organic Halogens	C68	ug/L	20	U
Total Organic Carbon	TOC	mg/L	1	U
Total Dissolved Solids	TDS	mg/L	197	J
Sulfide	18496-25-8	mg/L	8	
Specific Conductivity	191	umhos/cm	167	
pH	207	pH units	7.64	J
Nitrate Nitrite	NO3-NO2-N	mg/L	0.21	
Chemical Oxygen Demand	COD	mg/L	2	J
Ammonia	7664-41-7	mg/L	0.1	U
Alkalinity	ALKALINITY	mg/L	66	J

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entered by:
date: 7-15-94

checked by:
date: 9-15-94

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RADIOCHEMISTRY DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMQ6			B0BMX6		
		Date:	6-May-94			6-May-94		
		Matrix:	WATER			WATER		
Constituent	CAS #	Units	Results	Q	MDA	Results	Q	MDA
Americium-241	14596-10-2	pCi/L	-0.0132	U	0.221	-0.00378	U	0.19
Plutonium-239/240	PU-239/240	pCi/L	-0.0214	U	0.302	0.0107	U	0.367
Plutonium-238	13981-16-3	pCi/L	0	U	0.145	-0.0107	U	0.256
Uranium 233/234	U-233/234	pCi/L	2.97		0.313	2.4		0.253
Uranium 235	15117-96-1	pCi/L	0.126	UJ	0.202	0.0304	UJ	0.239
Uranium 238	U-238	pCi/L	1.98		0.236	1.63		0.277
Cobalt-60	10198-40-0	pCi/L	-2.74	U	5.54	4.77	U	9.46
Iron-59	14596-12-4	pCi/L	-1.95	U	22.6	8.99	U	21.1
Europium-152	14683-23-9	pCi/L	-11.2	U	31.4	-13	U	54.4
Cobalt-58	13981-38-9	pCi/L	0.233	U	8.44	-3.23	U	10.2
Cesium-137DA	10045-97-3	pCi/L	2.23	U	7.67	-1.89	U	6.89
Ruthenium-106DA	13967-48-1	pCi/L	44	U	69.2	-16	U	68.2
Cerium-144	14762-78-8	pCi/L	9.83	U	33.9	20.5	U	32.3
Europium-154	15585-10-1	pCi/L	9.73	U	20.9	9.65	U	22.7
Europium-155	14391-16-3	pCi/L	-10.7	U	14.05	7.32	U	16.29
Alpha	ALPHA	pCi/L	3.69		0.999	4.36		0.95
Beta	BETA	pCi/L	16.7		3.02	17.6		3.24
Total Strontium	7440-24-6	pCi/L	7.18		0.788	6.73		0.889
Carbon-14	14762-75-5	pCi/L	3.74		3.51	8.94		3.51
Technetium-99	14133-76-7	pCi/L	0.246	U	2.16	-0.388	U	2.16
Tritium-99	10028-17-8	pCi/L	1330		239	1330		239

FILE #:VW402.67		HEIS #:	B0BMS2			B0BMS6		
		Date:	10-May-94			10-May-94		
		Matrix:	WATER			WATER		
Constituent	CAS #	Units	Results	Q	MDA	Results	Q	MDA
Americium-241	14596-10-2	pCi/L	-0.00413	U	0.208	0.034	U	0.223
Plutonium-239/240	PU-239/240	pCi/L	-0.025	U	0.353	0	U	0.125
Plutonium-238	13981-16-3	pCi/L	0	U	0.169	-0.00927	U	0.222
Uranium 233/234	U-233/234	pCi/L	2.61		0.278	4.24		0.295
Uranium 235	15117-96-1	pCi/L	0.274	J	0.214	0.360	J	0.328
Uranium 238	U-238	pCi/L	1.82		0.234	2.41		0.312
Cobalt-60	10198-40-0	pCi/L	-1.11	U	6.6	-2.82	U	7.07
Iron-59	14596-12-4	pCi/L	6.45	U	23.8	-12.1	U	22.5
Europium-152	14683-23-9	pCi/L	-9.74	U	41.8	-8.58	U	33.8
Cobalt-58	13981-38-9	pCi/L	-0.787	U	8.06	2.89	U	9.58
Cesium-137DA	10045-97-3	pCi/L	-3.04	U	6.21	4.36	U	7.43
Ruthenium-106DA	13967-48-1	pCi/L	13.4	U	58	34.4	U	71.1
Cerium-144	14762-78-8	pCi/L	11	U	28.2	-15.1	U	30.1
Europium-154	15585-10-1	pCi/L	8.21	U	24.7	-0.463	U	22
Europium-155	14391-16-3	pCi/L	2.413	U	12.74	-3.16	U	12.9
Alpha	ALPHA	pCi/L	1.35		1.16	8.9		1.33
Beta	BETA	pCi/L	7.16		3.1	30.4		3.21
Total Strontium	7440-24-6	pCi/L	0.0204	U	0.846	9.7		0.738
Carbon-14	14762-75-5	pCi/L	4.12		3.51	7.03		3.51
Technetium-99	14133-76-7	pCi/L	-1.15	U	2.16	-0.748	U	2.16
Tritium-99	10028-17-8	pCi/L	2620		239	14200		239

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date: 9-30-94

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checked by: [illegible]
date: 9/10/94

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RADIOCHEMISTRY DATA SUMMARY TABLE

FILE #:VW402.67		HEIS #:	B0BMT4			B0BMW4		
		Date:	9-May-94			9-May-94		
		Matrix:	WATER			WATER		
Constituent	CAS #	Units	Results	Q	MDA	Results	Q	MDA
Americium-241	14596-10-2	pCi/L	-0.0141	U	0.337	0.121	U	0.428
Plutonium-239/240	PU-239/240	pCi/L	0	U	0.157	-0.00975	U	0.233
Plutonium-238	13981-16-3	pCi/L	-0.0116	U	0.278	0	U	0.132
Uranium 233/234	U-233/234	pCi/L	4.3		0.239	9.73		0.55
Uranium 235	15117-96-1	pCi/L	0.220	UJ	0.271	0.601	J	0.443
Uranium 238	U-238	pCi/L	3.48		0.239	11		0.406
Cobalt-60	10198-40-0	pCi/L	6.06	U	11.8	-2.83	U	7.34
Iron-59	14596-12-4	pCi/L	-23.4	U	20.7	5.34	U	22.6
Europium-152	14683-23-9	pCi/L	0.999	U	46.4	4.72	U	36.3
Cobalt-58	13981-38-9	pCi/L	-1.39	U	8.92	5.4	U	10.3
Cesium-137DA	10045-97-3	pCi/L	-2.59	U	7.24	-1.06	U	7.49
Ruthenium-106DA	13967-48-1	pCi/L	41.2	U	78.6	27.9	U	73.9
Cerium-144	14762-78-8	pCi/L	7.35	U	27.9	0.873	U	29.9
Europium-154	15585-10-1	pCi/L	6.43	U	19.3	9.49	U	24.2
Europium-155	14391-16-3	pCi/L	1.919	U	17.18	-0.441	U	14.43
Alpha	ALPHA	pCi/L	10.1		2.06	17		1.82
Beta	BETA	pCi/L	8.5		3.27	15.8		3.18
Total Strontium	7440-24-6	pCi/L	2.34		0.874	-0.0668	U	0.877
Carbon-14	14762-75-5	pCi/L	10.4		3.51	3.94		3.51
Technetium-99	14133-76-7	pCi/L	-0.587	U	2.16	-0.142	U	2.16
Tritium-99	10028-17-8	pCi/L	10100		239	2520		239

FILE #:VW402.67		HEIS #:	B0BMR4		
		Date:	11-May-94		
		Matrix:	WATER		
Constituent	CAS #	Units	Results	Q	MDA
Americium-241	14596-10-2	pCi/L	-0.0146	U	0.348
Plutonium-239/240	PU-239/240	pCi/L	-0.0474	U	0.407
Plutonium-238	13981-16-3	pCi/L	-0.0119	U	0.284
Uranium 233/234	U-233/234	pCi/L	0.444	U	0.47
Uranium 235	15117-96-1	pCi/L	0.0481	UJ	0.377
Uranium 238	U-238	pCi/L	0.449	U	0.454
Cobalt-60	10198-40-0	pCi/L	-0.921	U	7.61
Iron-59	14596-12-4	pCi/L	-1.28	U	18.1
Europium-152	14683-23-9	pCi/L	22.7	U	52
Cobalt-58	13981-38-9	pCi/L	1.57	U	9.8
Cesium-137DA	10045-97-3	pCi/L	2.53	U	6.71
Ruthenium-106DA	13967-48-1	pCi/L	-35.2	U	47.7
Cerium-144	14762-78-8	pCi/L	-7.44	U	25.8
Europium-154	15585-10-1	pCi/L	8.95	U	21
Europium-155	14391-16-3	pCi/L	3.217	U	11.23
Alpha	ALPHA	pCi/L	0.573	U	0.733
Beta	BETA	pCi/L	8.23		2.87
Total Strontium	7440-24-6	pCi/L	2.34		0.795
Carbon-14	14762-75-5	pCi/L	0.833	U	3.51
Technetium-99	14133-76-7	pCi/L	-0.388	U	2.16
Tritium-99	10028-17-8	pCi/L	-32.6	U	239

entered by: [illegible]
date: 9-30-94

shaded areas indicate changes by the validator
40267TBL.XLS

checked by: [illegible]
date: 10/3/94

9613479.2728

Sample Results (Form I's)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8780

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP11

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	26	~~B~~U
67-64-1	Acetone	16	~~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	1	J
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

9-30-94 (WR)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8780

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP11

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMQ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8812

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP15

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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~~ 10	~~B~~ U
67-64-1	Acetone	13	~~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	2	J
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

FORM I VOA 3/90

9-30-94 (WR)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMQ8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8812

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP15

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8796R

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8796R

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	~~2~~10	~~B~~ U
67-64-1	Acetone	~~7~~10	~~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	1	J
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

FORM I VOA 3/90

9-30-94 (WJC)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8796R

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8796R

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMX8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8813

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP16

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	~~5~~ 10	~~BJ~~ U
67-64-1	Acetone	56	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	6	J
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	~~1~~ 10	~~BJ~~ 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

FORM I VOA 3/90

9-30-94 (ltr)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8813

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP16

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	9.15	5	~~J~~ JN

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8822

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP18

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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~~ 10	~~B~~ U
67-64-1	Acetone	12	~~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	8	J
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	1	J
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	4	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

FORM I VOA 3/90

9-30-94 (WX)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8822

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP18

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMS4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8896

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AES07

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/19/94

GC Column: DB-624 ID: 0.250 (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	~~16~~	~~BJ~~ U
67-64-1	Acetone	26	~~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	~~3~~ 10	~~BJ~~ 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

FORM I VOA 3/90

9-30-94 (WJC)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMS4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8896

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AES07

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/19/94

GC Column: DB-624 ID: 0.250 (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.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8841

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP19

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	~~2~~ 10	~~BJ~~ U
67-64-1	Acetone	~~5~~ 10	~~BJ~~ 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	7	J
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

FORM I VOA 3/90

9-30-94 (WJC)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8841

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP19

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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

9613479.2743

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8897

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8897

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	~~5~~ 10	~~BJU~~
67-64-1	Acetone	14	~~BU~~
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	2	J
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

9-30-94
MJC

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMS8

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8897

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8897

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8854

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP20

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	~~5~~ 10	~~BJ~~ U
67-64-1	Acetone	15	~~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	1	J
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

9-30-94
WJC

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8854

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP20

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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.

BOBMT6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8898

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8898

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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~~ 10	~~BJ~~ U
67-64-1	Acetone	13	~~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	4	J
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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9-30-94
(WR)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMT6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8898

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8898

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8867

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8867

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	~~5~~ 10	~~B~~ U
67-64-1	Acetone	10	~~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
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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9-30-94
(WJC)

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8867

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8867

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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.

BOBMW6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8899

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8899

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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	~~5~~ 6	~~B~~ U
67-64-1	Acetone	12	~~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	3	J
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.

BOBMW6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8899

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AA8899

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: not dec. ____ Date Analyzed: 05/18/94

GC Column: DB-624 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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8904

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX12

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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	~~9~~ 6	~~BJ~~ U
67-64-1	Acetone	~~8~~ 10	~~BJ~~ 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	7	J
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	1	J
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.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8904

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX12

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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.

BOBMR6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8917

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX13

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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	~~80~~ 60	~~B~~ U
67-64-1	Acetone	17	~~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	2	J
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	6	J
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.

BOBMR6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8917

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX13

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

pw 6/29

BM 8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	
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~~	UJ
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~~	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~~	UJ
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

FORM I SV-2 3/90

BM 8-29-94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8781

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8781

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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
8-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	UJ
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	

8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	
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~~	UJ
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~~	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~~	UJ
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 8-29-94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8797

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8797

Level: (low/med) LOW Date Received: 05/11/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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
8-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

BM 8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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~~	UJ
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~~	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~~	UJ
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.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8826

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8826

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.	1-PROPENE, TRICHLORO-	5.40	2	~~JY~~ JN

BM
8-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

BM 8-24-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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~~	UJ
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~~	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~~	UJ
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 8-29-94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8842

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8842

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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 8-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

BM 8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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~~	UJ
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~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	4	J	
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~~	UJ
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.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8855

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8855

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

Injection Volume: 2.0(uL) Dilution Factor: 1.0

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

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1-PROPENE,TRICHLORO	5.42	7	~~JY~~ JN
2.	UNKNOWN	6.25	2	~~J~~ JN

10-3-94 (WJC)

FORM I SV-TIC 3/90

BM 8-29-94

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

BM 8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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~~	UJ
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~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	3	J	
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~~	UJ
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.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8868

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8868

Level: (low/med) LOW Date Received: 05/12/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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	16.23	49	~~JN~~ JN

6-3-94

BM 8-29-94

FORM I SV-TIC

3/90

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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

DM 8-29-94

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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~~	UJ
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~~	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	3	J	
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~~	UJ
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 8-29-94

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

Sample wt/vol: 1000 (g/mL) ML Lab File ID: AA8905

Level: (low/med) LOW Date Received: 05/13/94

% Moisture: _____ decanted: (Y/N) ___ Date Extracted: 05/16/94

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/18/94

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.	UNKNOWN	17.37	2	~~J~~

JZ

10-3-94 (WSC)

FORM I SV-TIC 3/90

BM 8-29-94

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8856

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

Qual. Remove! Lab qual. U replace with qual

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

BM 8-29-94

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8869

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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

Qual. rev
Lab qual
replace
~~UJ~~ 4-29

BM
8-29-94

FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8798

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/11/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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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FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8784

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/11/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

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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FORM I PEST 3/90

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8905

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/13/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00 Qual. Non

GPC Cleanup: (Y/N) N pH: 7.0 Sulfur Cleanup: (Y/N) N lab qual replaced

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

CAS NO.	COMPOUND		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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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS2

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8828

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

Qual from Lab qual. replaced on 24.

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

CAS NO.	COMPOUND		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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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA8843

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

% Moisture: _____ decanted: (Y/N) ___ Date Received: 05/12/94

Extraction: (SepF/Cont/Sonc) CONT Date Extracted: 05/16/94

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 05/24/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

Qual new lab qual replaced on 9-29

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

CAS NO.	COMPOUND		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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FORM I PEST

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMT5

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8894

Level (low/med): LOW Date Received: 05/12/94

% 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	2.3	B		F	
7440-39-3	Barium	36.2	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	77400			P	
7440-47-3	Chromium	21.8			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U		P	
7439-89-6	Iron	19.9	~~B~~		P	U
7439-92-1	Lead	2.0	B		F	
7439-95-4	Magnesium	17100			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	5770			P	
7782-49-2	Selenium	2.5	~~B~~	W	F	BJ
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	20500			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.

FORM I - IN

ILM02.1

BM 8-25-94

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8876
Level (low/med): LOW Date Received: 05/12/94
% 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	50.6	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.5	B		F
7440-39-3	Barium	48.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	104000			P
7440-47-3	Chromium	10.4			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	10.0	U	*	P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	25700			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	7470			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	32300			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:

FORM I - IN

ILM02.1

BM 8-25-94

U.S. EPA - CLP

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW4

Lab Name: ITAS_KNOXVILLE Contract: HANFORD/WE

Lab Code: ITSTU Case No.: WO535 SAS No.: SDG No.: W0055

Matrix (soil/water): WATER Lab Sample ID: AA8877

Level (low/med): LOW Date Received: 05/12/94

% 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		AS

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

CYANIDE_ONLY.

FORM I - IN

ILM02.1

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMW5

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8895
Level (low/med): LOW Date Received: 05/12/94
% 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	61.6	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.3	B		F
7440-39-3	Barium	45.1	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	97000			P
7440-47-3	Chromium	11.8			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	114			P
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	23800			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	7140			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	29800			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

J 9-16-94

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

Comments:
DISSOLVED.

FORM I - IN

ILM02.1

BM 8-25-94

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS KNOXVILLE Contract: HANFORD
Lab Code: ITSTU Case No.: W0537 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8912
Level (low/med): LOW Date Received: 05/13/94
% 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	50.2	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	15.8	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	22000			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	53.3	B	*	P u
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	3830	B		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	1030	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2110	B		P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	5.1	B		P
5955-70-0	Cyanide				NR

Color Before: COLORLESS Clarity Before: CLEAR Texture:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
TOTAL

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EPA SAMPLE NO.

BOBMR4

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD___
Lab Code: ITSTU_ Case No.: W0537 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8913
Level (low/med): LOW__ Date Received: 05/13/94
% 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		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: _____
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
TOTAL_CYANIDE

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EPA SAMPLE NO.

BOBMR5

Lab Name: ITAS KNOXVILLE Contract: HANFORD
Lab Code: ITSTU Case No.: W0537 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8916
Level (low/med): LOW Date Received: 05/13/94
% 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	15.4	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	21700			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	25.8	~~B~~		P u
7439-92-1	Lead	6.2			F
7439-95-4	Magnesium	3820	B		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	1110	B		P
7782-49-2	Selenium	2.0	~~U~~	W	F uJ
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	2180	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:
Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:
DISSOLVED

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EPA SAMPLE NO.

BOBMQ6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: WO534 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8792
Level (low/med): LOW Date Received: 05/11/94
% 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	28.6	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	50800			P	
7440-47-3	Chromium	54.0			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U		P	
7439-89-6	Iron	1420	J	*	P	J
7439-92-1	Lead	2.0	U		F	
7439-95-4	Magnesium	7390			P	
7439-96-5	Manganese	9.0	B		P	
7439-97-6	Mercury	0.20	U		CV	
7440-02-0	Nickel	20.0	U		P	
7440-09-7	Potassium	2100	B		P	
7782-49-2	Selenium	2.1	~~B~~	W	F	BJ
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	6900			P	
7440-28-0	Thallium	2.0	~~B~~	W	F	UJ
7440-62-2	Vanadium	10.0	U		P	
7440-66-6	Zinc	10.2	B		P	
	Titanium	3.0	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.

BOBMQ6

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: W0534 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8793
Level (low/med): LOW__ Date Received: 05/11/94
% 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
	Titanium_				NR
5955-70-0_	Cyanide__	10.0	U		AS

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

Comments:
CYANIDE_ONLY.

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EPA SAMPLE NO.

BOBMQ7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0534 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8810
Level (low/med): LOW Date Received: 05/11/94
% 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	27.6	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	51900			P	
7440-47-3	Chromium	47.6			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U		P	
7439-89-6	Iron	23.8	~~B~~		P	U
7439-92-1	Lead	2.4	~~B~~	W	F	BJ
7439-95-4	Magnesium	7470			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	2400	B		P	
7782-49-2	Selenium	2.0	U		F	
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	7200			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	
	Titanium	3.0	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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EPA SAMPLE NO.

BOBMX6

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: WO534 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Lab Sample ID: AA8805

Level (low/med): LOW__ Date Received: 05/11/94

% 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_	41.3	B		P_	
7440-36-0	Antimony_	50.0	U		P_	
7440-38-2	Arsenic__	2.0	U		F_	
7440-39-3	Barium___	27.8	B		P_	
7440-41-7	Beryllium	1.0	U		P_	
7440-43-9	Cadmium__	5.0	U		P_	
7440-70-2	Calcium__	52600			P_	
7440-47-3	Chromium_	44.8			P_	
7440-48-4	Cobalt___	10.0	U		P_	
7440-50-8	Copper___	10.0	U		P_	
7439-89-6	Iron_____	40.3	~~B~~	*	P_	u
7439-92-1	Lead_____	2.0	U		F_	
7439-95-4	Magnesium	7600			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	1710	B		P_	
7782-49-2	Selenium_	2.0	U		F_	
7440-22-4	Silver___	5.0	U		P_	
7440-23-5	Sodium___	7170			P_	
7440-28-0	Thallium_	2.0	U		F_	
7440-62-2	Vanadium_	10.0	U		P_	
7440-66-6	Zinc_____	9.4	B		P_	
	Titanium_	3.0	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.

BOBMX6

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: W0534 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8806
Level (low/med): LOW__ Date Received: 05/11/94
% 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
	Titanium_				NR
5955-70-0_	Cyanide__	10.0	U		AS

Color Before: COLORLESS Clarity Before: CLEAR_ Texture: N/A___
Color After: COLORLESS Clarity After: CLEAR_ Artifacts: _____

Comments:
CYANIDE_ONLY.

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EPA SAMPLE NO.

BOBMX7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0534 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8811
Level (low/med): LOW Date Received: 05/11/94
% 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	46.2	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	27.0	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	52000			P
7440-47-3	Chromium	48.7			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	17.0	~~B~~		P u
7439-92-1	Lead	32.5			F
7439-95-4	Magnesium	7490			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	2610	B		P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	7020			P
7440-28-0	Thallium	2.0	U		F
7440-62-2	Vanadium	10.0	U		P
7440-66-6	Zinc	24.5			P
	Titanium	3.0	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.

BOBMS2

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8838
Level (low/med): LOW Date Received: 05/12/94
% 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		AS

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

Comments:
CYANIDE ONLY.

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EPA SAMPLE NO.

BOBMS3

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8880
Level (low/med): LOW Date Received: 05/12/94
% 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	3.4	B		F	
7440-39-3	Barium	27.4	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	60500			P	
7440-47-3	Chromium	33.4			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U		P	
7439-89-6	Iron	25.1	~~B~~		P	u
7439-92-1	Lead	2.0	U		F	
7439-95-4	Magnesium	13600			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	4510	B		P	
7782-49-2	Selenium	2.0	~~U~~	W	F	UJ
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	17000			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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EPA SAMPLE NO.

BOBMS6

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: W0535 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8850
Level (low/med): LOW__ Date Received: 05/12/94
% 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__	2.5	B		F_	
7440-39-3	Barium__	36.5	B		P_	
7440-41-7	Beryllium	1.0	U		P_	
7440-43-9	Cadmium__	5.0	U		P_	
7440-70-2	Calcium__	71800			P_	
7440-47-3	Chromium_	334			P_	
7440-48-4	Cobalt___	10.0	U		P_	
7440-50-8	Copper___	10.0	U		P_	
7439-89-6	Iron____	23.6	~~B~~	*	P_	u
7439-92-1	Lead____	2.0	U		F_	
7439-95-4	Magnesium	10200			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	3870	B		P_	
7782-49-2	Selenium_	2.0	~~U~~	W	F_	uJ
7440-22-4	Silver___	5.0	U		P_	
7440-23-5	Sodium___	16300			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.

BOBMS6

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8851
Level (low/med): LOW Date Received: 05/12/94
% 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		AS

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

Comments:
CYANIDE ONLY.

FORM I - IN

ILM02.1

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8-25-94

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMS7

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8881
Level (low/med): LOW Date Received: 05/12/94
% 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	2.4	B		F	
7440-39-3	Barium	39.4	B		P	
7440-41-7	Beryllium	1.0	U		P	
7440-43-9	Cadmium	5.0	U		P	
7440-70-2	Calcium	78900			P	
7440-47-3	Chromium	366			P	
7440-48-4	Cobalt	10.0	U		P	
7440-50-8	Copper	10.0	U		P	
7439-89-6	Iron	45.6	~~B~~		P	U
7439-92-1	Lead	2.0	U		F	
7439-95-4	Magnesium	11200			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	4420	B		P	
7782-49-2	Selenium	2.0	~~U~~	W	F	UJ
7440-22-4	Silver	5.0	U		P	
7440-23-5	Sodium	17800			P	
7440-28-0	Thallium	2.0	U		F	
7440-62-2	Vanadium	10.0	U		P	
7440-66-6	Zinc	5.8	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.

FORM I - IN

ILM02.1

BM
8-25-94

U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS KNOXVILLE Contract: HANFORD/WE
Lab Code: ITSTU Case No.: W0535 SAS No.: SDG No.: W0055
Matrix (soil/water): WATER Lab Sample ID: AA8863
Level (low/med): LOW Date Received: 05/12/94
% 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	41.3	B		P
7440-36-0	Antimony	50.0	U		P
7440-38-2	Arsenic	2.0	U		F
7440-39-3	Barium	42.2	B		P
7440-41-7	Beryllium	1.0	U		P
7440-43-9	Cadmium	5.0	U		P
7440-70-2	Calcium	92600			P
7440-47-3	Chromium	27.1			P
7440-48-4	Cobalt	10.0	U		P
7440-50-8	Copper	10.0	U		P
7439-89-6	Iron	19.9	~~B~~	*	P u
7439-92-1	Lead	2.0	U		F
7439-95-4	Magnesium	20700			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	5980			P
7782-49-2	Selenium	2.0	U		F
7440-22-4	Silver	5.0	U		P
7440-23-5	Sodium	24900			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:

FORM I - IN

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U.S. EPA - CLP

1
INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

BOBMT4

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE
Lab Code: ITSTU_ Case No.: WO535 SAS No.: _____ SDG No.: W0055_
Matrix (soil/water): WATER Lab Sample ID: AA8864
Level (low/med): LOW__ Date Received: 05/12/94
% 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		AS

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

Comments:
CYANIDE_ONLY._____

FORM I - IN

ILM02.1

BM
8-25-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Client Sample ID:	BOBMQ6	Preparation Date:	05/31/94
Lab Sample ID:	AA8786	Analysis Date:	05/31/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.5	+	0.40
chloride	11	+	2.0
phosphate	1.0	~~U~~ UR	1.0
sulfate	48	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Client Sample ID:	BOBMX6	Preparation Date:	05/31/94
Lab Sample ID:	AA8799	Analysis Date:	05/31/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	10	+	2.0
phosphate	1.0	~~U~~ UR	1.0
sulfate	52	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMS2	Preparation Date:	06/02/94
Lab Sample ID:	AA8831	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	16	+	4.0
phosphate	1.0	HUR	1.0
sulfate	62	+	15

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
2-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMS6	Preparation Date:	06/02/94
Lab Sample ID:	AA8844	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	1.50	+	0.40
chloride	16	+	2.0
phosphate	2.0	~~U~~ UR	2.0
sulfate	69	+	7.5

* - Elevated detection limit due to matrix interference.
\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMT4	Preparation Date:	06/02/94
Lab Sample ID:	AA8857	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	29	+	2.0
phosphate	1.0	~~+~~ R	1.0
sulfate	93	+	7.5

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Client Sample ID:	BOBMW4	Preparation Date:	06/02/94
Lab Sample ID:	AA8870	Analysis Date:	06/02/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.50	+	0.40
chloride	19	+	2.0
phosphate	1.0	~~U~~ R	1.0
sulfate	112	+	7.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

ANION ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Client Sample ID:	BOBMR4	Preparation Date:	06/06/94
Lab Sample ID:	AA8906	Analysis Date:	06/06/94
Sample Matrix:	Water	Concentration Units:	mg/l

Compound	Result	Qualifier	Detection Limit
fluoride	0.40	U	0.40
chloride	1.3	+	0.40
phosphate	1.0	~~U~~ UR	1.0
sulfate	12	+	1.5

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/03/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	P6291	20		U
BOBMQ6	AA8795	20	~~UR~~	U
BOBMX6	AA8808	21	~~J~~	~~+~~ J

NO Qual
BM
9-7-94

MW
9-18-94

Note: Blank subtraction per method.

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/06/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	P6302	20		U
BOBMT4	AA8866	20	~~UR~~	U
BOBMW4	AA8879	20		U
BOBMS2	AA8840	20		U
BOBMS6	AA8853	20		U

NO Qual
BM 9-7-94

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL ORGANIC HALOGENS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	µg/l	Analysis Date:	06/07/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6303	20	U
BOBMR4	AA8915	20	U

NOQual
BM
9-7-94

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6255	1	U
BOBMQ6	AA8794	1 ~~UJ~~	U
BOBMX6	AA8807	1 ~~UJ~~	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6255	1	U
BOBMS2	AA8839	2	+
BOBMS6	AA8852	2	+
BOBMT4	AA8865	2	+
BOBMW4	AA8878	2	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL ORGANIC CARBON ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/30/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6279	1	U
BOBMR4	AA8914	1 ~~UJ~~	U

no qual. BM 9-7-94

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	P6317	1		U
BOBMQ6	AA8789	28	J	+
BOBMX6	AA8802	29	J	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	P6203	1		U
BOBMS6	AA8847	379	J	+
BOBMW4	AA8873	642		+
BOBMT4	AA8860	476		+
BOBMS2	AA8834	374		+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

TOTAL DISSOLVED SOLIDS ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6203	1	U
BOBMR4	AA8909	197 J	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6210	1	U
BOBMQ6	AA8790	13	+
BOBMX6	AA8803	12	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6210	1	U
BOBMW4	AA8874	5	+
BOBMT4	AA8861	5	+
BOBMS6	AA8848	85	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

SULFIDE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6211	1	U
BOBMR4	AA8910	8	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMQ6	AA8786	389	+
BOBMX6	AA8799	387	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMW4	AA8870	898	+
BOBMT4	AA8857	778	+
BOBMS2	AA8831	555	+
BOBMS6	AA8844	602	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

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SPECIFIC CONDUCTANCE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	umhos/cm	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6223	1	U
BOBMR4	AA8906	167	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMQ6	AA8786	7.53 J	-
BOBMX6	AA8799	7.59 J	-

* - A method blank is not applicable for this analysis.

BM 9-6-94

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	*	-		-
BOBMW4	AA8870	7.66	J	-
BOBMT4	AA8857	7.72		-
BOBMS2	AA8831	7.79		-
BOBMS6	AA8844	7.73		-

* - A method blank is not applicable for this analysis.

BM
9-6-94

pH ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	standard units	Analysis Date:	05/17/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	*	-		-
BOBMR4	AA8906	7.64	J	-

BM 9-6-94

* - A method blank is not applicable for this analysis.

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
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	P6241	0.02	U
BOBMQ6	AA8787	4.56	+
BOBMX6	AA8800	4.58	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
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	P6241	0.02	U
BOBMS2	AA8832	10.1	+
BOBMS6	AA8845	9.2	+
BOBMT4	AA8858	17.6	+
BOBMW4	AA8871	22.3	+

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

NITRATE/NITRITE ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
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
BOBMR4	AA8907	0.21	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result		Qualifiers
Method Blank	*	-		-
BOBMQ6	AA8791	1	ws	U
BOBMX6	AA8804	1	↓	U

*. - 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.

BM
9-6-94

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMW4	AA8875	4 ~~UJ~~ J	+
BOBMT4	AA8862	1 UJ	U
BOBMS2	AA8836	4 J	+
BOBMS6	AA8849	1 UJ	U

BM 9-6-94

* - A method blank is not applicable for this analysis.
\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

9-18-94

CHEMICAL OXYGEN DEMAND ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/19/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	*	-	-
BOBMR4	AA8911	2 J	+

* - A method blank is not applicable for this analysis.
\+ - Positive result.

BM 9-6-94

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/24/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6248	0.1	U
BOBMQ6	AA8791	0.1	U
BOBMX6	AA8804	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/01/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6261	0.1	U
BOBMS2	AA8836	0.2	+
BOBMS6	AA8849	0.1	U
BOBMT4	AA8862	0.1	U
BOBMW4	AA8875	0.1	U

\+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM 9-6-94

AMMONIA ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	06/01/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6261	0.1	U
BOBMR4	AA8911	0.1	U

U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	534
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6221	2	U
BOBMQ6	AA8788	110 J	+
BOBMX6	AA8801	110 J	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	535
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6221	2	U
BOBMW4	AA8872	258 J	+
BOBMT4	AA8859	192	+
BOBMS2	AA8833	158	+
BOBMS6	AA8846	176	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

ALKALINITY ANALYSIS

Laboratory Name:	ITAS-Knoxville	SDG Number:	W0055
Contract Name:	Westinghouse Hanford	Job Number:	537
Sample Matrix:	Water	Extraction Date:	N/A
Concentration Units:	mg/l	Analysis Date:	05/16/94

Client Sample ID	Lab Sample ID	Result	Qualifiers
Method Blank	P6222	2	U
BOBMR4	AA8908	66 J	+

+ - Positive result.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

BM
9-6-94

9613479.2842

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40517101
MATRIX: WATER
WHC ID: B0BMQ6
DATE RECEIVED 5/9/94
REPORTING UNITS: pCi/L

9 Vol.

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U -1.32E-02	1.32E-02	1.34E-02	2.21E-01	0.878	RD3302
PU239/40	U -2.14E-02	3.02E-02	3.04E-02	3.02E-01	0.78	RD3209
PU-238	U 0.00E+00	0.00E+00	1.60E-01	1.45E-01	0.78	RD3209
U-234	2.97E+00	7.29E-01	8.16E-01	3.13E-01	0.943	RD3234
U-235	~~U~~ 1.26E-01	1.54E-01	1.54E-01	2.02E-01	0.943	RD3234
U-238DA	1.98E+00	5.93E-01	6.42E-01	2.36E-01	0.943	RD3234
CO-60	U -2.74E+00	3.46E+00	3.47E+00	5.54E+00	N/A	RD3219
FE-59	U -1.95E+00	1.21E+01	1.21E+01	2.26E+01	N/A	RD3219
EU-152	U -1.12E+01	1.81E+01	1.81E+01	3.14E+01	N/A	RD3219
CO-58	U 2.33E-01	4.32E+00	4.32E+00	8.44E+00	N/A	RD3219
CS-137DA	U 2.23E+00	3.78E+00	3.78E+00	7.67E+00	N/A	RD3219
RU-106DA	U 4.40E+01	2.99E+01	3.02E+01	6.92E+01	N/A	RD3219
CE-144	U 9.83E+00	1.85E+01	1.86E+01	3.39E+01	N/A	RD3219
EU-154	U 9.73E+00	7.35E+00	7.42E+00	2.09E+01	N/A	RD3219
ALPHA	3.69E+00	1.21E+00	1.30E+00	9.99E-01	1	~~RD3222~~ 3214
BETA	1.67E+01	2.43E+00	2.69E+00	3.02E+00	1	~~RD3222~~ DS 6/27/92
TOTAL-SR	7.18E+00	6.19E-01	1.89E+00	7.88E-01	0.871	RD3204
C-14	3.74E+00	1.56E+00	3.21E+00	3.51E+00	1	RD3263
TC-99	U 2.46E-01	9.29E-01	4.22E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.33E+03	1.41E+02	2.69E+02	2.39E+02	0.973	RD3205

UJ

EU155 -10.7 14.05 RD3219

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9/19/94 mxf

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68ZA-6-93

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IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40517102
MATRIX: WATER
WHC ID: B0BMX6
DATE RECEIVED 5/9/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U -3.78E-03	7.55E-03	7.57E-03	1.90E-01	0.77	RD3302
PU239/40	U 1.07E-02	1.15E-01	1.15E-01	3.67E-01	0.78	RD3209
PU-238	U -1.07E-02	2.14E-02	2.15E-02	2.56E-01	0.78	RD3209
U-234	2.40E+00	6.57E-01	7.21E-01	2.53E-01	0.932	RD3234
U-235	~~U~~ 3.04E-02	9.06E-02	9.06E-02	2.39E-01	0.932	RD3234
U-238DA	1.63E+00	5.44E-01	5.80E-01	2.77E-01	0.932	RD3234
CO-60	U 4.77E+00	3.37E+00	3.41E+00	9.46E+00	N/A	RD3219
FE-59	U 8.99E+00	7.34E+00	7.39E+00	2.11E+01	N/A	RD3219
EU-152	U -1.30E+01	3.08E+01	3.08E+01	5.44E+01	N/A	RD3219
CO-58	U -3.23E+00	6.10E+00	6.10E+00	1.02E+01	N/A	RD3219
CS-137DA	U -1.89E+00	4.08E+00	4.09E+00	6.89E+00	N/A	RD3219
RU-106DA	U -1.60E+01	3.92E+01	3.92E+01	6.82E+01	N/A	RD3219
CE-144	U 2.05E+01	1.61E+01	1.62E+01	3.23E+01	N/A	RD3219
EU-154	U 9.65E+00	7.88E+00	7.94E+00	2.27E+01	N/A	RD3219
ALPHA	4.36E+00	1.30E+00	1.42E+00	9.50E-01	1	~~RD3222~~
BETA	1.76E+01	2.54E+00	2.80E+00	3.24E+00	1	~~RD3222~~
TOTAL-SR	6.73E+00	6.18E-01	1.76E+00	8.89E-01	0.832	RD3204
C-14	8.94E+00	1.64E+00	3.35E+00	3.51E+00	1	RD3263
TC-99	U -3.88E-01	9.26E-01	4.17E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.33E+03	1.41E+02	2.69E+02	2.39E+02	0.973	RD3205
EU155	7.32			16.29		RD3219

U

32'' → DS, 6/27

Nw 9-24-94

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9613479.2844

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521601
MATRIX: WATER
WHC ID: B0BMS2
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U -4.13E-03	8.27E-03	8.29E-03	2.08E-01	0.703	RD3302
PU239/40	U -2.50E-02	3.54E-02	3.56E-02	3.53E-01	0.667	RD3209
PU-238	U 0.00E+00	0.00E+00	1.88E-01	1.69E-01	0.667	RD3209
U-234	2.61E+00	7.03E-01	7.75E-01	2.78E-01	0.887	RD3234
J U-235	J 2.74E-01	2.30E-01	2.33E-01	2.14E-01	0.887	RD3234
U-238DA	1.82E+00	5.87E-01	6.29E-01	2.34E-01	0.887	RD3234
CO-60	U -1.11E+00	3.83E+00	3.83E+00	6.60E+00	N/A	RD3219
FE-59	U 6.45E+00	1.13E+01	1.13E+01	2.38E+01	N/A	RD3219
EU-152	U -9.74E+00	2.33E+01	2.33E+01	4.18E+01	N/A	RD3219
CO-58	U -7.87E-01	4.59E+00	4.59E+00	8.06E+00	N/A	RD3219
CS-137DA	U -3.04E+00	3.83E+00	3.84E+00	6.21E+00	N/A	RD3219
RU-106DA	U 1.34E+01	2.77E+01	2.77E+01	5.80E+01	N/A	RD3219
CE-144	U 1.10E+01	1.51E+01	1.51E+01	2.82E+01	N/A	RD3219
EU-154	U 8.21E+00	1.06E+01	1.06E+01	2.47E+01	N/A	RD3219
ALPHA	1.35E+00	8.75E-01	8.88E-01	1.16E+00	1	~~RD3222~~ 321
BETA	7.16E+00	1.92E+00	1.99E+00	3.10E+00	1	~~RD3222~~ DS
TOTAL-SR	U 2.04E-02	1.91E-01	1.91E-01	8.46E-01	0.83	RD3204 4/an
C-14	4.12E+00	1.56E+00	3.22E+00	3.51E+00	1	RD3263
TC-99	U -1.15E+00	9.08E-01	4.12E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	2.62E+03	1.71E+02	3.51E+02	2.39E+02	0.973	RD3205
EU155	2.413			12.74		RD 3219

mw 8-24-94

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9613479.2845

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521602
MATRIX: WATER
WHC ID: B0BMS6
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U 3.40E-02	9.04E-02	9.05E-02	2.23E-01	0.812	RD3302
PU239/40	U 0.00E+00	0.00E+00	1.39E-01	1.25E-01	0.899	RD3209
PU-238	U -9.27E-03	1.86E-02	1.86E-02	2.22E-01	0.899	RD3209
U-234	4.24E+00	9.70E-01	1.12E+00	2.95E-01	0.754	RD3234
J U-235	3.60E-01	2.93E-01	2.97E-01	3.28E-01	0.754	RD3234
U-238DA	2.41E+00	7.34E-01	7.99E-01	3.12E-01	0.754	RD3234
CO-60	U -2.82E+00	4.54E+00	4.54E+00	7.07E+00	N/A	RD3219
FE-59	U -1.21E+01	1.45E+01	1.46E+01	2.25E+01	N/A	RD3219
EU-152	U -8.58E+00	1.88E+01	1.88E+01	3.38E+01	N/A	RD3219
CO-58	U 2.89E+00	4.67E+00	4.67E+00	9.58E+00	N/A	RD3219
CS-137DA	U 4.36E+00	3.28E+00	3.30E+00	7.43E+00	N/A	RD3219
RU-106DA	U 3.44E+01	3.42E+01	3.44E+01	7.11E+01	N/A	RD3219
CE-144	U -1.51E+01	1.92E+01	1.92E+01	3.01E+01	N/A	RD3219
EU-154	U -4.63E-01	1.12E+01	1.12E+01	2.20E+01	N/A	RD3219
ALPHA	8.90E+00	2.08E+00	2.30E+00	1.33E+00	1	~~RD3222~~ 3214
BETA	3.04E+01	3.12E+00	3.80E+00	3.21E+00	1	~~RD3222~~
TOTAL-SR	9.70E+00	6.91E-01	2.56E+00	7.38E-01	0.929	RD3204
C-14	7.03E+00	1.61E+00	3.30E+00	3.51E+00	1	RD3263
TC-99	U -7.48E-01	9.24E-01	4.15E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.42E+04	3.39E+02	1.18E+03	2.39E+02	0.973	RD3205
EU 155	-3.16			2.50		RD 3219

DS 6/27/94

MW 8-24-94

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682A-6-93

9613479.2846

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521603
MATRIX: WATER
WHC ID: B0BMT4
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U -1.41E-02	2.81E-02	2.82E-02	3.37E-01	0.517	RD3302
PU239/40	U 0.00E+00	0.00E+00	1.74E-01	1.57E-01	0.718	RD3209
PU-238	U -1.16E-02	2.32E-02	2.33E-02	2.78E-01	0.718	RD3209
U-234	4.30E+00	9.09E-01	1.06E+00	2.39E-01	0.87	RD3234
UJ U-235	2.20E-01	2.15E-01	2.17E-01	2.71E-01	0.87	RD3234
U-238DA	3.48E+00	8.18E-01	9.28E-01	2.39E-01	0.87	RD3234
CO-60	U 6.06E+00	5.03E+00	5.07E+00	1.18E+01	N/A	RD3219
FE-59	U -2.34E+01	1.61E+01	1.63E+01	2.07E+01	N/A	RD3219
EU-152	U 9.99E-01	2.37E+01	2.37E+01	4.64E+01	N/A	RD3219
CO-58	U -1.39E+00	4.95E+00	4.95E+00	8.92E+00	N/A	RD3219
CS-137DA	U -2.59E+00	4.34E+00	4.35E+00	7.24E+00	N/A	RD3219
RU-106DA	U 4.12E+01	3.58E+01	3.60E+01	7.86E+01	N/A	RD3219
CE-144	U 7.35E+00	1.52E+01	1.52E+01	2.79E+01	N/A	RD3219
EU-154	U 6.43E+00	6.43E+00	6.46E+00	1.93E+01	N/A	RD3219
ALPHA	1.01E+01	2.65E+00	2.79E+00	2.06E+00	1	~~RD3222~~ 3214
BETA	8.50E+00	2.07E+00	2.15E+00	3.27E+00	1	~~RD3222~~ DJ 6/21
TOTAL-SR	2.34E+00	3.96E-01	6.97E-01	8.74E-01	0.833	RD3204
C-14	1.04E+01	1.66E+00	3.40E+00	3.51E+00	1	RD3263
TC-99	U -5.87E-01	9.23E-01	4.16E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	1.01E+04	2.91E+02	8.77E+02	2.39E+02	0.973	RD3205
EU 153	1.919			17.18		RD3219

MW 8-24-94

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682A-6-93

9613479.2847

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40521604
MATRIX: WATER
WHC ID: B0BMW4
DATE RECEIVED 5/11/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U 1.21E-01	2.19E-01	2.20E-01	4.28E-01	0.479	RD3302
PU239/40	U -9.75E-03	1.95E-02	1.96E-02	2.33E-01	0.854	RD3209
PU-238	U 0.00E+00	0.00E+00	1.46E-01	1.32E-01	0.854	RD3209
U-234	9.73E+00	1.87E+00	2.39E+00	5.50E-01	0.469	RD3234
U-235	6.01E-01	4.71E-01	4.80E-01	4.43E-01	0.469	RD3234
U-238DA	1.10E+01	1.98E+00	2.60E+00	4.06E-01	0.469	RD3234
CO-60	U -2.83E+00	4.54E+00	4.55E+00	7.34E+00	N/A	RD3219
FE-59	U 5.34E+00	1.09E+01	1.09E+01	2.26E+01	N/A	RD3219
EU-152	U 4.72E+00	1.64E+01	1.64E+01	3.63E+01	N/A	RD3219
CO-58	U 5.40E+00	4.59E+00	4.62E+00	1.03E+01	N/A	RD3219
CS-137DA	U -1.06E+00	4.39E+00	4.39E+00	7.49E+00	N/A	RD3219
RU-106DA	U 2.79E+01	3.87E+01	3.88E+01	7.39E+01	N/A	RD3219
CE-144	U 8.73E-01	1.79E+01	1.79E+01	2.99E+01	N/A	RD3219
EU-154	U 9.49E+00	1.08E+01	1.09E+01	2.42E+01	N/A	RD3219
ALPHA	1.70E+01	3.37E+00	3.67E+00	1.82E+00	1	~~RD3222~~ 3214
BETA	1.58E+01	2.46E+00	2.69E+00	3.18E+00	1	~~RD3222~~ D3
TOTAL-SR	U -6.68E-02	1.84E-01	1.85E-01	8.77E-01	0.761	RD3204
C-14	3.94E+00	1.56E+00	3.21E+00	3.51E+00	1	RD3263
TC-99	U -1.42E-01	9.24E-01	4.19E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	2.52E+03	1.70E+02	3.45E+02	2.39E+02	0.973	RD3205

EU 155 -, 441 14.43 RD3219

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mw 8-24-94

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682A-6-93

9613479.2848

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

SAMPLE RESULTS

LAB NAME: ITAS-RICHLAND
SDG NO.: W0055
LAB SAMPLE ID: 40524201
MATRIX: WATER
WHC ID: B0BMR4
DATE RECEIVED 5/12/94
REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
AM-241	U -1.46E-02	2.91E-02	2.92E-02	3.48E-01	0.499	RD3302
PU239/40	U -4.74E-02	4.74E-02	4.79E-02	4.07E-01	0.703	RD3209
PU-238	U -1.19E-02	2.37E-02	2.38E-02	2.84E-01	0.703	RD3209
U-234	U 4.44E-01	3.75E-01	3.81E-01	4.70E-01	0.59	RD3234
W U-235	~~U~~ 4.81E-02	1.43E-01	1.43E-01	3.77E-01	0.59	RD3234
U-238DA	U 4.49E-01	3.75E-01	3.81E-01	4.54E-01	0.59	RD3234
CO-60	U -9.21E-01	4.09E+00	4.09E+00	7.61E+00	N/A	RD3219
FE-59	U -1.28E+00	9.24E+00	9.24E+00	1.81E+01	N/A	RD3219
EU-152	U 2.27E+01	2.22E+01	2.23E+01	5.20E+01	N/A	RD3219
CO-58	U 1.57E+00	5.03E+00	5.04E+00	9.80E+00	N/A	RD3219
CS-137DA	U 2.53E+00	2.98E+00	2.99E+00	6.71E+00	N/A	RD3219
RU-106DA	U -3.52E+01	3.14E+01	3.16E+01	4.77E-01	N/A	RD3219
CE-144	U -7.44E+00	1.61E+01	1.61E+01	2.58E+01	N/A	RD3219
EU-154	U 8.95E+00	7.31E+00	7.36E+00	2.10E+01	N/A	RD3219
ALPHA	U 5.73E-01	4.75E-01	4.83E-01	7.33E-01	1	~~RD3222~~ 3214 6/27/94 D:
BETA	8.23E+00	1.88E+00	1.97E+00	2.87E+00	1	~~RD3222~~
TOTAL-SR	2.34E+00	3.68E-01	7.09E-01	7.95E-01	0.974	RD3204
C-14	U 8.33E-01	1.51E+00	3.13E+00	3.51E+00	1	RD3263
TC-99	U -3.88E-01	9.34E-01	4.18E+00	2.16E+00	0.951	ITAS-IT-RS-0001
TRITIUM	U -3.26E+01	9.99E+01	1.90E+02	2.39E+02	.973	RD3205
EU 155	3.217			11.23	6/21/94	RD3219

MW 8-24-94

~~0015~~

682A-6-93

9613479.2849

Checklists

9613479.2850

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: ~~HW~~ BMB 8-26-94 W0055-ITC-060	
VALIDATOR: B. MORRIS	LATA NO.: WW402.67	DATE: 8-26-94
SAF NO.: 94-087 mw 9-16-94	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 B0BMQ6, B0BMQ8, B0BMX6, B0BMX8, B0BMS2, B0BMS4, B0BMS6, B0BMS8, B0BMT4, B0BMT6, B0BMW4 B0BMW6, B0BMR4, B0BMR6

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: ~~DC 5-11~~ DC 5-6 DC = Date Collected mw 9-16-94
~~DR 5-11~~ DR 5-14 DR = Date Received mw 9-16-94
DA 5-16 to 5-24 DA = Date analyzed mw 9-16-94
≤ 28d

9/19/94 mw

Peer Review mw 9-16-94

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

$$= \sqrt{\sum_{i=1}^{n} \frac{(RRF_i - RRF)^2}{n-1}}$$

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

Comments:

9/19/94 MG

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: The Method blanks Contained Methylene Chloride, Acetone, 2-Butanone 4-methyl-2-Pentanone, xylene. SEE Summary for Qualification

2-butanone was (also) detected in a method blank. BOBM54 is qualified ND U MW 9-15-94

2-Hexanone was detected in a method blank. BOBMX8 is qualified U and raised to CRQL (10ug/L) MW 10-4-94

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:

9/19/94 MW

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all MS/MSD RPD values acceptable? . . . . . Yes No N/A

★

Relative Percent Difference

$$RPD = \frac{|MS - MSD|}{\left(\frac{MS + MSD}{2}\right)} \times 100$$

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:

BOBMX8 and BOBMX6 ARE Identified Duplicates.
(Not of EACH OTHER)

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:

9/9/99

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)

9/19/94 MMS

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:_____

9/19/94 MG

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

None MW 9-16-94

MW 9-30-94

MINOR DEFICIENCIES: The method ~~blank contained~~ Methylene Chloride and Acetone. All ~~sample results~~ are qualified undetected except ~~BOBMS2~~ and BOBMX8 ~~and BOBMS2~~. BMW 9.12.94

BMW 9-12-94

The method blank also contained 2-Butanone and 2-Hexanone, affecting BOBMS4 and BOBMX8, respectively. The sample results are qualified undetected. and raised to CRQL

The method blank contained Methylene Chloride. All samples were qualified U is raised to the CRQL

The method blank contained Acetone. All sample results < 10 x blank were qual. U is raised to the CRQL. BOBMX8 was not affected

MW 9-30-94

COMMENTS: BOBMX6 and BOBMX8 were project identified duplicates.

9/19/94 MWP

HOLDING TIME SUMMARY

SDG: W0055 - 1T6 - 060	VALIDATOR: MWebb	DATE: 9-29-94	PAGE 1 OF 1
COMMENTS: GENERAL GC Volatiles			

MW 9-29-94 ~~FIELD~~ SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	No Extraction MW 9-29-94 ~~DATE PREPARED~~	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMQ6	Volatiles	5-6-94	MW 9-29-94 ~~5-16-94~~	5-16-94		MW 9-29-94 ~~10~~ 10	none
BOBMQ8		5-6-94	~~5~~ MW 9-29-94	5-16-94		10	
BOBMX6		5-6-94	NA	5-17-94		11	
BOBMX8		5-6-94	NA	5-16-94		10	
BOBMS2		5-10-94	NA	5-16-94		6	
BOBMS4		5-10-94	NA	5-19-94		9	
BOBMS6		5-10-94	NA	5-16-94		6	
BOBMS8		5-10-94	NA	5-17-94		7	
BOBMT4		5-9-94	NA	5-16-94		7	
BOBMT6		5-9-94	NA	5-18-94		9	
BOBMW4		5-9-94	NA	5-17-94		8	
BOBMW6		5-9-94	NA	5-18-94		9	
BOBMR4		5-11-94	NA	5-24-94		12	
BOBMR6		5-11-94	NA	5-24-94		12	

Preserved HCl (waters)

PNO-DVF-017, R1

000164A

96134792857

000164A

BLANK AND SAMPLE DATA SUMMARY

SDG: W0055- ITC- 060 | VALIDATOR: B. MORRIS | DATE: 8-26-94 | PAGE 1 OF 1

COMMENTS: GC/MS

FIELD SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
VBIKAA9300	METHYLENE CHLORIDE	2	J		µg/L	10	20	BOBMQ6 BOBMQ8	10 u
		↓	J		↓	↓	↓	BOBMX8 BOBMS2	10 u
		↓	J		↓	↓	↓	BOBMS6 BOBMT4	10 u
	ACETONE	3	J		µg/L	15	30	BOBMQ6 BOBMQ8	u
		↓	J		↓	↓	↓	BOBMT4	u
		↓	J		↓	↓	↓	BOBMS6	10 u
	2-HEXANONE	1	J		µg/L	5	10	BOBMX8	10 u
VBLKAA9228	METHYLENE CHLORIDE	2	J		µg/L	10	20	BOBMX6 BOBMT6	10 u
		↓	J		↓	↓	↓	BOBMS8 BOBMW4	10 u
		↓	J		↓	↓	↓	BOBMW6	10 u
	ACETONE	4	J		µg/L	20	40	BOBMX6 BOBMW4	10 u
		↓	J		↓	↓	↓	BOBMW6 BOBMT6	u
		↓	J		↓	↓	↓	BOBMS8	u
VBLKAA	METHYLENE CHLORIDE	5	J		µg/L	25	50	BOBMS4	10 u
	~~2-Butanone~~ ACETONE BM 8-26-94	5	J		µg/L	25	50	BOBMS4	u
VBIKAA9908	METHYLENE CHLORIDE	4	J		µg/L	20	40	BOBMR4 BOBMR6	10 u
	ACETONE	2	J		µg/L	10	20	BOBMR4	10 u
		↓	J		↓	↓	↓	BOBMR6	u
VBLKAA	2-butanone	1	J		µg/L	5	10	BOBMS4	10 u

PNO-DVF-017, R1

9-28-94

0001165

9613479.2858

9613479.2859

DATA QUALIFICATION SUMMARY

BM 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. MORRIS	DATE: 8-26-94	PAGE 1 OF __
COMMENTS: GC/MS			

COMPOUND	CAS No.	QUALIFIER	SAMPLES AFFECTED	REASON
METHYLENE CHLORIDE	75-09-2	10U	ALL	Compound in Method Blank
ACETONE	67-64-1	U	B0BMQ6 B0BMQ8	> CRDL < 10* Blank
		U	B0BMS4 B0BMS2 B0BMS8 BM 9-16-94	
		U	B0BMT4 B0BMT6	
		BM ~~8~~ 2U	B0BMW6 B0BMR6	
		10U	B0BMW4 B0BMR4	< CRDL < 10* BLANK
		10U	B0BMS6 B0BMX6	
2-HEXANONE	591-78-6	10U	B0BMX8	< CRDL < 10* BLANK
2-BUTANONE	78-93-3	10U	B0BMS4	< CRDL < 10* BLANK

PNO-DVF-017, R1

RELATIVE RESPONSE FACTOR

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: INIT CAL

Date: 26-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
bromomethane rrf10	13880.00	50.00	47684.00	10.00	1.455
" " rrf20	26818.00	50.00	49837.00	20.00	1.345
" " rrf50	70285.00	50.00	457221.00	50.00	0.154
" " rrf100	186697.00	50.00	52270.00	100.00	1.786
" " rrf200	398018.00	50.00	53081.00	200.00	1.875
chloroform rrf10	29675.00	50.00	47684.00	10.00	3.112
" " rrf20	58910.00	50.00	49837.00	20.00	2.955
" " rrf50	131667.00	50.00	457221.00	50.00	0.288
" " rrf100	304614.00	50.00	52270.00	100.00	2.914
" " rrf200	586824.00	50.00	53081.00	200.00	2.764

RELATIVE STANDARD DEVIATION

Analysis GC/MS VOA
SDG: WOO55-ITC-060 Date: 26-Aug-94
Sample ID: INIT CAL Validator: B. MORRIS

Constituent: BROMOMETHANE

RRF1
1.455
1.345
1.537
1.786
1.875

MEAN	STDEV	RSD
1.600	0.2237	14.0

RELATIVE STANDARD DEVIATION

Analysis GC/MS VOA
SDG: WOO55-ITC-060 Date: 26-Aug-94
Sample ID: INIT CAL Validator: B. MORRIS

Constituent: CHLOROFORM

RRF2
3.112
2.955
2.88
2.914
2.764

MEAN	STDEV	RSD
2.925	0.1264	4.3

000168

9613479.2861

PERCENT DIFFERENCE

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: CONT CAL @ 1616

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	Initial Calibration Average RRF RRFiV	Continuing Calibration Average RRF RRFsV	%D
BROMOMETHANE	1.6	1.281	19.9%
CHLOROFORM	2.925	2.941	0.5%
BENZENE	1.051	0.954	9.2%

000169

SURROGATE RECOVERY

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: BOBMX6

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined QdV	quantity of surrogate added QaV	%RV
Toluene	45.73	50.00	91.5%
Bromofluorobenzene	45.77	50.00	91.5%

000170

9613479.2863

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: BOBMQ6MS

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	MS Result MSV	MSD Result MSDV	Sample Result OSV	Spike Added SAV	MSV %R	MSDV %R	RPDV
benzene	52.21	53.15	0.00	50.00	104.4%	106.3%	1.8%
toluene	53.28	54.35	0.00	50.00	106.6%	108.7%	2.0%
chlorobenzene	51.97	53.05	0.00	50.00	103.9%	106.1%	2.1%

000171

96134792.0961

RESULTS CALCULATIONS FOR VOA WATER SAMPLES

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: BOBMX8

Date: 26-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	
ACETONE	34491.00	34676.00	50.00	0.90	1.00	1.00	55.57
2-BUTANONE	5155.00	34676.00	50.00	1.19	1.00	1.00	6.24
2-HEXANONE	1048.00	145125.00	50.00	0.34	1.00	1.00	1.06

9613479.2065

000172

Associated Samples: BBA1Q6, MG8, MX8, MS2, MS6, M74,

10-4-94 (WJC)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAA9300

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA9300

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEP10

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

% Moisture: not dec. ____ Date Analyzed: 05/16/94

GC Column: DB-624 ID: 0.250 (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	3	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	1	J
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

Associated Samples: BOBMXG, MTG, MS8, MW4, MW6

10-4-94 WJC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAA9228

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: AA9228

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: WB05172

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

% Moisture: not dec. ____ Date Analyzed: 05/17/94

GC Column: DB-624 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	2	J
67-64-1	Acetone	4	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)	1	J

Associated Samples: B0B415 4,

10-4-94 CWJC

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAA

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 535 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: PB0519

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AES04

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

% Moisture: not dec. ____ Date Analyzed: 05/19/94

GC Column: DB-624 ID: 0.250 (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	5	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	1	J
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	1	J
591-78-6	2-Hexanone	2	J
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

B-26-94

Associated Samples 9403478 B0524AX4, 1303MRC

10-4-94 (WC)

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKAA9908

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 537 SAS No.: _____ SDG No.: W0055

Matrix: (soil/water) WATER Lab Sample ID: PB0524

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: AEX04

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

% Moisture: not dec. ____ Date Analyzed: 05/24/94

GC Column: DB-624 ID: 0.250 (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	4	J
67-64-1	Acetone	2	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

8-26-94

9613479.2870

LATA GC/MS DATA VALIDATION CHECKLIST

MW 9-16-94

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 100-FR-3	SDG: W0055-ITC-060	
VALIDATOR: B. MORRIS	LATA NO.: WW4067	DATE: 8-26-94
SAF NO.: 94-087 MW 9-16-94	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 BOBMQ6, BOBMX6, BOBMS2, BOBMS6, ~~BOBMS8~~ BM 8-26-94
BOBMT4, BOBMW4, BOBMR4

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: DS 5-6 DS = Date Sampled MW 9-16-94
DR 5-11 DR = Date Received MW 9-16-94
DE 5-16 DE = Date Extracted MW 9-16-94
DA 5-18 DA = Date Analyzed MW 9-16-94
The extraction hold time was > 7 days for BOBMQ6 & BOBMX6 The results are qualified estimated (J/UJ)

9/19/94

MW 9-16-94 Peer Review

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

★ 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

$$= \sqrt{\sum_{i=1}^{n} \frac{(RRF_i - RRF)^2}{n-1}}$$

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

~~2-Fluorophenol~~ affects 2-chlorophenol, 4-chloro-3-methylphenol BM 8-29-94

000178

Comments: Initial Calibration table is missing several rrf 20 values. Checked all values and recalculated ~~the starred compounds~~. ACC BM 8-29-94 9/19/94 MW

The %D of Fluoranthene was 33.9% Benzo(k)fluoranthene (22.9%), Chrysene (22.6%) and ~~2-Fluorophenol (21%)~~ exceeded %RSD criteria MW 9-29-94

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:

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

MS/MSD BM 9-5-94

Comments: The ~~MSD~~ Recovery of 4-Nitrophenol was outside QC Limits. No qualification necessary, since MS/MSD Recovery was high and Surrogates were within limits. 4-nitro phenol is not detected in the samples.
MW 9-29-94

9/19/94

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all MS/MSD RPD values acceptable? . . . . . Yes No N/A

★

Relative Percent Difference

$$RPD = \frac{|MS - MSD|}{\left(\frac{MS + MSD}{2}\right)} \times 100$$

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:

BOBMx6 was an identified Project duplicate.

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:

9/19/94

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)

9/19/94 [illegible]

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:_____

9/19/96

LATA GC/MS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

None AW 9-6-94

MINOR DEFICIENCIES: The initial Calibration criteria was exceeded for Benzo(k) Fluoranthene and Chrysene. Sample results are qualified as estimated (UJ).

~~The initial Calibration for the surrogates 2-Fluorophenol exceeded the acceptance criteria. Sample results for 2-Chlorophenol and 4-Chloro 3-methyl phenol are qualified as estimated (UJ).~~ BM 8-29-94

The Continuing Calibration criteria was exceeded for Fluoranthene. Sample results are qualified as estimated (UJ)

BM 8-29-94 ~~The MS recovery of 4-Nitrophenol was outside QC limits (>80%). All Sample results are qualified as estimated (UJ).~~

No qual based on .002.

The holding time was exceed for the extraction of samples BOBMQ6, MX6 The results are qualified as estimated (J/UJ)

COMMENTS: Several RRF20, mean RRF20, %RSD and %D values were recalculated from the raw data because this information was missing from the initial calibration summary table.

BOBMX6 was a project identified duplicate.

9/19/94

HOLDING TIME SUMMARY

SDG: WOD55-ITC-060	VALIDATOR: MLWebb	DATE: 9-29-94	PAGE 1 OF 1
COMMENTS: GENERAL GC Semivolatiles			

~~FIELD~~ SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	Extracted DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
BOBMQ6	SVOA	5-6-94	5-16-94	5-18-94	10	2	J/UJ
BOBMR4		5-11-94	5-16-94	5-18-94	5	2	None
BOBMS2		5-10-94	5-16-94	5-18-94	6	2	None
BOBMS6		5-10-94	5-16-94	5-18-94	6	2	None
BOBMT4		5-9-94	5-16-94	5-18-94	7	2	None
BOBMW4		5-9-94	5-16-94	5-18-94	7	2	None
BOBMX6		5-6-94	5-16-94	5-18-94	10	2	J/UJ

9613479.2877

000/834

PNO-DVF-017, R1

CALIBRATION DATA SUMMARY

0000184

SDG: W0055- ITC-060	VALIDATOR: B. MORRIS	DATE: 8-29-94	PAGE 1 OF 1
COMMENTS: ~~INORGANIC ANALYSES~~ Semi Volatiles.			

CALIB. TYPE:	INITIAL	CONT	INSTRUMENT:

CALIB. DATE	COMPOUND	RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
5-18-94	Fluoranthene		%D > 25	ALL	UJ
5-11-94	Benzo(k) Fluoranthene		%RSD > 20.5	ALL	UJ
5-11-94	Chrysene		%RSD > 20.5	ALL	UJ

PNO-DVF-014, R1

96134729.2870

9613479.2879

DATA QUALIFICATION SUMMARY

KW 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. MORRIS	DATE: 8-29-94	PAGE 1 OF 1
COMMENTS: GC/MS			

COMPOUND	CAS No.	QUALIFIER	SAMPLES AFFECTED	REASON
Fluoranthene	206-44-0	UJ	ALL	%D > 25
Benzo(k)Fluoranthene	207-08-9	↓	↓	%RSD > 20.5
Chrysene	218-01-9	↓	↓	%RSD > 20.5
All Compounds	VARIOUS	UJ	60BMXG, 60BMQG	Hold time exceeded by ~~that~~ less than 2X. 10-2-94 (WJC)

PNO-DVF-017, R1

RELATIVE RESPONSE FACTOR

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: INIT CAL

Date: 26-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	10162.00	20.00	14913.00	10.00	1.363
nitrobenzene	8671.00	20.00	44200.00	10.00	0.392
2-chlorophenol	40248.00	20.00	14480.00	40.00	1.390
anthracene	57587.00	20.00	27098.00	40.00	1.063

000186

96134792880

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Date: 26-Aug-94
Sample ID: init cal
Validator: B. MORRIS

Constituent: phenol

RRF1
1.363
1.667
1.747
1.912
2.073

MEAN	STDEV	RSD
1.752	0.2680	15.3

RELATIVE STANDARD DEVIATION

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Date: 26-Aug-94
Sample ID: init cal
Validator: B. MORRIS

Constituent: 2-chlorophenol

RRF2
1.284
1.428
1.39
1.412
1.435

MEAN	STDEV	RSD
1.390	0.0616	4.4

0001187

96134792.2881

PERCENT DIFFERENCE

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: cont cal

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	Initial Calibration Average RRF RRFiV	Continuing Calibration Average RRF RRFsV	%D
phenol	1.752	1.458	16.8%
2-chlorophenol	1.39	1.32	5.0%
isophorone	0.891	0.93	4.4%
2-nitrophenol	0.216	0.235	8.8%

000188

96134792882

SURROGATE RECOVERY

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: BOBMX6

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined QdV	quantity of surrogate added QaV	%RV
PHENOL-d5	59.38	75.00	79.2%
TRIBROMOPHENOL	64.32	75.00	85.8%
NITROBENZENE	41.23	50.00	82.5%
			#DIV/0!

000189

9613479.2883

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: GC/MS VOA
SDG: WOO55-ITC-060
Sample ID: BOBMQ6

Date: 26-Aug-94
Validator: B. MORRIS

Constituent	MS Result MSV	MSD Result MSDV	Sample Result OSV	Spike Added SAV	MSV %R	MSDV %R	RPDV
phenol	57.13	61.80	0.00	75.00	76.2%	82.4%	7.9%
acenaphthene	36.28	38.09	0.00	50.00	72.6%	76.2%	4.9%
pentachlorophenol	74.69	76.08	0.00	75.00	99.6%	101.4%	1.8%
pyrene	37.38	37.06	0.00	50.00	74.8%	74.1%	0.8%

061000

9613479.2884

RESULTS CALCULATIONS FOR SVOA WATER SAMPLES

Analysis: GC/MS SVOA
SDG: WOO55-ITC-060
Sample ID: BOBMX6

Date: 26-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	
tribromophen	12762.00	23518.00	20.00	0.17	1000.00	1.00	1000.00	1.00	64.2
nitrobenzene	33854.00	32411.00	20.00	0.51	1000.00	1.00	1000.00	1.00	41.2

161000

9613479.2885

9613479.2886

0000744

SAMPLES ASSOCIATED: BOBMQ6, BOBMX6, BOBMS2, BOBMS6, BOBMT4, BOBMW4 and BOBMR4 10-4-94 (WJC)

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Instrument ID: FINN Calibration Date(s): 05/11/94 05/11/94

Calibration Times: 1525 1736

LAB FILE ID: RRF20 = IC05111 RRF50 = IC05112
RRF80 = IC05113 RRF120= IC05114 RRF160= IC05115

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Diethylphthalate	1.313	1.361	1.351	1.361	1.305	1.338	2.0
4-Chlorophenyl-phenylether *	0.674	0.689	0.656	0.695	0.681	0.679	2.2*
Fluorene *	1.187	1.229	1.198	1.192	1.164	1.194	2.0*
4-Nitroaniline	0.170	0.155	0.137	0.148	0.181	~~0.155~~ 0.154	~~12.1~~ 16.1
4,6-Dinitro-2-Methylphenol	0.095	0.137	0.136	0.146	0.156	~~0.144~~ 0.124	~~6.5~~ 17.3
N-Nitrosodiphenylamine (1)	0.512	0.528	0.462	0.463	0.499	0.493	6.0
4-Bromophenyl-phenylether *	0.253	0.274	0.256	0.268	0.261	0.262	3.3*
Hexachlorobenzene *	0.291	0.306	0.277	0.284	0.288	0.289	3.7*
Pentachlorophenol *	0.114	0.159	0.163	0.177	0.181	~~0.170~~ 0.159	~~6.3~~* 16.8
Phenanthrene *	1.133	1.138	1.031	1.029	1.090	1.084	4.9*
Anthracene *	1.143	1.143	1.063	1.006	1.019	1.075	6.1*
Carbazole	0.896	0.911	0.721	0.706	0.792	0.805	11.9
Di-n-Butylphthalate	1.534	1.637	1.551	1.489	1.527	1.548	3.5
Fluoranthene *	1.234	1.308	1.191	1.172	1.223	1.226	4.3*
Pyrene *	1.365	1.338	1.123	1.137	1.060	1.205	11.4*
Butylbenzylphthalate	0.702	0.827	0.748	0.745	0.704	0.745	6.8
3,3'-Dichlorobenzidine	0.477	0.518	0.436	0.410	0.382	0.445	12.1
Benzo(a)Anthracene *	1.247	1.182	1.019	1.032	0.959	1.088	11.1*
Chrysene *	1.343	1.177	0.981	0.851	0.781	1.027	22.6*
bis(2-Ethylhexyl)Phthalate	1.094	1.217	1.077	1.062	1.012	1.092	7.0
Di-n-Octyl Phthalate	1.473	1.443	1.367	1.601	1.092	1.395	13.6
Benzo(b)Fluoranthene *	1.183	1.012	0.967	1.165	0.879	1.041	12.5*
Benzo(k)Fluoranthene *	1.349	1.272	1.032	1.080	0.710	1.089	22.9*
Benzo(a)Pyrene *	1.034	1.013	0.916	0.986	0.721	0.934	13.6*
Indeno(1,2,3-cd)Pyrene *	1.058	1.109	1.023	1.018	0.903	1.022	7.4*
Dibenz(a,h)Anthracene *	0.872	0.897	0.832	0.819	0.717	0.827	8.4*
Benzo(g,h,i)Perylene *	0.904	0.976	0.957	0.970	0.844	0.930	6.0*
Nitrobenzene-d5 *	0.446	0.506	0.494	0.538	0.554	0.508	8.3*
2-Fluorobiphenyl *	1.514	1.391	1.317	1.235	1.134	1.318	11.0*
Terphenyl-d14 *	1.055	0.974	0.801	0.767	0.682	0.856	18.0*
Phenol-d5 *	1.416	1.607	1.682	1.869	2.124	1.740	15.5*
2-Fluorophenol *	0.998	1.272	1.400	1.527	1.788	1.397	21.0*
2,4,6-Tribromophenol	0.130	0.142	0.128	0.128	0.142	0.134	5.5
2-Chlorophenol-d4 *	1.463	1.487	1.484	1.469	1.485	1.478	0.7*
1,2-Dichlorobenzene-d4 *	0.924	0.913	0.880	0.902	0.865	0.897	2.7*

(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 8-26-94

FORM VI SV-2 3/90

9613479.2887

0000807

SAMPLES ASSOCIATED: SAME AS 192.

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Instrument ID: FINN Calibration date: 05/18/94 Time: 1242

Lab File ID: CC0518 Init. Calib. Date(s): 05/11/94 05/11/94

Init. Calib. Times: 1525 1736

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Phenol	1.752	1.458	0.800	16.8	25.0
bis(2-Chloroethyl)Ether	1.379	1.229	0.700	10.9	25.0
2-Chlorophenol	1.390	1.320	0.800	5.0	25.0
1,3-Dichlorobenzene	1.379	1.391	0.600	-0.9	25.0
1,4-Dichlorobenzene	1.557	1.625	0.500	-4.4	25.0
1,2-Dichlorobenzene	1.291	1.352	0.400	-4.7	25.0
2-Methylphenol	0.929	0.897	0.700	3.4	25.0
2,2'-oxybis(1-Chloropropane)	1.896	1.755		7.4	
4-Methylphenol	0.946	0.894	0.600	5.5	25.0
N-Nitroso-Di-n-Propylamine	0.924	0.843	0.500	8.8	25.0
Hexachloroethane	0.689	0.685	0.300	0.6	25.0
Nitrobenzene	0.506	0.485	0.200	4.2	25.0
Isophorone	0.891	0.930	0.400	-4.4	25.0
2-Nitrophenol	0.216	0.235	0.100	-8.8	25.0
2,4-Dimethylphenol	0.411	0.411	0.200	0.0	25.0
bis(2-Chloroethoxy)Methane	0.469	0.450	0.300	4.1	25.0
2,4-Dichlorophenol	0.336	0.336	0.200	0.0	25.0
1,2,4-Trichlorobenzene	0.384	0.404	0.200	-5.2	25.0
Naphthalene	0.990	1.023	0.700	-3.3	25.0
4-Chloroaniline	0.378	0.333		11.9	
Hexachlorobutadiene	0.241	0.262		-8.7	
4-Chloro-3-Methylphenol	0.303	0.293	0.200	3.3	25.0
2-Methylnaphthalene	0.678	0.711	0.400	-4.9	25.0
Hexachlorocyclopentadiene	0.457	0.494		-8.1	
2,4,6-Trichlorophenol	0.411	0.442	0.200	-7.5	25.0
2,4,5-Trichlorophenol	0.444	0.498	0.200	-12.2	25.0
2-Chloronaphthalene	~~1.151~~ 0.478	1.236	0.800	~~-7.4~~ 1.9	25.0
2-Nitroaniline	~~0.498~~	0.469		~~5.8~~	
Dimethylphthalate	1.324	1.434		-8.3	
Acenaphthylene	1.716	1.777	1.300	-3.6	25.0
2,6-Dinitrotoluene	~~0.308~~ 0.278	0.324	0.200	~~-5.2~~ 12.1	25.0
3-Nitroaniline	~~0.255~~	0.218		~~14.5~~	
Acenaphthene	0.991	1.064	0.800	~~-7.4~~ -14.1	25.0
2,4-Dinitrophenol	~~0.162~~ 0.192	0.162		~~0.0~~ -5.8	
4-Nitrophenol	~~0.199~~ 0.189	0.200		~~-0.5~~	
Dibenzofuran	1.463	1.537	0.800	-5.1	25.0
2,4-Dinitrotoluene	0.354	0.375	0.200	-5.9	25.0

All other compounds must meet a minimum RRF of 0.010.

FORM VII SV-1

BM 8-26-94 3/90

000193

9613479.2888

Samples Associated: Same as 1/2

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Instrument ID: FINN Calibration Date(s): 05/11/94 05/11/94

Calibration Times: 1525 1736

LAB FILE ID: RRF20 = IC05111 RRF50 = IC05112
RRF80 = IC05113 RRF120= IC05114 RRF160= IC05115

COMPOUND	RRF20	RRF50	RRF80	RRF120	RRF160	$\overline{RRF}$	% RSD
Phenol *	1.363	1.667	1.747	1.912	2.073	1.752	15.3*
bis(2-Chloroethyl)Ether *	1.146	1.340	1.357	1.438	1.615	1.379	12.3*
2-Chlorophenol *	1.284	1.428	1.390	1.412	1.435	1.390	4.4*
1,3-Dichlorobenzene *	1.257	1.512	1.332	1.407	1.388	1.379	6.8*
1,4-Dichlorobenzene *	1.697	1.560	1.548	1.520	1.461	1.557	5.6*
1,2-Dichlorobenzene *	1.267	1.356	1.304	1.260	1.270	1.291	3.1*
2-Methylphenol *	0.831	0.936	0.870	0.981	1.025	0.929	8.5*
2,2'-oxybis(1-Chloropropane	1.743	1.874	1.760	1.980	2.122	1.896	8.4
4-Methylphenol *	0.756	0.934	0.924	1.013	1.105	0.946	13.6*
N-Nitroso-Di-n-Propylamine *	0.772	0.877	0.840	0.996	1.133	0.924	15.4*
Hexachloroethane *	0.665	0.701	0.671	0.705	0.705	0.689	2.9*
Nitrobenzene *	0.392	0.502	0.510	0.527	0.597	0.506	14.6*
Isophorone *	0.767	0.900	0.877	0.964	0.946	0.891	8.7*
2-Nitrophenol *	0.186	0.225	0.219	0.227	0.222	0.216	7.8*
2,4-Dimethylphenol *	0.347	0.427	0.412	0.418	0.452	0.411	9.5*
bis(2-Chloroethoxy)Methane *	0.381	0.464	0.463	0.498	0.540	0.469	12.5*
2,4-Dichlorophenol *	0.312	0.349	0.333	0.352	0.335	0.336	4.7*
1,2,4-Trichlorobenzene *	0.385	0.398	0.380	0.380	0.375	0.384	2.3*
Naphthalene *	1.040	1.036	0.990	0.966	0.917	0.990	5.2*
4-Chloroaniline	0.291	0.405	0.376	0.400	0.418	0.378	13.5
Hexachlorobutadiene	0.245	0.249	0.229	0.237	0.243	0.241	3.2
4-Chloro-3-Methylphenol *	0.244	0.302	0.300	0.340	0.330	0.303	12.3*
2-Methylnaphthalene *	0.621	0.717	0.676	0.692	0.685	0.678	5.2*
Hexachlorocyclopentadiene	0.365	0.444	0.471	0.483	0.523	0.457	12.9
2,4,6-Trichlorophenol *	0.363	0.418	0.429	0.432	0.413	0.411	6.8*
2,4,5-Trichlorophenol *	0.443	0.452	0.445	0.455	0.426	0.444	~~2.9~~* 2.5
2-Chloronaphthalene *	1.158	1.206	1.185	1.147	1.057	1.151	5.0*
2-Nitroaniline	0.397	0.455	0.487	0.522	0.528	~~0.468~~ 0.478	~~6.8~~ 11.3
Dimethylphthalate	1.288	1.382	1.318	1.332	1.302	1.324	2.7
Acenaphthylene *	1.773	1.819	1.722	1.648	1.618	1.716	4.9*
2,6-Dinitrotoluene *	0.276	0.315	0.309	0.327	0.315	0.308	6.3*
3-Nitroaniline	0.221	0.259	0.235	0.250	0.276	~~0.255~~ 0.248	~~6.7~~ 8.6
Acenaphthene *	1.014	1.042	1.004	0.967	0.927	0.991	4.5*
2,4-Dinitrophenol	0.064	0.134	0.157	0.177	0.180	~~0.162~~ 0.142	13.1 33.4
4-Nitrophenol	0.149	0.200	0.199	0.194	0.203	~~0.199~~ 0.189	~~1.9~~ 12.0
Dibenzofuran *	1.533	1.535	1.439	1.432	1.377	1.463	4.7*
2,4-Dinitrotoluene *	0.327	0.361	0.361	0.365	0.358	0.354	4.4*

* Compounds with required minimum RRF and maximum %RSD values.
All other compounds must meet a minimum RRF of 0.010.

FORM VI SV-1 3/90

BM 8-21-96

Samples Associated: Same As 1/2.

9613479.2889

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: ITAS-KNOXVILLE Contract: HANFORD

Lab Code: ITSTU Case No.: 534 SAS No.: _____ SDG No.: W0055

Instrument ID: FINN Calibration date: 05/18/94 Time: 1242

Lab File ID: CC0518 Init. Calib. Date(s): 05/11/94 05/11/94

Init. Calib. Times: 1525 1736

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
Diethylphthalate	1.338	1.407		-5.2	
4-Chlorophenyl-phenylether	0.679	0.702	0.400	-3.4	25.0
Fluorene	1.184	1.242	0.900	-4.0	25.0
4-Nitroaniline	~~0.155~~ 0.158	0.142		~~8.4~~ 10.1	
4,6-Dinitro-2-Methylphenol	~~0.144~~ 0.134	0.172		~~-19.4~~ -28.4	
N-Nitrosodiphenylamine (1)	0.493	0.558		-13.2	
4-Bromophenyl-phenylether	0.262	0.301	0.100	-14.9	25.0
Hexachlorobenzene	0.289	0.354	0.100	-22.5	25.0
Pentachlorophenol	~~0.170~~ 0.159	0.174	0.050	~~-2.4~~ -9.4	25.0
Phenanthrene	1.084	1.159	0.700	-6.9	25.0
Anthracene	1.075	1.199	0.700	-11.5	25.0
Carbazole	0.805	0.888		-10.3	
Di-n-Butylphthalate	1.548	1.791		-15.7	
Fluoranthene	1.226	1.642	0.600	-33.9	25.0
Pyrene	1.205	1.165	0.600	3.3	25.0
Butylbenzylphthalate	0.745	0.727		2.4	
3,3'-Dichlorobenzidine	0.445	0.498		-11.9	
Benzo(a)Anthracene	1.088	1.182	0.800	-8.6	25.0
Chrysene	1.027	1.123	0.700	-9.3	25.0
bis(2-Ethylhexyl)Phthalate	1.092	1.059		3.0	
Di-n-Octyl Phthalate	1.395	1.353		3.0	
Benzo(b)Fluoranthene	1.041	1.174	0.700	-12.8	25.0
Benzo(k)Fluoranthene	1.089	1.259	0.700	-15.6	25.0
Benzo(a)Pyrene	0.934	1.044	0.700	-11.8	25.0
Indeno(1,2,3-cd)Pyrene	1.022	1.131	0.500	-10.7	25.0
Dibenz(a,h)Anthracene	0.827	0.936	0.400	-13.2	25.0
Benzo(g,h,i)Perylene	0.930	0.982	0.500	-5.6	25.0
Nitrobenzene-d5	0.508	0.507	0.200	0.2	25.0
2-Fluorobiphenyl	1.318	1.472	0.700	-11.7	25.0
Terphenyl-d14	0.856	0.868	0.500	-1.4	25.0
Phenol-d5	1.740	1.426	0.800	18.0	25.0
2-Fluorophenol	1.397	1.101	0.600	21.2	25.0
2,4,6-Tribromophenol	0.134	0.169		-26.1	
2-Chlorophenol-d4	1.478	1.391	0.800	5.9	25.0
1,2-Dichlorobenzene-d4	0.897	0.910	0.400	-1.4	25.0

(1) Cannot be separated from Diphenylamine
All other compounds must meet a minimum RRF of 0.010.

BM 8-26-94

FORM VII SV-2 3/90

9613479.2890

LATA PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: W0055-ITC-060	
VALIDATOR: B. MORRIS	LATA NO.: VW402.67	DATE: 8-29-94
SAF NO.: 94-087 MW 9-16-94	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 BOBMQ6, BOBMX6, BOBMS2, BOBMS6, BOBMT4
BOBMW4, BOBMR4

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

~~BOBMX6, MQ6~~ BMB 8-29-94 BMB 8-29-94

Comments: DS 5-6-94 DS = Date Sampled MW 9-16-94

DE 5-16-94 DE = Date Extracted MW 9-16-94

DA 5-24-94 DA = Date Analyzed MW 9-16-94

DR 5-11-94 DR = Date Received MW 9-16-94 MW 9-29-94

Holding times were exceeded b/c the lab did not check the samples in until receiving a new contract.

The holding time was exceeded for BOBMX6, MQ6. The results are qual. as estimated (UJ) MW 5-29-94

MW 9-16-94 Per Personnel

9/29/94

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

BM 8-29-94

★

DBC Retention Time Percent Difference

$$\%D = \frac{(RT_i - RT_s)}{RT_i} \times 100$$

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

★

Percent Breakdown

$$\%breakdown = \frac{TDA}{TPA} \times 100$$

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: 3-90 / CLP

9/19/94 mg

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

$$= \sqrt{\sum_{i=1}^{n} \frac{(RF_i - RF)^2}{n-1}}$$

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: 3/90 CLP

8/19/94 mrf

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: Heptachlor, heptachlor epoxide, Dieldrin, 4,4'-DDD, Endrin Ketone and Endrin Aldehyde have %RSD values >10%.

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:

GPC was not required on these samples per 9-29-94

9/19/94

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? . . . . . 9-28-94 . . 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: MSD ~~Recovery~~ %RPD BMB-2-94 of Endrin was 55 NO Qualification necessary.

LCS Not required for 3/90 CLP

9/19/94

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Are all duplicate RPD values acceptable? . . . . . Yes (No) N/A

★

Relative Percent Difference

$$RPD = \frac{|MS - MSD|}{\left(\frac{MS + MSD}{2}\right)} \times 100$$

where:
MS = MS recovery
MSD = MSD recovery

Comments: SEE MSD

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: BOBMX66 was a project identified duplicate.
BM
8-25-94

8. SYSTEM PERFORMANCE

Is chromatographic performance acceptable? . . . . . (Yes) No N/A

Are all positive results resolved acceptably? . . . . . (Yes) No N/A

Comments:

9/19/94

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:

9/19/94

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:

9/19/94 MG

LATA PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

None MW 9-16-94

MINOR DEFICIENCIES: The initial Calibration Criteria ~~fo~~ was exceeded for Heptachlor, Heptachlor epoxide, Dieldrin, 4,4'-DDD, Endrin Ketone and Endrin aldehyde. The Sample results are qualified as estimated. (UJ) BMB 9-25-94

~~The holding times until extraction were exceeded by all samples. The sample results are qualified as estimated. (UJ)~~ MW 9-25-94

The holding time was exceed for BOBMQb, MXL
The results are qualified estimated (UJ) MW 9-25-94

COMMENTS: BOBMX6 was a project identified duplicate.

Hold times were exceeded while the laboratory waited for an updated contract. See laboratory nonconformance memo.

9/19/94 MW

HOLDING TIME SUMMARY

SDG: W0055-ITL-060	VALIDATOR: MW266	DATE: 9-29-94	PAGE __/OF/__

COMMENTS: PESTICIDES/PCBS

MW 4-28-94 ~~FIELD~~ SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	EXTRACTION DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIE
BOBMQ6	Pesticides/PCBs	5-6-94	5-16-94	5-24-94	10	8	UJ R/J
BOBMX6		5-6-94	5-16-94	5-24-94	10	8	UJ/J
BOBMS2		5-~~6~~-94 DMW 9-29-94	5-16-94	5-24-94	6	8	None
BOBMS6		5-10-94	5-16-94	5-24-94	6	8	
BOBMT4		5-9-94	5-16-94	5-24-94	7	8	
BOBMW4		5-9-94	5-16-94	5-24-94	7	8	
BOBMR4		5-11-94	5-16-94	5-24-94	7	8	

PNO-DVF-019, R1

000204

96134792899

CALIBRATION DATA SUMMARY

MW 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. Morris	DATE: 8-29-94	PAGE 1 OF 1
COMMENTS: PESTICIDES/PCBS			

CALIB. TYPE:	INITIAL	CONT	INSTRUMENT:

CALIB. DATE	COMPOUND	RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
5-22-94	Heptachlor		%RSD > 10%	ALL	~~UJ~~ remove Gamma-Chlordane MW 9-29-94
	Heptachlor epoxide		↓	↓	↓
	Dieldrin				
	4,4'-DDD				
	Endrin Ketone				
	Endrin Aldehyde				

PNO-DVF-019, R1

0002000

00627 6743196

9613479.2901

DATA QUALIFICATION SUMMARY

mw 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. MORRIS	DATE: 8-29-94	PAGE 1 OF 1

COMMENTS: PESTICIDES/PCBS

COMPOUND	CAS No.	QUALIFIER	SAMPLES AFFECTED	REASON
ALL		UJ	~~All~~	Exceeded Holding time by < 2X
			Samples BOBMIX6	
			and MQ6 are	
			qualified only.	
			10-4-93	
			(NJC)	

6E
PESTICIDE INITIAL CALIBRATION OF SINGLE COMPONENT ANALYTES

Lab Name: ITAS-KNOXVILLE Contract: _____

Lab Code: _____ Case No.: W0055 SAS No.: _____ SDG No.: W0055

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: 05/22/94 05/22/94

COMPOUND	CALIBRATION FACTORS LOW	MID	HIGH	MEAN	%RSD
alpha-BHC	10400000	9950000	10500000	10300000	2.8
beta-BHC	6450000	6060000	5520000	6010000	7.8
delta-BHC	8300000	7920000	7940000	8050000	2.7
gamma-BHC (Lindane)	8960000	8140000	7660000	8250000	8.0
Heptachlor	6010000	5370000	4550000	5310000	13.8
Aldrin	9700000	8920000	9200000	9270000	4.3
Heptachlor epoxide	7890000	6910000	6020000	6940000	13.5
Endosulfan I	8270000	7620000	7170000	7690000	7.2
Dieldrin	6600000	5720000	4940000	5750000	14.4
4,4'-DDE	8370000	7940000	8230000	8180000	2.7
Endrin	5740000	5000000	4290000	5010000	14.5
Endosulfan II	6430000	5860000	5660000	5980000	6.7
4,4'-DDD	6060000	5370000	4500000	5310000	14.7
Endosulfan sulfate	5360000	4930000	4440000	4910000	9.4
4,4'-DDT	3700000	3480000	3260000	3480000	6.3
Methoxychlor	1210000	1090000	936000	1080000	12.7
Endrin ketone	4490000	4130000	3600000	4070000	11.0
Endrin aldehyde	3540000	3260000	2730000	3180000	13.0
alpha Chlordane	10500000	9470000	9400000	9790000	6.3
gamma Chlordane	10200000	9200000	9080000	9490000	6.5
Tetrachloro-m-xylene	13900000	13700000	14800000	14100000	4.1
Decachlorobiphenyl	4620000	4190000	3740000	4180000	10.5

* 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 8-29-94

PERCENT BREAKDOWN

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
BOBMX6

Date: 29-Aug-94
Validator: B. MORRIS

Constituent	Total Degradation Peak Area of DDE+DDD or endrin aldehyde +endrin ketone TDA	Total Peak Area of DDE, DDE+DDT or endrin aldehyde, endrin ketone+endrin TPA	% Breakdown
DDT	76118.00	418675.00	18.2%
ENDRIN	4287.00	284520.00	1.5%

9613479.2903

000208

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
Date: 29-Aug-94
Standard ID: INIT CAL
Validator: B. MORRIS
BOBMX6

Constituent: HEPTACHLOR

RF1	MEAN	STDEV	RSD
6010000	5310000.000	731846.9785	13.8
5370000			
4550000			

RELATIVE STANDARD DEVIATION

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
Date: 29-Aug-94
Standard ID: INIT CAL
Validator: B. MORRIS

Constituent: 4,4'-DDT

RF2	MEAN	STDEV	RSD
3700000	3480000.000	220000.0000	6.3
3480000			
3260000			

96134796.2004

002009

SURROGATE RECOVERY

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
Sample ID: BOBMX6
BOBMX6

Date: 29-Aug-94
Validator: B. MORRIS

Constituent	quantity of surrogate determined Qd	quantity of surrogate added Qa	%R
TCX	0.02	0.02	87.5%
DCB	0.02	0.02	120.5%

96134792905

000210

PERCENT RECOVERY AND RELATIVE PERCENT DIFFERENCE (MS/MSD)

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
Sample ID: BOBMQ6
BOBMX6

Date: 29-Aug-94
Validator: B. MORRIS

Constituent	MS Result MS	MSD Result MSD	Sample Result OS	Spike Added SA	MS %R	MSD %R	RPD
ALDRIN	0.53	0.50	0.00	0.50	105.6%	99.2%	6.3%
ENDRIN	1.09	0.62	0.00	1.00	109.0%	62.0%	55.0%
DDT	1.16	1.19		1.00	116.0%	119.0%	2.6%

9613479.2906

JM 9/20/94
~~000210~~
000211

EXTERNAL STANDARD CALIBRATION, AQUEOUS SAMPLES

Analysis: Pesticides/PCBs
SDG: WOO55-ITC-060
Sample ID: BOBMX6

Date: 34575
Validator: B. MORRIS

Constituent	Response for sample (area counts or peak height)	Amount of standard (ng)	Response for external standard (area counts or peak height)	Volume of extract injected (µL)	Dilution Factor	Volume of Total Extract (µL)	Volume of Sample Extracted (mL)	Conc (µg/L)
	AxEW	AEW	AsEW	ViEW	DEW	VtEW	VsEW	
TCX	239978.00	0.02	274000.00	1.00	1.00	10000.00	1000.00	0.175
DCB	100909.00	0.02	83800.00	1.00	1.00	10000.00	1000.00	0.241

9613479.2908

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 100-FR-3	SDG: W0055-ITC-060	
VALIDATOR: B. MORRIS	LATA NO.: VW402.67	DATE: 8-25-94
SAF NO.: 94-087 MW 9-16-94	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 MW 9-28-94

☒ CLP/ICP	☒ CLP/GFAA	☒ CLP/Hg	☒ CLP/CN	☐	☐
RM 8-25-94 ~~☒ SW-846/ICP~~	☐ SW-846/GFAA	☐ SW-846/Hg	☐ SW-846/CN	☐	☐

SAMPLES/MATRIX BOBMX6, BOBMQ6, BOBMS6, BOBMT4, BOBMX7, BOBMQ7, BOBMS7, ~~BOBMT4~~ BM, BOBMT5, BOBMW4, BOBMW5, BOBMS2, BOBMS3, BOBMR4, BOBMR5

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: DS 5-6/5-11 1994 Date Sampled = DS MW 9-16-94

9/19/94 MW

MW 9-16-94 Peer Review

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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.

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

BM 8-25-94

★ Recalculate at least one ICV and CCV recovery for each method.

★

ICV/CCV Recovery

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: CCV for Fe(110.4%) and Tl(89.6%) were outside limits. NO ACTION TAKEN.

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: Fe was found in the prep blank and in all samples except BOBMQ6 the amount of Fe was <5xCRDL. DATA qualified as undetected (u).
Blank MWJ 9-16-94

Fe was found in the prep blank. All samples were qualified as non-detect except BOBMQ6, MW5 (> 5x blank) and BOBMW4 which was already lab qualified as non-detect MWJ 9-16-94 9/19/94 MWJ

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

★

Spike Recovery

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where:
SSR = spiked sample result
SR = sample result
SA = spike added

Comments:

6. PRECISION *(see PRECISION DATA SUMMARY form)*

Were laboratory duplicates analyzed? . . . . . Yes No N/A

Are all duplicate RPD values acceptable? . . . . . BM Yes No N/A 8-25-94

★

Relative Percent Difference

$$RPD = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

where:
OS = sample concentration (original sample/MS)
D = duplicate concentration (duplicate sample/MSD)

Comments: The RPD for BOBMQ6 was (Fe) ~~60.8%~~. The sample result was >5x CRDL for BOBM Iron is ~~qualified as estimated~~. 9-28-94

RPD > 20% detects are estimated (J) BOBMQ6 BOBMW5
PS 12, 14 9L, 6 (mercury), 29

9/9/94

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

★

Percent Difference

$$\%D = \frac{|I - S|}{I} \times 100$$

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: BOBMX6, ~~BOBMX7~~ and BOBMX8 were identified as duplicates. BM 9-9-94

9/19/94 mez

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? . . . . . Yes No N/A

Was MSA performed as required? . . . . . Yes No N/A

Are all MSA results acceptable? . . . . . Yes No N/A

Comments: The spike recoveries for Se were outside limits in BOBMR5, BOBMS6, BOBMS3, BOBMS7, BOBMT5 and BOBMQ6.

The spike recovery of Pb ~~Pb~~ was outside limits in BOBMQ6.

The Spike recovery of Pb was outside Limits in BOBMQ7.

The results are qualified as estimated (J/UJ).

The spike recoveries reported to in this section are analytical spikes (limits 85-115%)

9/19/94 MMP

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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: The Chain of Custody has ICP METALS as a requested analysis for BOBMS2, however, there is not any raw data for BOBMS2.

Condition Upon Receipt Variance Report included in this package. BOBMS2 - bottles for S= & Metals analyses were broken in transit thru 9-16-94

9/19/94 MP

LATA INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES:

None MW MW 9-16-94

MINOR DEFICIENCIES: The preparation blank contained Iron. The Sample results, except BOBMQ6 and MWS BM 8-25-94, are qualified as undetected (U). MW 9-25-94 and BOBMC

The duplicate RPD value for Iron was exceeded in BOBMQ6. The Sample results are qualified as estimated (J).

The spike recoveries of Se were outside QC limits in BOBMR5, BOBMS6, BOBMS3, BOBMS7, BOBMT5 and BOBMQ6. The results are qualified as estimated (J/UJ) BJ

The spike recoveries BM of Tl was outside QC limits in BOBMQ6. The results are qualified as estimated (J/UJ).

THE SPIKE RECOVERY OF Pb WAS OUTSIDE QC LIMITS IN BOBMQ6 BM 7. THE SAMPLE RESULTS ARE QUALIFIED AS ESTIMATED ~~(J/UJ)~~. BJ BM 9-12-94

COMMENTS: ~~THE CHAIN OF CUSTODY INDICATES THAT BOBMS2 WAS TO BE ANALYSED FOR ICP METALS, HOWEVER, NO DATA APPEARS IN THE PACKAGE.~~ BM 8-26-94

THE METALS ANALYSIS of BOBMS2 COULD NOT BE CARRIED OUT SINCE THE SAMPLE WAS BROKEN IN TRANSIT.

BOBMX6 and BOBMX8 are ~~Project identified~~ field Duplicates. MW 9-25-94

9/19/94 MW

PRECISION DATA SUMMARY

mw 9-16-94

SDG: W0055 - ITC - 060	VALIDATOR: B. MORRIS	DATE: 8-26-94	PAGE 1 OF 1
COMMENTS: INORGANIC ANALYSES			

COMPOUND	SAMPLE ID:	SAMPLE ID:	RPD	SAMPLES AFFECTED	QUALIFIER
~~BOBMQ6 DUPLICATE~~ BMJ 8-26-94					
IRON	BOBMQ6, BOBMW5 mw 9-29-94	BOBMQ6 DUP	60.8	BOBMQ6	J

000219

9613479.2915

PNO-DVF-014, R1

ACCURACY DATA SUMMARY

BM 9-16-94

SDG: W0055-1I6-060 (BM)	VALIDATOR: B. MORRIS	DATE: 8-26-94	PAGE 1 OF 1

COMMENTS: INORGANIC ANALYSES

FIELD SAMPLE ID	COMPOUND	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER
~~BOBMQ6 Dup~~ BM 8-26-94 BM ~~IRON~~				
BOBMQ6	Thallium	76.7	BOBMQ6	UJ
BOBMQ7	LEAD	83.9	BOBMQ7	BJ
BOBMR5	SELENIUM	75.9	BOBMR5	~~BJ~~ UJ BM 9-16-94
BOBMS6	↓	84.0	BOBMS6	UJ
BOBMS3		80.6	BOBMS3	UJ
BOBMS7		79.7	BOBMS7	UJ
BOBMT5		75.8	BOBMT5	BJ
BOBMQ6		67.9	BOBMQ6	BJ

000220

9613479.2916

PNO-DVF-014, R1

10-4-94 (MJC)

BLANK AND SAMPLE DATA SUMMARY

MW 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. Morris	DATE: 8-26-94	PAGE 1 OF 1

COMMENTS: INORGANIC ANALYSES

FIELD SAMPLE ID	COMPOUND	RESULT	Q	RT	UNITS	5X RESULT	10X RESULT	SAMPLES AFFECTED	QUALIFIER
~~ALL EXCEPT BOBMQ6~~	~~IRON~~ MW 9-16-94							No Qual for Ca MW 9-16-94	
PREP BLANK	~~IRON~~ Calcium	43.39	B		µg/L	216.95	433.9	~~ALL EXCEPT BOBMQ6 AND BOBMW5~~	~~U~~
	Iron	16.2	B		µg/L	81.0			
							Fe	All except	U
								BOBMQ6	
								BOBMW5	
								BOBMW4 (already U)	

Correction by MW 9-16-94

PNO-DVF-014, R1

0002221

96134729.2917

9613479.2918

DATA QUALIFICATION SUMMARY

MW 9-16-94

SDG:	VALIDATOR:	DATE:	PAGE 1 OF 1
W0055-ITC-060	B. MORRIS	8-26-94	

COMMENTS: ~~GENERAL CC~~ MW 9-16-94 Inorganic

COMPOUND	CAS No.	QUALIFIER	SAMPLES AFFECTED	MEDIA	REASON
IRON	7439-89-6	U	ALL EXCEPT BOBMQ6 & BOBMW5	WATER	[I] > IDL < CRDL
IRON	7439-89-6	J	BOBMQ6		RPD > 20
THALLIUM	7440-28-0	UJ	BOBMQ6		AS %R < 85
LEAD	7439-92-1	BJ	BOBMQ7		
SELENIUM	7782-49-2	~~BJ~~ UJ	BOBMR5		
		UJ BM 8-26-94	BOBMS6		
		UJ	BOBMS3		
		UJ	BOBMS7		
		BJ	BOBMT5		
		BJ	BOBMQ6		

FURNACE DATA SHEET

File: 4TL0520A Element: TL Instrument: PEZ3

Start Run Date: 05/20/94 End Run Date: 05/21/94

Correlation Coefficient: _____ Slope: _____ Intercept: _____

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
1		19:10	1.00	0.00110	0.2900				
2	S0	19:14	1.00	-0.00109	-0.2800				
3	S10	19:20	1.00	0.03175	8.5700				
4	S20	19:25	1.00	0.06900	21.7300				
5	S40	19:30	1.00	0.11682	30.7200				
6	S60	19:36	1.00	0.16128	56.7500				
7	S80	19:41	1.00	0.19871	78.1600				
8	ICV	19:47	1.00	0.07672	24.3100	97.2			
9	ICB	19:52	1.00	0.00015	0.0400				
10	CRA	19:57	1.00	0.03238	9.5500	95.5			
11	CRAA	20:02	1.00	0.08692	28.0300	92.4			
12	CCV1	20:07	1.00	0.11058	37.1600	92.9			
13	CCB1	20:12	1.00	0.00093	0.2600				
14	ALCSW0517B	20:18	1.00	0.13392	46.9500	93.9			
15	ALCSW0517BA	20:23	1.00	0.17568	66.7900	99.2			
16	AA8912	20:28	1.00	0.00264	0.7400				
17	AA8912A	20:33	1.00	0.05900	18.1600	90.8			
18	AA8916	20:38	1.00	0.00118	0.3300				
19	AA8916A	20:43	1.00	0.06027	18.5900	93.0			
20	AA8850	20:48	1.00	0.00188	0.5300				
21	AA8850A	20:54	1.00	0.06241	19.3100	96.6			
22	AA8863	20:59	1.00	0.00195	0.5500				
23	AA8863A	21:04	1.00	0.06294	19.4900	97.4			
24	CCV2	21:09	1.00	0.11031	37.0500	92.6			
25	CCB2	21:14	1.00	0.00052	0.1500				
26	AA8876	21:19	1.00	0.00097	0.2700				
27	AA8876A	21:24	1.00	0.06167	19.0600	95.3			
28	AA8880	21:29	1.00	0.00164	0.4600				
29	AA8880A	21:34	1.00	0.06151	19.0100	95.0			
30	AA8881	21:39	1.00	0.00069	0.1900				
31	AA8881A	21:44	1.00	0.05955	18.3400	91.7			
32	AA8894	21:49	1.00	0.00035	0.1000				
33	AA8894A	21:55	1.00	0.05783	17.7600	88.8			
34	AA8895	22:00	1.00	0.00091	0.2600				
35	AA8895A	22:05	1.00	0.06058	18.6900	93.4			
36	CCV3	22:10	1.00	0.11014	36.9800	92.4			
37	CCB3	22:15	1.00	0.00183	0.5100				
38	AA8792	22:20	1.00	0.00015	0.0400				
39	AA8792A	22:26	1.00	0.05055	15.3400	76.7	*W		
40	AA8792D	22:31	1.00	0.00029	0.0800				

Analyst: frouzan QC Reviewer: _____

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FF 5/24/94

BM 8-25-94

FURNACE DATA SHEET

File: 2SE0520A Element: SE__ Instrument: PEZ1

Start Run Date: 05/20/94 End Run Date: 05/20/94

Correlation Coefficient: 0.999871 Slope: 0.003782 Intercept: -0.000133

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
41	AA8880	18:53	1.00	0.00332	0.8800				
42	AA8880A	18:58	1.00	0.03048	8.0600	80.6	*W		
43	AA8881	19:03	1.00	0.00621	1.6400				
44	AA8881A	19:08	1.00	0.03011	7.9700	79.7	*W		
45	AA8894	19:13	1.00	0.00955	2.5300		B		
46	AA8894A	19:18	1.00	0.03820	10.1100	75.8	*W		
47	CCV4	19:23	1.00	0.16268	43.0400	107.6			
48	CCB4	19:28	1.00	-0.00180	-0.4800				
49	AA8895	19:33	1.00	0.00370	0.9800				
50	AA8895A	19:38	1.00	0.03429	9.0700	90.7			
51	AA8792	19:43	1.00	0.00781	2.0700		B		
52	AA8792A	19:48	1.00	0.03350	8.8600	67.9	M*W		
53	AA8792D	19:53	1.00	0.00595	1.5700				
54	AA8792DA	19:59	1.00	0.03553	9.4000	94.0	M		
55	AA8792S	20:04	1.00	0.03966	10.4900				
56	ZZZZZZ	20:09	1.00	0.07143	18.9000				
57	AA8805	20:14	1.00	0.00312	0.8200				
58	AA8805A	20:19	1.00	0.03775	9.9900	99.9			
59	CCV5	20:24	1.00	0.16126	42.6600	106.6			
60	CCB5	20:29	1.00	0.00040	0.1100				
61	AA8810	20:34	1.00	0.00475	1.2600				
62	AA8810A	20:40	1.00	0.03843	10.1700	101.7			
63	AA8810D	20:45	1.00	0.00532	1.4100				
64	AA8810DA	20:50	1.00	0.03609	9.5500	95.5			
65	AA8810S	20:55	1.00	0.03966	10.4900				
66	ZZZZZZ	21:01	1.00	0.07315	19.3500				
67	AA8811	21:06	1.00	0.00628	1.6600				
68	AA8811A	21:11	1.00	0.03825	10.1200	101.2			
69	APBW0517A	21:17	1.00	0.00144	0.3800				
70	APBW0517A	21:22	1.00	0.03251	8.6000	86.0			
71	CCV6	21:27	1.00	0.16696	44.1700	110.4			
72	CCB6	21:32	1.00	0.00035	0.0900				
73									
74									
75									
76									
77									
78									
79									
80									

Analyst: frouzan QC Reviewer:

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5/26/94

FURNACE DATA SHEET

File: 2SE0520A Element: SE Instrument: PEZ1

Start Run Date: 05/20/94 End Run Date: 05/20/94

Correlation Coefficient: 0.999871 Slope: 0.003782 Intercept: -0.000133

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
1	S0	15:24	1.00	0.00108	0.0000				
2	S5	15:29	1.00	0.01949	5.0000				
3	S10	15:34	1.00	0.03861	10.0000				
4	S20	15:40	1.00	0.07379	20.0000				
5	S40	15:45	1.00	0.14831	40.0000				
6	S80	15:50	1.00	0.30409	80.0000				
7	ICV	15:56	1.00	0.10263	27.1500	108.6			
8	ICB	16:01	1.00	-0.00050	-0.1300				
9	CRA	16:06	1.00	0.02012	5.3200	106.4			
10	CRAA	16:11	1.00	0.05937	15.7100	103.9			
11	CCV1	16:16	1.00	0.15728	41.6100	104.0			
12	CCB1	16:21	1.00	0.00078	0.2100				
13	APBS0516A	16:27	1.00	-0.00085	-0.2300				
14	APBS0516A	16:32	1.00	0.03497	9.2500	92.5			
15	ALCSS0516A	16:37	1.00	0.03851	10.1900	101.9			
16	ALCSS0516A	16:42	1.00	0.07360	19.4700	92.8	BM 8-24-94		
17	AA8769	16:48	1.00	-0.00018	-0.0500				
18	AA8769A	16:53	1.00	0.03150	8.3300	83.3	*W		
19	AA8769D	16:58	1.00	-0.00184	-0.4900				
20	AA8769DA	17:03	1.00	0.03295	8.7200	87.2			
21	AA8769S	17:09	1.00	0.03136	8.3000				
22	ZZZZZZ	17:14	1.00	0.06220	16.4600				
23	CCV2	17:19	1.00	0.15725	41.6000	104.0			
24	CCB2	17:24	1.00	0.00020	0.0500				
25	APBW0517B	17:30	1.00	-0.00085	-0.2300				
26	APBW0517BA	17:35	1.00	0.03402	9.0000	90.0			
27	ALCSW0517B	17:40	1.00	0.03800	10.0500	100.5			
28	ALCSW0517BA	17:46	1.00	0.06692	17.7000	76.5	*		
29	AA8912	17:51	1.00	0.00247	0.6500				
30	AA8912A	17:56	1.00	0.03297	8.7200	87.2			
31	AA8916	18:01	1.00	0.00104	0.2800				
32	AA8916A	18:07	1.00	0.02870	7.5900	75.9	*W		
33	AA8850	18:12	1.00	0.00559	1.4800				
34	AA8850A	18:17	1.00	0.03176	8.4000	84.0	*W		
35	CCV3	18:22	1.00	0.14609	38.6500	96.6			
36	CCB3	18:27	1.00	-0.00128	-0.3400				
37	AA8863	18:32	1.00	0.00752	1.9900				
38	AA8863A	18:37	1.00	0.03925	10.3800	103.8			
39	AA8876	18:43	1.00	0.00438	1.1600				
40	AA8876A	18:48	1.00	0.03211	8.5000	85.0			

Analyst: frouzan QC Reviewer:

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FF 5/26/94

FURNACE DATA SHEET

File: 5PB0531_ Element: PB__ Instrument: PEZ4_____

Start Run Date: 05/31/94 End Run Date: 05/31/94

Correlation Coefficient: __0.998281 Slope: __0.003160 Intercept: __0.004000

Concentration Units: Ug/L

#	SAMPLE ID	Time	Dil Factor	Sample (Absorb)	Sample (Conc)	%R/R	Flag		
1	S0	09:45	1.00	0.00006	0.0000				
2	S3	09:51	1.00	0.00983	3.0000				
3	S10	09:56	1.00	0.03481	10.0000				
4	S20	10:02	1.00	0.07232	20.0000				
5	S40	10:07	1.00	0.13901	40.0000				
6	S80	10:13	1.00	0.25144	80.0000				
7	ICV	10:19	1.00	0.08384	25.8800	103.5			
8	ICB	10:24	1.00	0.00065	0.2000				
9	CRA	10:29	1.00	0.01123	3.4700	115.7			
10	CRAA	10:35	1.00	0.07477	23.0800	98.0			
11	CCV1	10:40	1.00	0.12835	39.6200	99.0			
12	CCB1	10:45	1.00	0.00104	0.3200				
13	AA8792	10:51	1.00	0.00314	0.9700				
14	AA8792A	10:56	1.00	0.06062	18.7100	93.6			
15	AA8792D	11:01	1.00	0.00469	1.4500				
16	AA8792DA	11:07	1.00	0.06075	18.7500	93.8			
17	AA8792S	11:12	1.00	0.06214	19.1800				
18	ZZZZZZ	11:18	1.00	0.11660	35.9900				
19	AA8810	11:23	1.00	0.00768	2.3700		B		
20	AA8810A	11:29	1.00	0.06202	19.1500	83.9	*W		
21	AA8810D	11:34	1.00	0.00283	0.8700				
22	AA8810DA	11:39	1.00	0.05728	17.6800	88.4			
23	CCV2	11:45	1.00	0.12433	38.3800	96.0			
24	CCB2	11:50	1.00	-0.00102	-0.3200				
25	AA8810S	11:55	1.00	0.07746	23.9100				
26	ZZZZZZ	12:01	1.00	0.12669	39.1100				
27	APBW0518A	12:06	1.00	0.00020	0.0600				
28	APBW0518A	12:12	1.00	0.05889	18.1800	90.9			
29	ALCSW0518A	12:17	1.00	0.05696	17.5800				
30	ALCSW0518A	12:23	1.00	0.11310	34.9100	86.6			
31	AA9054	12:28	1.00	-0.00023	-0.0700				
32	AA9054A	12:33	1.00	0.05332	16.4600	82.3	*W		
33	AA9066	12:39	1.00	-0.00174	-0.5400				
34	AA9066A	12:44	1.00	0.04971	15.3400	76.7	*W		
35	CCV3	12:49	1.00	0.12237	37.7700	94.4			
36	CCB3	12:55	1.00	-0.00216	-0.6700				
37	AA9070	13:00	1.00	-0.00088	-0.2700				
38	AA9070A	13:05	1.00	0.05255	16.2200	81.1	*W		
39	AA9071	13:10	1.00	0.00046	0.1400				
40	AA9071A	13:16	1.00	0.05445	16.8100	84.0	*W		

Analyst: frouzan_____ QC Reviewer: _____

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FF 6/1/94

Sample Associates with BOBMQ6D BOBMXG, MQG, MSG, MTY, MX7, MG7, MS7, MT5, MW4, MW5, MS2 MS3, MR4, MR5

0001322

U.S. EPA - CLP

10-4-94

6
DUPLICATES

EPA SAMPLE NO.

BOBMQ6D

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0534 SAS No.: _____ SDG No.: W0055_

Matrix (soil/water): WATER Level (low/med): _LOW__

% Solids for Sample: __0.0 % Solids for Duplicate: ___0.0

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

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum		40.0000	U	40.0000	U			P
Antimony		50.0000	U	50.0000	U			P
Arsenic		2.0000	U	2.0000	U			F
Barium		28.6200	B	27.4100	B	4.3		P
Beryllium		1.0000	U	1.0000	U			P
Cadmium		5.0000	U	5.0000	U			P
Calcium		50771.2100		48178.3800		5.2		P
Chromium		54.0300		52.0500		3.7		P
Cobalt		10.0000	U	10.0000	U			P
Copper		10.0000	U	10.0000	U			P
Iron		1421.5300		2664.4200		60.8	*	P
Lead		2.0000	U	2.0000	U			F
Magnesium	5000.0	7388.2100		6967.1900		5.9		P
Manganese		9.0500	B	13.9600	B	42.7		P
Mercury		0.2000	U	0.2000	U			CV
Nickel		20.0000	U	20.0000	U			P
Potassium		2102.6200	B	2237.7800	B	6.2		P
Selenium		2.0700	B	2.0000	U	200.0		F
Silver		5.0000	U	5.0000	U			P
Sodium	5000.0	6897.3300		6448.2000		6.7		P
Thallium		2.0000	U	2.0000	U			F
Vanadium		10.0000	U	10.0000	U			P
Zinc		10.2400	B	5.9500	B	53.0		P
Titanium		3.0000	U	3.0000	U			P
Cyanide								NR

FORM VI - IN

ILM02.1
8 6/10/94

U.S. EPA - CLP

3
BLANKS

Lab Name: ITAS_KNOXVILLE_____ Contract: HANFORD/WE

Lab Code: ITSTU_ Case No.: W0534 SAS No.: _____ SDG No.: W0055_

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	CN (PBW05116) APB W05176 (9168) PBW05176 (9163) CPB W05196 (9418) Preparation Blank	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	43.390	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	16.620	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	0.2	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	179.010	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	5.000	U	P
Titanium	3.0	U	3.0	U	3.0	U	3.0	U	3.000	U	P
Cyanide	10.0	U	10.0	U	10.0	U			10.000	U	AS

FORM III - IN

ILM02.1

8 6/10/94

LINEAR REGRESSION ANALYSIS

Analysis: Inorganic (metals/CN)
Constituent: ARSENIC
SDG: WOO55-ITC060

Calibration Date: 23-May-94

Date: 24-Aug-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	0.004
10.00	0.074
20.00	0.145
40.00	0.269
60.00	0.39
80.00	0.505

r 0.9993	r^2 0.9986
slope 159.7238	x intercept -1.9361
1/slope 0.0063	y intercept 0.0124

LINEAR REGRESSION ANALYSIS

Analysis: Inorganic (metals/CN)
Constituent: SELENIUM
SDG: WOO55-ITC060

Calibration Date: 20-May-94

Date: 24-Aug-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	0.001
5.00	0.019
10.00	0.039
20.00	0.074
40.00	0.148
80.00	0.304

r 0.9999	r^2 0.9997
slope 264.3564	x intercept 0.0423
1/slope 0.0038	y intercept -0.000135

96134792925

PERCENT RECOVERY (ICV/CCV)

Analysis: Inorganic (metals/CN)
SDG: WOO55-ITC060

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Observed Value	True Value	%R
	O	A	
ALUMINUM ICV	20811.0	20000.0	104.1%
NICKEL CCV	4212.9	4000.0	105.3%
LEAD ICV	25.9	25.0	103.6%
LEAD CCV	40.8	40.0	102.0%
MERCURY ICV	3.9	4.0	97.8%
MERCURY CCV	4.2	4.0	104.0%
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96134792926

MATRIX SPIKE RECOVERY (MS)

Analysis: Inorganic (metals/CN)
SDG: WOO55-ITC060
Sample ID: BOBMQ6

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
ALUMINUM	1949.27	0.00	2000.00	97.5%
IRON	2395.57	1421.53	1000.00	97.4%
MERCURY	1.12	0.00	1.00	111.9%
LEAD	19.18	0.00	20.00	95.9%
ARSENIC	39.36	0.00	40.00	98.4%
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96134792027

PERCENT RECOVERY (LCS)

Analysis: GFAA
SDG: WOO55-ITC060

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Observed value	True value	%R
	OLCS	ALCS	
ARSENIC	35.59	40.00	89.0%
LEAD	19.61	20.00	98.0%
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000232

9613479.2928

RELATIVE PERCENT DIFFERENCE

Analysis: Inorganic (metals/CN)
SDG: WOO55-ITC060
Sample ID: BOBMQ7

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Original (Sample) concentration OS	Duplicate concentration D	RPD
BARIUM	27.56	26.42	4.2%
CALCIUM	51860.12	49669.75	4.3%
			#DIV/0!
			#DIV/0!
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			#DIV/0!

000233

96134729 2929

PERCENT DIFFERENCE (ICP SERIAL DILUTION)

Analysis: ICP
SDG: WOO55-ITC060
Sample ID: BOBMQ6

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Analyte Concentration before Dilution	Analyte Concentration after Serial Dilution	%D
	I	S	
SODIUM	6897.33	6870.8	0.4%
CALCIUM	50771.21	51341.9	1.1%
			#DIV/0!
			#DIV/0!
			#DIV/0!
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			#DIV/0!

96134792930

INORGANICS RESULTS CALCULATION, WATER

Analysis: Inorganic (metals/CN)
SDG: WOO55-ITC060
Sample ID: BOBMX6

Date: 24-Aug-94
Validator: B. MORRIS

Constituent	Concentration from curve CONCW	Dilution Factor DFW	Concentration (µg/L)
ALUMINUM	41.30	1	41.3
CALCIUM	52552.00	1	52552.0
MAGNESIUM	7599.30	1	7599.3
SODIUM	7173.60	1	7173.6
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0

9613479.2931

9613479.2932

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VW 402.67 MW 9-16-94

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: W0055-ETC-060	
VALIDATOR: B. MORRIS	LATA NO: VW402.67	DATE: 8-31-94
SAF NO.: 94-087 MW 9-16-94	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 B0BMQ6, B0BMX6, B0BMS2, B0BMS6, B0BMT4, B0BMW4, B0BMR4

ALL WATER

< B0BMS2 was received broken for the sulfide analysis.

Variance Report included in the COC section of this report MW 9-16-94

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? MW 9-6-94 . . . . . Yes (No) N/A

Comments: Phosphate, pH and ~~TOX~~ hold times are unacceptable for all samples. ~~TOX~~ and Phosphate will be qualified as J and UR B/C the limit was exceeded by more than 2X. The pH results are qualified as estimated.

BM 9-6-94

9/9/94 MMS

Peer Review MW 9-16-94

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

3. INSTRUMENT CALIBRATION *(see CALIBRATION DATA SUMMARY form)*

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).

Correlation Coefficient (r)

$$r = \frac{N \sum x_i y_i - \sum x_i \sum y_i^{1/2}}{[N \sum x_i^2 - (\sum x_i)^2]^{1/2} \; [N \sum y_i^2 - (\sum y_i)^2]^{1/2}}$$

★ For methods requiring ICV/CCV or a calibration check standard, calculate recovery as follows:

Recovery

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: NO Balance check for TDS.
~~NO Calibration curve data for TOX, TOC and Anions.~~ BM 9-29-94
NO check of Titrant Normality.
Results for these analyses are qualified as estimated.

9/19/94 MB

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

★

Spike Recovery

$$\%R = \frac{SSR - SR}{SA} \times 100$$

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

★

Recovery

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: NO LCS or Blank spike performed for Alkalinity or COD.

Samples are analyzed as estimated MW 9-16-94

9/19/94 MW

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

★

Relative Percent Difference

$$RPD = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

where:
OS = sample concentration (original sample/MS)
D = duplicate concentration (duplicate sample/MSD)

Comments: The RPD for the TOX analysis was 26.6 %, however, all samples were undetected, or detected and less than 5x CRDL. except BOBMX6 which was qual. J MW 9-18-94 MW 9-29-94 MW 9-29-94

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: BOBMX6 was a project identified Duplicate

9/19/94 MMP

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: The CRDL for TOX is 5, while the LAB. reports 20.

5 is the CRDL of OAP, P No qualifier necessary [illegible] 9-18-96

9/19/96

LATA GENERAL CHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION SUMMARY

MAJOR DEFICIENCIES: BM 9-7-94 ~~exceeded acceptable~~ MM 9-28-94

The ~~TOX and phosphate analyses were performed after~~ BM 9-6-94 ~~holding times. All~~ Samples are qualified (UR) except ~~for the TOX analysis of Samp~~ BoBMX6 (J).

BM 9-7-94

The phosphate analysis exceeded the hold time by > 2X. All Sample results are qualified UR.

MINOR DEFICIENCIES: The pH analysis exceeded holding times for all Samples. The results are qualified as estimated. (J)

The titrant normality for alkalinity analysis was not checked. The Sample results are qualified as estimated. (J)

The COD analysis did not contain a LCS or blank spike as required by protocol. The Samples are qualified as estimated. (UJ).

An analytical balance check was not performed prior to analysis of TDS. The sample results are qualified as estimated. (J)

~~The Calibration Curve for TOC~~ TOX and TOC ~~was not~~ BM 9-6-94 ~~supported in the Raw data. The Sample results are qualified as estimated (UJ).~~

The alkalinity analysis did not contain a ~~LCS or~~ BM 9-7-94 blank spike as required by protocol. The Samples are qualified as estimated. (J) BM 9-9-94

BoBMX6 TOX result was qualified as estimated (J) because the RPD > 20%

COMMENTS: BoBMX6 was a project identified duplicate.

The CRDL for TOX analyses is 5, but the laboratory reports the CRDL as 20.

The Sulfide analysis was not done on BoBMS2 because it was received broken.

Duplicate copies of the Wet Chemistry/GC/HPLC data were requested because these sections were missing from VW402.67. The originals were found at a later date in the VW402.66 data package.

9/19/94

HOLDING TIME SUMMARY

SDG: W0055-ITC-060	VALIDATOR: B. MORRIS	DATE: 9-6-94	PAGE 1 OF 1
COMMENTS: ~~GENERAL GC~~ General Chemistry			

FIELD SAMPLE ID	ANALYSIS TYPE	DATE SAMPLED	DATE PREPARED	DATE ANALYZED	PREP. HOLDING TIME, DAYS	ANALYSIS HOLDING TIME, DAYS	QUALIFIER
~~BOBMX6~~ BOBMQ6	pH	5-6-94		5-17-94		11	J
	Phosphate			5-31-94		25	UR
~~BOBMS6~~ BOBMS2	pH	5-10-94		5-17-94		7	J
	Phosphate			6-2-94		23	UR
BOBMR4	pH	5-11-94		5-17-94		6	J
	Phosphate			6-6-94		26	UR
~~BOBMT4~~ BOBMW4	pH	5-9-94		5-17-94		8	J
	Phosphate			6-2-94		24	UR

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000242

PNO-DVF-017, R1

CALIBRATION DATA SUMMARY

BM 9-16-94

SDG: W0055-ITC-060	VALIDATOR: B. MORRIS	DATE: 9-6-94	PAGE 1 OF 1

COMMENTS: GENERAL CHEMISTRY ANALYSES

CALIB. TYPE: (INITIAL) CONTINUING INSTRUMENT:

CALIB. DATE	COMPOUND	RF/CF	RSD/%D/%R	SAMPLES AFFECTED	QUALIFIER
	TDS	NO BALANCE CHECK		ALL	J/UJ
	ALKALINITY	NO CHECK OF Titrant Normality		ALL	↓
	~~TOX~~	~~NO CALIBRATION CURVE~~		~~ALL~~	
	~~TOC~~	~~DATA IN THE RAW~~			
	~~ANIONS~~	~~DATA.~~	BM 9-7-94		

PNO-DVF-013, R1

000243

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9613479.2940

DATA QUALIFICATION SUMMARY

MW 9-16-94

SDG:	VALIDATOR:	DATE:	PAGE 1 OF 1
W0055-ITC-060	B. MORRIS	9-6-94	

COMMENTS: ~~GENERAL~~ GC (MW 9-16-94) General Chemistry

COMPOUND	CAS No.	QUALIFIER	SAMPLES AFFECTED	MEDIA	REASON
pH	207	J	ALL	WATER	HOLD TIME > 2X
Phosphate	14265-44-2	UR	ALL	WATER ALL	HOLD TIME &>2X
ALKALINITY		J	ALL	WATER	NO Check of Titrant Normality
COD		UJ/J	ALL	WATER	NO LCS or BLANK SAKE
TDS		J	ALL	WATER	NO Balance Check
~~TOX~~		~~UR~~	~~ALL Except B0BMX6~~	~~WATER~~	~~HOLD TIME > 2X~~
~~TOC X~~		~~J~~	~~B0BMX6~~	~~WATER~~	~~HOLD TIME > 2X~~
~~TOC~~		~~J~~	~~ALL~~	~~WATER~~	~~CALIBRATION CURVE NOT Supported in the RAW DATA~~
			MW 9-7-94		
TOX		MW 9-28-94 ~~B0~~ J	B0BMX6	Water	RPD > 20%

PNO-DVF-017, R1

LINEAR REGRESSION ANALYSIS

Analysis: General Chemistry
Constituent: NO2/NO3
SDG: W0055-ITC-060

Calibration Date: 25-May-94

Date: 6-Sep-94
Validator: B. MORRIS

Concentration	Absorbance
0.00	-0.0002
0.02	0.0010
0.04	0.0018
0.10	0.0047
0.40	0.0200
1.00	0.0506
2.00	0.1020

r	r^2
1.0000	1.0000
slope	x intercept
19.5807	0.0053
1/slope	y intercept
0.0511	-0.0003

LINEAR REGRESSION ANALYSIS

Analysis: General Chemistry
Constituent: NO2/NO3
SDG: W0055-ITC-060

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

96134792911

PERCENT RECOVERY (ICV/CCV)

Analysis: General Chemistry
SDG: W0055-ITC-060

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Observed Value	True Value	%R
	O	A	
CHLORIDE	3.17	3.00	105.5%
NO2/NO3	0.95	1.00	94.9%
NO2/NO3	1.01	1.00	100.5%

9613479.2942

MATRIX SPIKE RECOVERY (MS)

Analysis: General Chemistry
SDG: W0055-ITC-060
Sample ID: BOBMQ6

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
AMMONIA	0.89	0.00	1.00	89.0%
COD	44.00	0.00	50.00	88.0%
NO2/NO3	21.00	4.56	20.00	82.2%
SULFIDE	52.00	12.80	37.60	104.3%
TOC	26.50	0.00	25.00	106.0%
TOX	42.70	0.00	50.00	85.4%
SULFATE	130.00	0.00	150.00	86.7%

000247

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9613479.2944

PERCENT RECOVERY (LCS)

Analysis: General Chemistry
SDG: W0055-ITC-060

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Observed value	True value	%R
	OLCS	ALCS	
COD	500	500	100.0%
NO2/NO3	1.00	1.00	100.4%
NO2/NO3	0.96	1.00	96.1%
TOC	24.40	25.00	97.6%
TOX	55.50	50.00	111.0%
CHLORIDE	3.09	3.00	103.0%

9/19/94

RELATIVE PERCENT DIFFERENCE

Analysis: General Chemistry
SDG: W0055-ITC-060
Sample ID: BOBMQ6

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Original (Sample) concentration OS	Duplicate concentration D	RPD
AMMONIA	0.89	0.96	7.6%
ALKALINITY	110.00	110.00	0.0%
COD	44.00	44.00	0.0%
NO2/NO3	16.44	16.44	0.0%
pH	7.53	7.53	0.0%
SPEC. COND.	389.00	386.00	0.8%
SULFIDE	52.00	47.20	9.7%
TDS	28.00	24.00	15.4%
TOC	26.50	26.10	1.5%
TOX	42.70	55.80	26.6%
SULFATE	130.00	130.00	0.0%

9/19/94

9613479.2946

GENERAL CHEMISTRY RESULTS CALCULATION, WATER

Analysis: General Chemistry
SDG: W0055-ITC-060
Sample ID: BOBMQ6

Date: 6-Sep-94
Validator: B. MORRIS

Constituent	Concentration from curve CONCW	Dilution Factor DfW	Concentration (µg/L)
CHLORIDE	11	1	11
ALKALINITY	110	1	110
AMMONIA	0	1	0
COD	0	1	0
SPEC. COND.	389	1	389
NO2/NO3	4.56	1	4.6
			~~0.0~~ MW 9-18-94
			~~0.0~~ MW 9-18-94

9/19/94 MW

Table QAPjP-1. Analytical Methods, Analytical Parameters, Detection Limits, and Precision and Accuracy Requirements for the 100-FR-3 Groundwater Operable Unit. (sheet 8 of 9)

Analytical Category	Analytical Parameters	Analytical Method	CRDL or CRQL, soil[a]	Precision[b], Soil	Accuracy[b], Soil	CRDL or CRQL, Water[a]	Precision[b], Water	Accuracy[b], Water
Radionuclides	Hydrogen-3	Water 906.0[e]	N/A	N/A	N/A	400 pCi/L	±20	75-125
	Carbon-14	i	i	i	i	i	i	i
	Strontium-90	Sr-01[j]	1 pCi/g	±35	75-125	10 pCi/L	±20	75-125
	Technetium-99	Tc-01[j]	N/A	N/A	N/A	10 pCi/L	±20	75-125
	Alpha Spectrometry (uranium-235, uranium-238, plutonium-239, plutonium-240, and americium-241)	ASTM D 3084[k]	1 pCi/g	±35	75-125	3 pCi/L	±20	75-125
	Gross alpha	Water 900[e] Soil[h]	1pCi/g	±35	75-125	3pCi/L	±20	75-125
	Gross beta	Water 900[e] Soil[h]	4 pCi/g	±35	75-125	4 pCi/L	±20	75-125
	Gamma Spectrometry (report all identifiable and quantifiable isotopes)	Water 901.1[e] Soil[h]	0.5 pCi/g	±35	75-125	5 pCi/L	±20	75-125
Other groundwater parameters	Alkalinity	310.1[d]	N/A	N/A	N/A	10,000	±20	75-125
	Chemical Oxygen Demand	410.1[d]	N/A	N/A	N/A	1,000	±20	N/A
	Specific Conductance	[l]	N/A	N/A	N/A	25	±20	N/A
	pH	[l]	N/A	N/A	N/A	N/A	N/A	N/A
	Temperature	[l]	N/A	N/A	N/A	N/A	±1°C	N/A
	Dissolved Oxygen	360.1[d]	N/A	N/A	N/A	100	±20	N/A
	Total Dissolved Solids	160.1[d]	N/A	N/A	N/A	10,000	±20	N/A
	Total Organic Carbon	415.1[d]	N/A	N/A	N/A	1,000	±20	75-125
	Total Organic Halides	9020[f]	N/A	N/A	N/A	5	±20	75-125
	Turbidity	180.1[d]	N/A	N/A	N/A	0.05 NTU	±.05 NTU	N/A

9613479.2947

0003088

ITAS-KNOXVILLE
RAW DATA WORKSHEET (GENERAL INORGANIC)

000124

000252

Filed with Project Code: 534

Group Supervisor /Date:

Checked and Approved by/Date: a Kauke 6-14-94

Project Code	Parameter/Method	Sample No.	Sample Type	Scale RDG of (ml) Titrant	Initial Conc.	Dilution Factor	Conv'n. Factor	Prep Dilution Factor	Final Conc.*	Analyst/Date	% R, % RPD or Comments
	COD (HACH)	Calculation Blank	Blank	4.10					mg/l	5-19-94	
		.025N	STD	4.50						gem	
N 23566		50ppm	STD	2.45	51				51		51/50 x100 = 102 %
534		AA8791	H2O	4.10	<1			✓	<1		
	*	MS		3.10 ~~3.20~~	44				44		44/50 x100 = 88 %
	*	MSD		3.10 ~~3.20~~	44				44		44/50 x100 = 88 %
		AA8804		4.10	<1			✓	<1		
535		AA8875		4.0	4				4		
		AA8862		4.10	<1				<1		
		AA8836		4.0	4				4		
		AA8849		4.10	<1				<1		
		Calculation Blank	Blank	4.15							

Comments:

$$\frac{A-B \times 200}{C} = mg/l$$

A = Blank
B = Sample
C = .025N STD

*AA8791 MS and MSD re-run

Parameter	Calibration Curve No.	Batch QC with Project No.

ITAS-K-WD1582

96134796.2918

ITAS-KNOXVILLE
RAW DATA WORKSHEET (GENERAL INORGANIC)

Filed with Project Code: 537

Group Supervisor /Date:

Checked and Approved by/Date: [illegible] 6-17-94

000125

0003089

000253

Project Code	Parameter/Method	Sample No.	Sample Type	Scale RDG of (ml) Titrant	Initial Conc.	Dilution Factor	Conv'n. Factor	Prep Dilution Factor	Final Conc.*	Analyst/Date	% R, % RPD or Comments
	COD (HACH)	.025N	STD	3.95					mg/L	5-19-94	
	N2357	50ppm	STD	3.15	51				51	gem	51/50 x 100 = 101 %
536		AA8889	H2O	4.10	2				2		
		MS		3.10	53				53		(53-2)/50 x 100 = 101%
		MSD		3.10	53				53		51/50 x 100 = 101 %
538		AA8938		4.10	2				2		
		AA8926		4.10	2				2		
537		AA2911		4.10	2.5				2		
545		AA9065		4.15	<1				<1		
		AA9053		4.15	<1				<1		
						gem 5/24					

Comments:

Parameter	Calibration Curve No.	Batch QC with Project No.

ITAS-K-WA01502

96134792.29HG

ITAS-KNOXVILLE
RAW DATA WORKSHEET (GENERAL INORGANIC)

000116

Filed with Project Code: 534, 535

Group Supervisor /Date:

Checked and Approved by/Date: WKanter 6-14-94

Project Code	Parameter/Method	Sample No.	Sample Type	Scale RDG of (ml) Titrant	Initial ~~Conc.~~ pH	Dilution Factor	Conv'n. Factor	Prep Dilution Factor	Final Conc.*	Analyst/Date	% R, % RPD or Comments
	Alkalinity (310.1)	PL221	BLANK	<.1	6.28		X20		<2 mg/L	5-16-94	
534		AA8788	H2O	5.50	7.58			✓	110	gem	
		dup		5.50	7.63			✓	110		
		AA8801		5.50	7.65			✓	110		
535		AA8872		12.90	7.80				258		
		AA8859		9.60	7.89				192		
		AA8833		7.90	7.94				158		
		AA8846		8.80	7.93				176		
536		AA8886		9.40	7.73				188		
		dup		9.40	7.75				188		
538		AA8935		3.30	7.83				66		
		AA8923		3.90	7.53				78		

Comments:

[redacted]

Parameter	Calibration Curve No.	Batch QC with Project No.

ITAS-K-WW015R2

0003082

000254

96137479.2950

ITAS-KNOXVILLE
RAW DATA WORKSHEET (GENERAL INORGANIC)

Filed with Project Code: 537

Group Supervisor /Date:

Checked and Approved by/Date: LWKeuler 6-17-94

000117

0003083

000255

Project Code	Parameter/Method	Sample No.	Sample Type	Scale RDG of (ml) Titrant	Initial ~~Conc.~~ pH	Dilution Factor	Conv'n. Factor	Prep Dilution Factor	Final Conc.*	Analyst/Date	X R, X RPD or Comments
	Alkalinity (310.1)	P6222	BLANK	<.1	5.97		X20		<2 mg/l	5-16-94	
537		AA8908	H20	3.30	7.74			✓	66	JLM	
545		AA9062		10.20	7.89				204		
		AA9050		3.80	8.01				76		

JLM 5/16

Comments:

Parameter	Calibration Curve No.	Batch QC with Project No.

ITAS-K-WA015R2

9613479.2951

9613479.2952

LATA RADIOCHEMISTRY DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	(D)	E

PROJECT: 100-FR-3	SDG: W0055-ITL-060	
VALIDATOR: MWP66	LATA NO.: ~~VW401~~. MW 9-16-94 402.67	DATE: 8-24-94
SAF NO.: 94-087	LAB: ITC	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 ☐ Strontium-90	☒ Technetium-99	☒ Isotopic Anal. Alpha Spec. Am	☒ Gamma Spectroscopy	☐ Iodine-129
☐ Total Uranium (KPA)	☐ Radium-226 ☐ Radium-228	☒ (LSC) Liquid Scintillation C14 H3	☒ Pu 150	☒ U 160	☒ Total Sr

SAMPLES/MATRIX BOBMQ6, BOBMX6, BOBMS2, BOBMS6, BOBMT4, BOBMW4, BOBMR4

BOBMX6 is field QC – and is validated (100%)

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? ..... MW 8-25-94 ~~Yes~~ (No) N/A

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

Comments: EU 155 (8 scan) was not reported by the lab. This appears to be a lab error in the transposing of the gamma nuclides. EU 155 results TMDA was added to the Form 1s by validator

2. CHAIN-OF-CUSTODY/HOLDING TIMES

Are sample holding times acceptable? ..... (Yes) No N/A

Are samples preserved correctly? ..... (Yes) No N/A

Was the pH of the sample checked prior to analysis? ..... Yes (No) (N/A)

Comments: No evidence of pH having been checked before analysis. This is accepted – there is no variance input from (Lab). Sample receiving MW 9-16-94

9/19/94 MWP

peer review AT 9/7/94

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: Gamma detectors not calibrated w/in 12 months. No effect on data ~~since~~ since continuing calibration is acceptable MJ 9-16-94

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:

9/19/94

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

★

Spike Recovery

$$\%R = \frac{SSR - SR}{SA} \times 100$$

where:
SSR = spiked sample result
SR = sample result
SA = spike added

Comments: All results on Am-241, Pu-150, and U-150 are acceptable
Perhaps this comment would be better placed under "Chemical Recovery" MW 9-16-94

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 MW 8-25-94

★

Recovery

$$\%R = \frac{\text{observed value}}{\text{true value}} \times 100$$

Comments: LCS for U-235 < 75% (~~100-BP5~~ 100-FR-3 GAP; P) MW 9-16-94 U-235 results are qualified as estimated (J/UJ) also < 70% MW 9-16-94
LCS < 70% (D.V procedure also) MW 9-16-94
The gamma spike calculation is incorrect. DPM values were compared to pCi results. The Form 1 is edited MW 8-25-94

9/19/94 MWP

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

★

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

★

Relative Percent Difference

$$RPD = \frac{|OS - D|}{\left(\frac{OS + D}{2}\right)} \times 100$$

where:
- OS = sample concentration (original sample/MS)
- D = duplicate concentration (duplicate sample/MSD)

Comments:

a|19|04 mp

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: BOBMX6 is a duplicate sample. Duplicate of ~~what~~ which? Sample? No RPD calculation possible. MW 9-16-94

11. DETECTION LIMITS (LEVELS D & E)

MDA's meet required detection limits? . . . . . Yes (No) N/A

Transcription/calculation errors? . . . . . Yes (No) N/A

★

Minimum Detectable Activity (MDA)

$$\frac{4.66 \times \sqrt{(B.2)(T.2)}}{2.22(E.2)(I.2)(R.2)(D.2)(V.2)(Y.2)(T.2)}$$

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: All MDA's achieved except for gamma analysis. The QAPjP has a RDL for Y of 5pCi/L. I assume this is for the Cs137 nuclide. The lab used the contract RDL's when evaluating their data. The QAPjP MDA for Cs137 was not met for any of the samples (gamma scan). No qualifiers ~~Without~~ Using the contract RDLs, the MDA's for EU152 BOBMX6 & BOBMR4 was not met - no qualifiers

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

9/19/94 MP

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)

9/9/94 MP

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

9/19/96

Validator	Date	SDG	VW Number
MC Webb	8-25-94	W0055-ITC-060	VW402.67

RADIOCHEMICAL DATA QUALIFICATION SUMMARY

MAJOR DEFICIENCIES:

1. None

MINOR DEFICIENCIES:

1. The LCS for U-235 (66.7% recovery) did not meet the accuracy criteria. The results are qualified as estimated (J/UJ).

COMMENTS:

1. The gamma spikes were calculated and reported incorrectly. The DPM value of the spike was compared to the pCi result. The LCS Form is corrected. The spikes are acceptable. The raw data had no recoveries calculated on it, nor was it signed by a reviewer.
2. Europium-155 was analyzed for, but not reported by the lab. This appears to be an error in the transfer of the data. Eu-155 is required by contract. The Europium-155 results and MDAs have been added to the Form 1s by the validator.
3. The RDLs used by the lab in evaluating the MDAs are the contract RDLs, not the QAPjP RDL. The QAPjP RDL for the gamma nuclides is 5 pCi/L. Assuming this is the RDL for Cs137, not all the nuclides, the MDA was not achieved for any of the samples. However, the contractual MDAs were achieved for all samples except BOBMX6 and BOBMR4(Eu-152).

9613479.2961

Validator	Date	SDG	VW Number
MC Webb	8-25-94	W0055-ITC-060	VW402.67

RADIOCHEMICAL DATA QUALIFICATION SUMMARY

Analyte	Qualifier	Sample	Reason
U-235	J/UJ	ALL	LCS % recovery < 70%

ACCURACY DATA SUMMARY

SDG: WU055-1TR-060	VALIDATOR: HWebb	DATE: 8-24-94	PAGE 1 OF 1

COMMENTS: RADIOCHEMICAL ANALYSES

FIELD SAMPLE ID	CONSTITUENT	% RECOVERY	SAMPLE(S) AFFECTED	QUALIFIER
	U235	66.8%	All	J/UJ

PNO-DVF-015, R1

000266

9613479.2962

9613479.2963

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

LABORATORY CONTROL SAMPLES

LAB NAME: ITAS-RICHLAND SDG NO.: W0055

LAB SAMPLE ID: L051711S

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY
AM-241	7.05E+00	1.15E+00	1.58E+00	1.88E-01	0.778	6.79E+00	103.83
PU239/40	4.81E+00	1.05E+00	1.23E+00	1.55E-01	0.728	4.58E+00	105.02
U-234	9.71E+00	1.35E+00	1.81E+00	2.48E-01	0.896	8.68E+00	111.87
U-235	2.64E-01	2.28E-01	2.31E-01	2.48E-01	0.896	3.96E-01	66.67
U-238DA	9.53E+00	1.33E+00	1.79E+00	2.32E-01	0.896	9.09E+00	104.84
TRITIUM	2.54E+03	1.71E+02	3.47E+02	N/A	0.973	2.71E+03	93.73
ALPHA	1.88E+01	1.95E+00	3.72E+00	5.65E-01	1	2.27E+01	82.82
BETA	2.07E+01	2.46E+00	2.85E+00	2.81E+00	1	2.26E+01	91.59
TOTAL-SR	1.35E+01	8.17E-01	3.50E+00	8.15E-01	0.916	1.35E+01	100.00
C-14	1.70E+03	8.29E+01	1.80E+02	3.51E+00	1	1.83E+03	92.90

U-235 spike Recovery 66.7%. U-235 results will be qualified as estimated (J/UJ).

8-24-94

9/9/94

000267

682A-6-93

9613479.2964

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

LABORATORY CONTROL SAMPLES

LAB NAME: ITAS-RICHLAND SDG NO.: W0055

LAB SAMPLE ID: L051711M

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY
TRITIUM	2.62E+03	1.71E+02	3.51E+02	2.39E+02	0.973	2.80E+03	93.57
TC-99	2.53E+02	3.00E+00	3.05E+01	2.16E+00	0.951	2.71E+02	93.36

LABORATORY CONTROL SAMPLES

LAB NAME: ITAS-RICHLAND SDG NO.: W0055

LAB SAMPLE ID: L052161S

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	EXPECTED	% RECOVERY
CO-60	2.70E+01	9.22E+00	9.61E+00	2.18E+01	N/A	5.52E+01	48.91
EU-152	5.51E+01	3.49E+01	3.53E+01	7.66E+01	N/A	1.11E+02	49.64
CS-137DA	4.74E+01	1.14E+01	1.23E+01	N/A	N/A	1.10E+02	43.09

These values are DPM

MW
8-24-94

The true expected are

		% R
Co60	24.9577	108.6%
Cs137	49.6036	111.1%
Eu152	50.1171	94.6%

~~0025~~

The raw data gamma scan had no % R calculation and was not signed off by appropriate personnel.

682A-6-93

9613479.2965

IT ANALYTICAL SERVICES
RICHLAND, WA
(509) 375-3131

BLANK RESULTS

LAB NAME: ITAS - RICHLAND SDG NO.: W0055

LAB SAMPLE ID: L052161B

REPORTING UNITS: pCi/L

ISOTOPE	RESULT	COUNTING ERROR (2s)	TOTAL ERROR (2s)	MDA	YIELD	METHOD NUMBER
CO-60	U -3.93E-01	4.51E+00	4.51E+00	8.52E+00	N/A	RD3219
FE-59	U -4.96E+00	9.80E+00	9.81E+00	1.66E+01	N/A	RD3219
EU-152	U 9.95E-01	2.36E+01	2.36E+01	4.62E+01	N/A	RD3219
CO-58	U 2.15E+00	3.87E+00	3.88E+00	8.03E+00	N/A	RD3219
CS-137DA	U -6.93E-01	4.65E+00	4.65E+00	8.28E+00	N/A	RD3219
RU-106DA	U -2.18E+01	3.24E+01	3.25E+01	5.43E+01	N/A	RD3219
CE-144	U 1.29E+01	1.58E+01	1.59E+01	2.99E+01	N/A	RD3219
EU-154	U 8.26E+00	1.15E+01	1.15E+01	2.54E+01	N/A	RD3219

(U) EU155 - ~~5.42~~
-5.42 14.20

EU155 (gamma scan) was not reported. Required by contract.
Specific nuclides not listed on COC or in QAPP (DOE/RL-91-53, Rev 0).
Not reported for blank, samples & dup. sample. I added the EU155 result + MDA to the Form 1s
(Most likely Ce144 was transposed) instead of EU155

MW
8-24-94

9/19/00

000268

682A-6-93

Table QAPjP-1. Analytical Methods, Analytical Parameters, Detection Limits, and Precision and Accuracy Requirements for the 100-FR-3 Groundwater Operable Unit. (sheet 8 of 9)

Analytical Category	Analytical Parameters	Analytical Method	CRDL or CRQL, soil[a]	Precision[b], Soil	Accuracy[b], Soil	CRDL or CRQL, Water[a]	Precision[b], Water	Accuracy[b], Water
Radionuclides	Hydrogen-3	Water 906.0[e]	N/A	N/A	N/A	400 pCi/L	±20	75-125
	Carbon-14	i	i	i	i	i	i	i
	Strontium-90	Sr-01[j]	1 pCi/g	±35	75-125	10 pCi/L	±20	75-125
	Technetium-99	Tc-01[j]	N/A	N/A	N/A	10 pCi/L	±20	75-125
	Alpha Spectrometry (uranium-235, uranium-238, plutonium-239, plutonium-240, and americium-241)	ASTM D 3084[k]	1 pCi/g	±35	75-125	3 pCi/L	±20	75-125
	Gross alpha	Water 900[e] Soil[h]	1pCi/g	±35	75-125	3pCi/L	±20	75-125
	Gross beta	Water 900[e] Soil[h]	4 pCi/g	±35	75-125	4 pCi/L	±20	75-125
	Gamma Spectrometry (report all identifiable and quantifiable isotopes)	Water 901.1[e] Soil[h]	0.5 pCi/g	±35	75-125	5 pCi/L	±20	75-125
Other groundwater parameters	Alkalinity	310.1[d]	N/A	N/A	N/A	10,000	±20	75-125
	Chemical Oxygen Demand	410.1[d]	N/A	N/A	N/A	1,000	±20	N/A
	Specific Conductance	[l]	N/A	N/A	N/A	25	±20	N/A
	pH	[l]	N/A	N/A	N/A	N/A	N/A	N/A
	Temperature	[l]	N/A	N/A	N/A	N/A	±1°C	N/A
	Dissolved Oxygen	360.1[d]	N/A	N/A	N/A	100	±20	N/A
	Total Dissolved Solids	160.1[d]	N/A	N/A	N/A	10,000	±20	N/A
	Total Organic Carbon	415.1[d]	N/A	N/A	N/A	1,000	±20	75-125
	Total Organic Halides	9020[f]	N/A	N/A	N/A	5	±20	75-125
	Turbidity	180.1[d]	N/A	N/A	N/A	0.05 NTU	±.05 NTU	N/A

mw
8-24-94

9613479.2966

000270

100-FR-3 GROUNDWATER SAMPLING SUMMARY
SECOND QUARTER 1994

SAMPLE NUMBER	WELL NUMBER	DATE COLLECTED	DATE SHIPPED	ANALYSIS	LAB	COMMENTS
BOBMW6	1-F8-2	05/09/94	05/11/94	3	IT	
BOBMW7	1-F8-2	05/09/94	05/17/94	4	ORTEK	
BOBMW8	1-F8-3	05/19/94	05/20/94	1,5	IT	
BOBMW9	1-F8-3	05/19/94	05/20/94	2	IT	
BOBMX0	1-F8-3	05/19/94	05/20/94	3	IT	
BOBMX1	1-F8-3	05/19/94	06/08/94	4	ORTEK	
BOBMX2	1-F8-4	05/23/94	05/24/94	1,5	IT	
BOBMX3	1-F8-4	05/23/94	05/24/94	2	IT	
BOBMX4	1-F8-4	05/23/94	05/24/94	3	IT	
BOBMX5	1-F8-4	05/23/94	06/07/94	4	ORTEK	
BOBMX6	1-F5-6	05/06/94	05/09/94	1	IT	Duplicate
BOBMX7	1-F5-6	05/06/94	05/09/94	2	IT	Duplicate
BOBMX8	1-F5-6	05/06/94	05/09/94	3	IT	Duplicate
BOBMX9	1-F5-6	05/06/94	05/17/94	4	ORTEK	Duplicate
BOBMY0	1-F5-F	05/18/94	05/20/94	1,5	IT	Duplicate
BOBMY1	1-F5-1	05/18/94	05/20/94	2	IT	Duplicate
BOBMY2	1-F5-1	05/18/94	05/20/94	3	IT	Duplicate
BOBMY3	1-F5-1	05/18/94	06/08/94	4	ORTEK	Duplicate
BOBMY4	1-F5-6	05/06/94	05/10/94	1	TMA	Split
BOBMY5	1-F5-6	05/06/94	05/10/94	2	TMA	Split
BOBMY6	1-F5-6	05/06/94	05/10/94	3	TMA	Split
BOBMY7	1-F5-6	05/06/94	05/17/94	4	ORTEK	Split

9613478.2967

8-25-94

MATRIX SPIKE RECOVERY (MS)

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-Aug-94
Validator: MC Webb

Constituent	Spike Sample Result SSR	Sample Result SR	Spike Added SA	%R
Tc99 BOBMQ6	253.10	0.00	270.51	93.6%
Tc99 BOBMS2	259.70	0.00	270.49	96.0%

000271

96134792969

PERCENT RECOVERY (LCS)

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-Aug-94
Validator: MC Webb

Constituent	Observed value OLCS	True value ALCS	%R
Alpha	18.80	22.70	82.8%
Beta	20.74	22.59	91.8%
Co60	27.00	24.86	108.6%
Cs137	55.10	49.60	111.1%
Eu152	47.40	50.12	94.6%
C14	1697.00	1824.00	93.0%
Sr total	13.49	13.52	99.7%
Tc99	252.50	270.46	93.4%
Tritium	2623.00	2796.13	93.8%
Am241	7.05	6.79	103.9%
Pu239	4.81	4.58	105.1%
U234	9.71	8.68	111.9%
U235	0.26	0.40	66.8%
U238	9.53	9.09	104.9%

000272

96134729.2869

ALPHA SPEC TRACER RECOVERY

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	BOBMX6	1.205	0	3.225	5.0287	0.772789
Pu242	BOBMX6	1.505	0.001	3.7	7.1362	0.779799
U232	BOBMX6	2.555	0.0184	3.7	10.071	0.931925

96134799.2970

RELATIVE PERCENT DIFFERENCE

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-Aug-94
Validator: MC Webb

Constituent		Original (Sample) concentration OS	Duplicate concentration D	RPD
Alpha	BOBMW4	17.0000	17.6900	3.98%
Beta	BOBMW4	15.8000	16.5700	4.76%
Sr total	BOBMS2	non detect	non detect	NC
C14	BOBMT4	10.4100	10.3200	0.87%
Tc99	BOBMT4	non detect	non detect	NC
Tritium	BOBMQ6	1326.0000	1297.0000	2.21%
Am241	BOBMX6	non detect	non detect	NC
Pu238	BOBMX6	non detect	nondetect	NC
Pu239	BOBMX6	non detect	non detect	NC
U234	BOBMS6	4.2380	3.6410	15.15%
U235	BOBMS6	0.3604	non detect	NC
U238	BOBMS6	2.4100	2.9270	19.37%
GEA	BOBMS2 nuclides	Undetected	Undetected	NC

000274

9613479.2971

MINIMUM DETECTABLE ACTIVITY (MDA)

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	
BOBMX6 alpha	0.028	100.000	4.020	1.000	1.000	1.000	1.000	0.200	0.950
BOBRX6 beta	1.144	100.000	2.738	1.000	1.000	1.000	1.000	0.200	3.234
BOBMX6 Sr90	1.104	50.000	2.202	1.000	1.000	1.000	0.832	1.000	0.888
C14 blank	19.200	200.000	1.072	1.000	1.000	1.000	1.000	0.200	3.511
Tc99 blank	26.810	125.000	1.052	1.000	0.951	1.000	1.000	0.500	2.168
Tritium blank	5.850	125.000	2.509	1.000	0.973	1.000	1.000	0.005	238.727
U234 BOBMX6	0.002	200.000	3.700	1.000	0.932	1.000	1.000	0.200	0.253
U235 BOBMX6	0.002	200.000	3.700	1.000	0.932	1.000	1.000	0.200	0.239
U238 BOBMX6	0.003	200.000	3.700	1.000	0.932	1.000	1.000	0.200	0.277
Pu238 BOBMX6	0.001	200.000	3.703	1.001	0.780	1.000	1.000	0.200	0.256
Pu239 BOBMX6	0.004	200.000	3.700	1.000	0.780	1.000	1.000	0.200	0.367
Am241 BOBMX6	0.000	200.000	3.225	1.000	0.770	1.000	1.000	0.200	0.190

000275

96134729.2972

RESULTS CALCULATION GROSS ALPHA/BETA AND TRITIUM

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	BOBMX6	0.510	0.028	1.00	4.020	0.200	4.3641
Beta	BOBMX6	4.000	1.144	1.00	2.738	0.200	17.6120

LSC		DPM sample	DPM blank	Yield	Decay	Volume	
C14	BOBMX6	24.560	20.590	1.00	1.000	0.200	8.9414
H3	BOBMX6	28.910	14.683	0.97	1.010	0.005	1330.4510

000276

96134792973

RESULTS CALCULATION TOTAL STRONTIUM

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	BOBMX6	11.700	1.104	1.876	2.202	0.832	1.00	6.7336
INGROWTH FACTOR		Sr D/C	Y D/C	delta T (hr)	= e**(-Lt)	L =1.083E-2		
	BOBMX6	2.2020	1.988	144.33	0.2095	X	X	1.876

96134729.2074

RESULTS CALCULATION TECHNETIUM-99

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	BOBMX6	27.750	28.160	1.000	0.95	0.500	-0.3884

000278

96134792075

RESULTS CALCULATION ALPHA SPEC ISOTOPES

Analysis: Radiochemistry
SDG: W0055-ITC-060

Date: 24-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	BOBMX6	0.0000	0.0004	3.225	0.770	0.200	-0.0038
Pu238	BOBMX6	0.0000	0.0010	3.700	0.780	0.200	-0.0107
Pu239	BOBMX6	0.0050	0.0040	3.700	0.780	0.200	0.0107
U234	BOBMX6	0.2700	0.0020	3.700	0.932	0.200	2.3963
U235	BOBMX6	0.0050	0.0016	3.700	0.932	0.200	0.0304
U238	BOBMX6	0.1850	0.0028	3.700	0.932	0.200	1.6291

000279

9613429.2979

Laboratory Case Narratives

INTERNATIONAL TECHNOLOGY CORPORATION

CERTIFICATE OF ANALYSIS

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

June 27, 1994

Attention: J.A.Lerch

SAF Number	:	94-087
Date SDG Closed	:	May 12, 1994
Number of Samples	:	Seven (7)
Sample Type	:	Water
SDG Number	:	W0055
Data Deliverable	:	Stand Alone

I. Introduction

On May 9, 11, and 12, 1994, seven 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
405171-01A	B0BMQ6	Water	5/9/94
405171-02A	B0BMX6	Water	5/9/94
405216-01A	B0BMS2	Water	5/11/94
405216-02A	B0BMS6	Water	5/11/94
405216-03A	B0BMT4	Water	5/11/94
405216-04A	B0BMW4	Water	5/11/94
405242-01A	B0BMR4	Water	5/12/94

Regional Office
2800 George Washington Way • Richland, Washington 99352-1613 • 509-375-3131 • FAX: 509-375-5590

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9/19/94

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, Curium-244 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 W0055 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, Curium-244 by method ITAS-RD-3302
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMX6) 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 B0BMX6) results are within contractual limits.

Uranium-234, 235, 238 by method ITAS-RD-3234
The LCS results are acceptable for U-234 and U-238. The U-235 recovery is outside of the contract limits. The data are accepted based on the acceptable U-234 and U-238 recoveries. The batch blank, sample and sample duplicate (duplicate of sample B0BMS6) results are within contractual requirements.

Gamma Spectroscopy

Gamma Scan by method ITAS-RD-3219
The Eu-152 detection limit was not met for samples B0BMX6 and B0BMR4. The batch blank MDCs were met, therefore, the sample MDCs are accepted. The LCS was recounted because the original Eu-152 result was out of limits. The recounted LCS results are within limits. The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMS2) results are within contractual limits.

Gas Proportional Counting

Gross Alpha by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual limits.

Gross Beta by method ITAS-RD-3222
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual limits.

Strontium-90 by method ITAS-RD-3204
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMS2) 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 B0BMT4) results are within contractual requirements.

Technetium-99 by method ITAS-IT-RS-0001
The matrix spikes, LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMW4) results are within contractual requirements.

Tritium by method ITAS-RD-3205
The LCS, batch blank, sample and sample duplicate (duplicate of sample B0BMQ6) 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

9/19/94 MR

INTERNATIONAL TECHNOLOGY CORPORATION

ANALYTICAL SERVICES

CERTIFICATE OF ANALYSIS

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

June 17, 1994

Job Number: 534; 535; 537

This is the Certificate of Analysis for the following samples:

SDG:	W0055
Client Project ID:	WHC SAF-94-087 100-FR-3 Groundwater-Round-5
Date Received by Lab:	May 11, May 12 & May 13, 1994
Number of Samples:	Twenty-one (21)
Sample Type:	Water

I. Introduction

On May 11, May 12 & May 13, 1994, twenty-one (21) 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

Sheree' A. Schneider
Project Manager

IT ANALYTICAL SERVICES
5815 MIDDLEBROOK PIKE
KNOXVILLE, TN

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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 alkalinity of the samples was determined using EPA method 310.1.

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

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

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 9050.

The samples were analyzed for sulfide based on EPA method 9030.

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 9060.

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

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.

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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KNOXVILLE, TN

III. Quality Control

The volatiles analyses were performed by purge and trap with a J & W DB-624 capillary column on a Hewlett-Packard 5970 GC/MS/DS and a Finnigan INCOS 500 GC/MS/DS. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. 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. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. The matrix spike duplicate showed a slightly high recovery for 4-nitrophenol.

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 #534 were digested on May 17, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on May 19, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from May 20 through May 27, 1994; the remaining metals were analyzed by ICP on June 1, 1994. All run QC was acceptable. A duplicate and a spike were analyzed using sample numbers BOBMQ6 (total) and BOBMQ7 (dissolved). Spike recovery (accuracy) results were within acceptance limits for all parameters for both samples. Duplicate RPD (precision) results were within acceptance limits for all parameters for both samples except for iron by ICP analysis for BOBMQ6. Poor precision for iron appears to be attributable to contamination during sample digestion. There was insufficient sample to perform a spike analysis for cyanide, therefore, a blank spike analysis was performed.

The samples for work order #535 and #537 were digested on May 17, 1994 for ICP and GFAA. The CVAA analysis for mercury was performed on May 19, 1994; the GFAA analyses for arsenic, lead, selenium and thallium were performed from May 20 through May 31, 1994; the remaining metals were analyzed by ICP on June 1, 1994. The samples were batched with quality control from work order #534. All quality control results were acceptable.

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

IT ANALYTICAL SERVICES
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KNOXVILLE, TN

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 by EPA method 300.0 from May 31 through June 6, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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KNOXVILLE, TN

III. Quality Control (Continued)

The alkalinity of the samples was determined on May 16, 1994. A duplicate analysis was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for ammonia on May 24 and June 1, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for nitrate-nitrite on May 25 and June 3, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The pH of the samples was determined on May 17, 1994. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The specific conductance of the samples was determined on May 19, 1994. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for sulfide on May 16, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The total dissolved solids (TDS) of the samples was determined on May 16 and June 16, 1994. Duplicate analyses were performed using sample numbers BOBMQ6 and BOBMX6. All quality control results were acceptable.

The samples were analyzed for total organic carbon (TOC) on May 24 and May 30, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for total organic halogens (TOX) on June 3, June 6 and June 7, 1994. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. All quality control results were acceptable.

The samples were analyzed for chemical oxygen demand (COD) on May 19, 1994 at the ITAS-Knoxville laboratory. A matrix spike and a matrix spike duplicate were analyzed using sample number BOBMQ6. The samples were analyzed for chemical oxygen demand (COD) on June 15, 1994 at the ITAS St. Louis laboratory. A duplicate was analyzed using sample number BOBMQ6. All quality control results were acceptable. Both sets of results are provided in this report.

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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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
AA8780	405170-01A-C	BOBMQ6	VOC
AA8781	405170-01D-F	"	SVOC
AA8784	405170-01G-I	"	PEST/PCB
AA8786	405170-01J	"	CONDUCTIVITY
"	"	"	pH
"	"	"	ANIONS
AA8787	405170-01K	"	NO3NO2
AA8788	405170-01L	"	ALKALINITY
AA8789	405170-01M	"	TDS
AA8790	405170-01N	"	SULFIDE
AA8791	405170-01O	"	AMMONIA
AA8791	"	"	COD
AA8792	405170-01P	"	METALS-T
AA8793	405170-01Q	"	CYANIDE
AA8794	405170-01R	"	TOC
AA8795	405170-01S	"	TOX
AA8810	405170-02A	BOBMQ7	METALS-D
AA8812	405170-03A-C	BOBMQ8	VOC
AA8796	405170-04A-C	BOBMX6	VOC

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IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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
AA8797	405170-04D-F	BOBMX6	SVOC
AA8798	405170-04G-I	"	PEST/PCB
AA8799	405170-04J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8800	405170-04K	"	NO3NO2
AA8801	405170-04L	"	ALKALINITY
AA8802	405170-04M	"	TDS
AA8803	405170-04N	"	SULFIDE
AA8804	405170-04O	"	AMMONIA
"	"	"	COD
AA8805	405170-04P	"	METALS-T
AA8806	405170-04Q	"	CYANIDE
AA8807	405170-04R	"	TOC
AA8808	405170-04S	"	TOX
AA8811	405170-05A	BOBMX7	METALS-D
AA8813	405170-06A-B	BOBMX8	VOC
AA8822	405215-01A-C	BOBMS2	VOC
AA8826	405215-01D-F	"	SVOC

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June 17, 1994
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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
AA8828	40521501G-I	BOBMS2	PEST/PCB
AA8831	405215-01J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8832	405215-01K	"	NO3NO2
AA8833	405215-01L	"	ALKALINITY
AA8834	405215-01M	"	TDS
AA8836	405215-01O	"	AMMONIA
AA8830	"	"	COD
AA8838	405215-01Q	"	CYANIDE
AA8839	405215-01R	"	TOC
AA8840	405215-01S	"	TOX
AA8880	405215-02A	BOBMS3	METALS-D
AA8896	405215-03A-C	BOBMS4	VOC
AA8841	405215-04A-C	BOBMS6	VOC
AA8842	405215-04D-F	"	SVOC
AA8843	405215-04G-I	"	PEST/PCB

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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
AA8844	405215-04J	BOBMS6	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH
AA8845	405215-04K	"	NO3NO2
AA8846	405215-04L	"	ALKALINITY
AA8847	405215-04M	"	TDS
AA8848	405215-04N	"	SULFIDE
AA8849	405215-04O	"	AMMONIA
"	"	"	COD
AA8850	405215-04P	"	METALS-T
AA8851	405215-04Q	"	CYANIDE
AA8852	405215-04R	"	TOC
AA8853	405215-04S	"	TOX
AA8881	405215-05A	BOBMS7	METALS-D
AA8897	405215-06A-C	BOBMS8	VOC
AA8854	405215-07A-C	BOBMT4	VOC
AA8855	405215-07D-F	"	SVOC
AA8856	405215-07G-I	"	PEST/PCB
AA8857	405215-07J	"	ANIONS

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087.100-FR-3 Groundwater-Round-5

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
AA8857	405215-07J	BOBMT4	CONDUCTIVITY
"	"	"	pH
AA8858	405215-07K	"	NO3NO2
AA8859	405215-07L	"	ALKALINITY
AA8860	405215-07M	"	TDS
AA8861	405215-07N	"	SULFIDE
AA8862	405215-07O	"	AMMONIA
"	"	"	COD
AA8863	405215-07P	"	METALS-T
AA8864	405215-07Q	"	CYANIDE
AA8865	405215-07R	"	TOC
AA8866	405215-07S	"	TOX
AA8894	405215-08A	BOBMT5	METALS-D
AA8898	405215-09A-C	BOBMT6	VOC
AA8867	405215-10A-C	BOBMW4	VOC
AA8868	405215-10D-F	"	SVOC
AA8869	405215-10G-I	"	PEST/PCB
AA8870	405215-10J	"	ANIONS
"	"	"	CONDUCTIVITY

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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
AA8870	405215-10J	BOBMW4	pH
AA8871	405215-10K	"	NO3NO2
AA8872	405215-10L	"	ALKALINITY
AA8873	405215-10M	"	TDS
AA8874	405215-10N	"	SULFIDE
AA8875	405215-10O	"	AMMONIA
"	"	"	COD
AA8876	405215-10P	"	METALS-T
AA8877	405215-10Q	"	CYANIDE
AA8878	405215-10R	"	TOC
AA8879	405215-10S	"	TOX
AA8895	405215-11A	BOBMW5	METALS-D
AA8899	405215-12A-C	BOBMW6	VOC
AA8904	405241-01A-C	BOBMR4	VOC
AA8905	405241-01D-F	"	SVOC
"	405241-01G-I	"	PEST/PCB
AA8906	405241-01J	"	ANIONS
"	"	"	CONDUCTIVITY
"	"	"	pH

IT Corporation
June 17, 1994
Job Number: 534; 535; 537
Client Project ID: WHC SAF-94-087 100-FR-3 Groundwater-Round-5

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
AA8907	405241-01K	BOBMR4	NO3NO2
AA8908	405241-01L	"	ALKALINITY
AA8909	405241-01M	"	TDS
AA8910	405241-01N	"	SULFIDE
AA8911	405241-01O	"	AMMONIA
"	"	"	COD
AA8912	405241-01P	"	METALS-T
AA8913	405241-01Q	"	CYANIDE
AA8914	405241-01R	"	TOC
AA8915	405241-01S	"	TOX
AA8916	405241-02A	BOBMR5	METALS-D
AA8917	405241-03A-C	BOBMR6	VOC

9613479.2994

Chain-of-Custody Information

W1#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [ ] Priorty [X] Normal

Collector: K.O. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-FR-3	SAF No.: 94-087
Ice Chest No.: ER-9	Field Logbook No.: EFL -1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W294-0-0518-36	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE RIC 20 LCS 5/6/94 1400

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40517004	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	J	K	L	M	N	O	P	Q	R	S	40517102	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
BOBMX6	W	05/06/94	1045	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
~~BOBMX7~~	W	05/06/94	~~1045~~ 3KO															
~~BOBMX8~~	W	05/06/94	~~1045~~ 5/6/94															

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K.O. Lee K.O. Lee	5/6/94 1315	L Sweeney L Sweeney	5/6/94 1315
L Sweeney L Sweeney	5/9/94 1145	R. Boyd Jr	5/9/94 1145

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)

9613479.2996

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WO#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Date Turnaround: [ ] Priorty [X] Normal

Collector: K.O Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100-FR-3	SAF No.: 94-087
Ice Chest No.: ER-9	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0 0518-36	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	N/A			HClpH<2									
Type of Container	Gs	G	G			Gs									
No. of Container(s)	1	1	1			2									
Volume	1000ml	1000ml	4L			40ml									
SAMPLE ANALYSIS 4051700	TRITIUM C-14 4051702	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD	TOTAL METALS			VOA (CLP) TRIP									

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0BMX6	W	05/06/94	1045	X		X												
~~B0BMX7~~	W	05/06/94	1045		X													
B0BMX8	W	05/06/94	1045						X									
									AB									

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: K.O Lee	Received By: L Sweeney	5/6/94 1315
Relinquished By: L Sweeney	Received By: C Boyd Jr	5/9/94 1145
Relinquished By	Received By	
Relinquished By	Received By	

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-B2B (12/92)

9613479.2996

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W0#534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Date Turnaround: [ ] Priorty [X] Normal

Collector: K. D. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 199-F5-6	SAF No.: 94-087
Ice Chest No.: ER-15	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W94-0-0518-36	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE — Rof 3A LCS 5/6/94 1315		

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	3	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
405170 01	ABC	DEF	GHI	J	k	L	M	N	O	P	Q	R	S	405170 1	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
B0BMQ6	W	05/06/94	1045	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
~~B0BMQ7~~	~~W~~	~~05/06/94~~	~~1045~~															
~~B0BMQ8~~	~~W~~	~~05/06/94~~	~~1045~~															

KRL 5/6/94

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Kimberlee K. Lee	5/6/94 1310	D. Sweeney / Sweeney	5/6/94 1310
D. Sweeney / Sweeney	5/9/94 1145	R. Boyd IT	5/9/94 1145

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)

9613478.2997

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WO #534

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Date Turnaround: [ ] Priorty [X] Normal

Collector: K.D. Lee	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 199-F5-6	SAF No.: 94-087
Ice Chest No.: ER-15	Field Logbook No.: EFL-1055	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W94-0-0518-36	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				HClpH<2	N/A									
Type of Container	Gs	G				Gs	G									
No. of Container(s)	1	1				3	1									
Volume	1000ml	1000ml				40ml	40ml									
SAMPLE ANALYSIS 405170 405170	TRITIUM C-14	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)FI FILTERD				VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled															
B0BMQ6	W	05/06/94	1045	X														
B0BMQ7 02	W	05/06/94	1045		XA					B X								
B0BMQ8 03	W	05/06/94	1045						X ABC									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K.D. Lee K.D. Lee	5/6/94 1310	L Sweeney L Sweeney	5/6/94 1310
Relinquished By	Date/Time	Received By	Date/Time
L Sweeney L Sweeney	5/9/94 1145	P. Bond	5/9/94 1145
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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.2998

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000301

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO#555

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100F	SAF No.: 94-087
Ice Chest No.: E.R. 5	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: 1[illegible] C [illegible]	Bill of Lading/Air Bill No.: [illegible]
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	1	1	1	1	1	1	1	1	1	1	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521504	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	J	k	L	m	N	O	P	Q	R	S	40521602	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
[illegible] 04	W	5/10/94	1200	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
[illegible]	W																	
[illegible]	W																	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/10/94 1[illegible]	[illegible] / [illegible]	5/10/94 1[illegible]
Relinquished By	Date/Time	Received By	Date/Time
[illegible] / [illegible]	5-11-94 1200	T Gilmore	5/11/94 1200
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

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)

9613479.2999

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO* 535

Page 2 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector: K Tiepp	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.: EIR-7	Field Logbook No.: ERL-1074	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A 1094-0-0518-00	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	Gs			Gs
No. of Container(s)	1	1	1			3
Volume	1000ml	1000ml	40ml			40ml
SAMPLE ANALYSIS	TRITIUM C-14 405 216 02	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD	Acidify			VOA (CLP) TRIP

Sample No.	Matrix*	Date Sampled	Time Sampled														
RCBMSL	W	5/10/94	1200	X		X											
RCBMS7 05A	W	↓	↓		X												
RCBMSE 06ABC	W	↓	↓														

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K J Macc / K Tiepp	5/10/94 1100	J Sweeney / L Sweeney	5/10/94 1400
Relinquished By	Date/Time	Received By	Date/Time
J Sweeney / L Sweeney	5-11-94 1200	TG-1/ccc	5/11/94 1200
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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.3000

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Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO#535

Page 1 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector: L. Tr. Pp	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-16	Field Logbook No.: ETL-16-4	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: 1100-F-C-C-318-111	Bill of Lading/Air Bill No.: N/A

Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE Ref 2B KCS 5/17/94

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	1	1	1	1	1	1	1	1	1	1	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521507	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	J	k	L	m	N	O	P	Q	R	S	40521603	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
RCB0774 07	W	5/9/94	1115	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
RCB0775	W																	
RCB0776	W																	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature]	5/9/94 1115	[signature]	5-9-94 1430
Relinquished By	Date/Time	Received By	Date/Time
[signature]	5-11-94 1200	[signature] TG/[illegible]	5/11/94 1200
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

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)

0000304

9613479.3001

0000050

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO#535

Page 2 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector: [illegible]	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-16	Field Logbook No.: ERL-16-[illegible]	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	[illegible]			HClpH<2										
Type of Container	Gs	G	[illegible]			Gs										
No. of Container(s)	1	1	1			3										
Volume	1000ml	1000ml	[illegible]			40ml										
SAMPLE ANALYSIS	TRITIUM C-14 405 21603	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD	[illegible]			VOA (CLP) TRIP										

Sample No.	Matrix*	Date Sampled	Time Sampled														
B[illegible]	W	[illegible]	1315	1	[illegible]	[illegible]											
B[illegible] 08A	W	↓	↓		1												
B[illegible] 09ABC	W	↓	↓														

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time 1412	Received By	Date/Time 1430
[illegible]	6/3/94	[illegible]	5/9/94
Relinquished By	Date/Time 1200	Received By	Date/Time
[illegible]	5-11-94	[illegible] TGilmore	5/11/94 1200
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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

9613479.3002

0000051

000305

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO #535

Page 1 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100F	SAF No.: 94-087
Ice Chest No.: ER-17	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: 1[illegible]	Bill of Lading/Air Bill No.: NONE
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	RCB 28 U5 5/9/94	

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 40521510	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	J	K	L	M	N	O	P	Q	R	S	40521604	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
[illegible] 10	W	5/9/94	0940	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
[illegible]	W	[illegible]																
[illegible]	W	[illegible]																

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: K. Trapp / K. Trapp	Received By: T. Sunney / T. Sunney	5/9/94 1430
Relinquished By: T. Sunney / T. Sunney	Received By: T. Gilmore	5/11/94 1200
Relinquished By:	Received By:	
Relinquished By:	Received By:	

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)

000306

9613479.3003

0000052

000306

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

NOT#535

Page 2 of 2

Date Turnaround: ☐ Priorty ☒ Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 1C'0 F	SAF No.: 94-087
Ice Chest No.: ER-17	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A 11-24-0-0518-90	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	Gls			Gs										
No. of Container(s)	1	1	1			3										
Volume	1000ml	1000ml	40ml			40ml										
SAMPLE ANALYSIS	TRITIUM C-14 405 21604	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD	Activity Gram			VOA (CLP) ~~TRIP~~ Trip										

Sample No.	Matrix*	Date Sampled	Time Sampled															
[illegible]	W	5/9/94	0940	✓		✓												
[illegible] 11 A	W				✓													
[illegible] 12ABC	W								✓									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp / K. Trapp	5/9/94 1430	K. Sweeney / K. Sweeney	5/9/94 1430
K. Sweeney / K. Sweeney	5-11-94 1200	[illegible] TG Gilmore	5/11/94 1200
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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

000307

9613479.3004

0000053

000307 000003

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO#555

Page 1 of 2

Date Turnaround: [ ] Priorty [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-19	Field Logbook No.: EFL-1654	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: [illegible]	Bill of Lading/Air Bill No.: N/A
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	HCl pH<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	3	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
405215 01	ABC	DEF	GHI	J	K	L	M	N	O	P	Q	R	S	405215 60	

Sample No.	Matrix*	Date Sampled	Time Sampled	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
[illegible]	W	5/10/94	1000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
[illegible]	W																	
[illegible]	W																	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K Trapp	5/10/94 1400	AJ Simpson	5/10/94 1445
AJ Simpson/AJ Simpson	5/11/94 1000	L Sivesday/L Sivesday	5/11/94 1000
L Sivesday/L Sivesday	5/11/94 1200	TGilmore	5/11/94 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

DISTRIBUTION: Original- Sample Yellow - Sampler

BC-6000-828 (12/92)

000308

9613479.3006

0000054

6-28-94

000307

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WO#535

Page 2 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector	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.: FR-19	Field Logbook No.: FIL-1[illegible]	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A [illegible]	Bill of Lading/Air Bill No.: N/A [illegible]
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE		

Preservative	N/A	HNO3<2	[illegible]			HClpH<2
Type of Container	Gs	G	[illegible]			Gs
No. of Container(s)	1	1	1			3
Volume	1000ml	1000ml	40ml			40ml
SAMPLE ANALYSIS 405215	TRITIUM C-14 405 21601	ICP METALS+ ARSENIC LEAD,Se Tl,Hg (CLP)FI FILTERD	[illegible]			VOA (CLP) [illegible] TRIP

Sample No.	Matrix*	Date Sampled	Time Sampled														
[illegible]	W	5/10/94	[illegible]														
[illegible] 02A	W																
[illegible] 03ABC	W																

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: [illegible]	Date/Time: 5/10/94 1[illegible]	Received By: A J Simpson	Date/Time: 5/10/94 1445
Relinquished By: A J Simpson	Date/Time: 5/11/94 1[illegible]	Received By: [illegible]	Date/Time: 5/11/94 1[illegible]
Relinquished By: [illegible]	Date/Time: 5-11-94 1200	Received By: [illegible]	Date/Time: 5/11/94 1[illegible]
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)

000309

9613479.3006

0000055

000309 5-28-94

WO# 554

000310

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 1 of 2

Data Turnaround: [ ] Priorty [X] Normal

Collector: K Tripp	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-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: W254-0-0518-44	Bill of Lading/Air Bill No.
Possible Sample Hazards/Remarks		
Special Handling and/or Storage: COOL TO 4 DEGREES CENTIGRADE	RCF 2D 45 1520 5-11-94	

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	3	3
Volume	40ml	1000ml	1000ml	1000ml	500ml	250ml	500ml	500ml	1000ml	1000ml	1000ml	250ml	500ml	4000ml	1000ml
SAMPLE ANALYSIS 405241	VOA (CLP) A B C	SEMIVOA (CLP) D E F	PCB/PEST (CLP) G H I	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 HO-52421	Tc-99

Sample No.	Matrix*	Date Sampled	Time Sampled	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
BCBMR4 01	W	5/11/94	1150	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
BCBMR5 02	W																	
BCBMR6 03	W																	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	K Tripp / K Tripp	5/11/94 1431
Received By	[illegible]	5-11-94 1435
Relinquished By	[illegible]	5-11-94 1520
Received By	K Sweeney / K Sweeney	1520 5-11-94
Relinquished By	T Sweeney / T Sweeney	1200 5/12/94
Received By	[illegible]	5-12-94
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

SDL WCC 55 TH 5/12/94

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)

9613479.3007

0000056

000310

5-28-94

WO#5SF

Westinghouse Hanford Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Page 2 of 2

Date Turnaround: [ ] Priorty [X] Normal

Collector: K. Trapp	Company Contact: PH BUTCHER	Telephone No.: 509-376-4388
Project Designation: 100-FR-3	Sampling Location: 100F	SAF No.: 94-087
Ice Chest No.	Field Logbook No.: EFL-1054	Method of Shipment: HAND DELIVER
Shipped To: IT	Offsite Property No.: N/A W34-0-0518-44	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	HNO3			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 405241	TRITIUM C-14 405242D	ICP METALS+ ARSENIC LEAD, Se Tl, Hg (CLP)Fl FILTERD	Acrolein Acrylon			VOA (CLP) TRIP A,B,C

Sample No.	Matrix*	Date Sampled	Time Sampled	N/A	HNO3<2	HNO3			HCl pH<2								
BOBMR4 01	W	5/11/94	1150	X		X											
BOBMR5 02A	W	↓	↓		X												
BOBMR6 03	W								X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
K. Trapp/K. Trapp	5/11/94 1437	[illegible]	5-11-94 1435
Relinquished By	Date/Time	Received By	Date/Time
[illegible]	5-11-94 1535	K Sweeney/K Sweeney	1535 5-11-94
Relinquished By	Date/Time	Received By	Date/Time
K Sweeney/K Sweeney	1200 5/12/94	[illegible]	12:00 5-12-94
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)

000311

9613479.3008

0000057

000311
5-24-94

Cur. # 1630

Work Order No.: 534

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: WHC

Date: 5/13/94

Project No: 94-087

Initiated by: Bryan Blomquist

Analysis Requested: VOA TOC, TOX, CN, Ammonia, COD Pest/PCB

RFA/COC Numbers: 453641

Client Sample Numbers Affected: BOBMQ6, BOBMX7, Trip Blank

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis.
   Received approximately: _____
2. ☑ Sample received broken/leaking. Pest/PCB BOBMQ6
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☑ pH Ammonia, COD BOBMQ6=5 CN⁻'s = 11
   - ☐ other: _____
4. ☐ Sample received in improper container.
5. ☑ Sample received without proper paperwork. Explain: Trip Blank Not Listed on RFA/COC.
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: Labels from Richland on BOBMX7, TOC-TOX, switched.
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: Bryan Blomquist Date: 5/16/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE.

CuR 1631
Work Order No.: 535

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: WHC
Date: 5/14/94
Project No: 94-087
Initiated by: Bryan Blomquist
Analysis Requested: Ammonia, COD, CN, TOC, Sulfide, metals
RFA/COC Numbers: 453648
Client Sample Numbers Affected: BOBMS2, BOBMS6, BOBMT4, BOBMW4

Condition/Variance (Check all that apply):

1. ☐ Not enough sample received for proper analysis.
   Received approximately: _____
2. ☑ Sample received broken/leaking. BOBMS2, sulfide, metals
3. ☑ Sample received without proper preservative.
   - ☐ Cooler temperature not within 4°C ± 2°C
     Record temperature: _____
   - ☑ pH SEE NOTES Below :
   - ☐ other: _____
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: BOBMS2, Ammonia + COD pH=6, CN^-=11 ; BOBMS6, CN^-=11 ; BOBMT4, CN^-=11 ; BOBMW4 Sulfide = pH 8, CN^- = pH 11 ; TOC = pH 6

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: Kenny A. Klemm Date: 5/16/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

CUK # 1633

Work Order No.: ~~4~~537

KAC 5-14-94

Condition Upon Receipt Variance Report

ITAS - KNOXVILLE Laboratory

Client: IT Richland

Date: 5-14-94

Project No: Westinghouse Hanford

Initiated by: KAC

Analysis Requested: Cyanide

RFA/COC Numbers: 453650

Client Sample Numbers Affected: BOB MR4

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 Cyanid = pH 11
   - ☐ other: _____
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 K Clemmer Date: 5/19/94

Project Management Review: _____ Date: _____

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

SAMPLE RECEIPT VARIANCE REPORT
ITAS-RICHLAND LABORATORY

WORK ORDER NUMBER: 405215 01-12, 405217 01-3 DATE INITIATED: 5/11/94

INITIATED BY: T Gilmore

DATE/TIME OF SAMPLE (AND/OR RFA & COC) RECEIPT: 5/11/94 1200

CLIENT SAMPLE NUMBER	RFA/COC NUMBERS	ANALYSIS REQUESTED
BOBMS2		Sulfide
BOBMT4		
BOBMS6		
BOBMW4		
BOBMV2		

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: Samples received in 500ml glass, COC shows 500 ml poly.

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

LOG #: KN-___ page 1 of 2

ITAS-Knoxville
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WO# 534
NCM INITIATED BY (Name/Date): KAKlemm 5-16-94
PARAMETER(S): Sulfide, TSS and BNAs + Pest/PCBs, pH, NO2/NO3, sulfide
SAMPLE NUMBER(S) AFFECTED: AA8781, 84, 86, 87, 89, 90, AA8802, 03, ~~05~~ KAK 5/16/94

AREA:
- [x] SHIP/REC
- [ ] ORG EXT
- [ ] INORG PREP
- [ ] OTHER:
- [ ] GC
- [ ] HPLC
- [ ] GCMS
- [ ] GEN CHEM
- [ ] METALS
- [ ] GEO
- [ ] BIOASSAY
- [ ] RADIOCHEM
- [ ] COUNTING
- [ ] IH
- [ ] DATA VERIFICATION
- [ ] REPORTING

NONCONFORMANCE [check appropriate item(s)]:

1. [ ] Not enough sample received for proper analysis.
2. [ ] Holding time exceeded by _____ days due to:
   - 2.1 [ ] CATEGORY I: Out of Laboratory Control
     - [ ] Holding time expired at receipt.
   - 2.2 [x] CATEGORY II: Laboratory Dependent
     - [x] work backlog
     - [ ] instrument failure
     - [x] communication
     - [x] other (see #10)
   - 2.3. [ ] CATEGORY III: Laboratory Reruns
     - 2.3.1 [ ] *QA/QC:*
       - [ ] surrogates
       - [ ] internal standards
       - [ ] spike recoveries
       - [ ] blank contamination
     - 2.3.2. [ ] *CONFIRMATION:*
       - [ ] second column
       - [ ] contamination check
       - [ ] other (see #10)
     - 2.3.3. [ ] *DILUTION:*
       - [ ] over calibration
       - [ ] under calibration
       - [ ] other (see #10)
     - 2.3.4. [ ] *OTHER: (see #10)*
3. [ ] Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. [ ] QC data reported to client outside of:
   - [ ] method limits
   - [ ] internal limits
   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] regulatory limits
   - [ ] blank criteria
5. [ ] Incorrect procedure(s) used. (See #10)
6. [ ] Invalid instrument calibration. (See #10)
7. [ ] Incorrect/incomplete data reported to client. (See #10)
8. [ ] Reported detection limit(s) higher than:
   - [ ] method limits
   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] other (see #10)

   Due to:
   - [ ] sample matrix
   - [ ] insufficient sample
   - [ ] instrumentation
   - [ ] other (see #10)
9. [x] Other (specify): Westinghouse Hanford samples were received on 5-11-94, but were collected 5-6-94. Also Westinghouse Hanford contract was not updated for new products for SAF# 94-087 until 5-13-94
10. [x] Comments/Explanation: samples were logged-in on Saturday 5-14-94.

NOTIFICATION [check appropriate item(s)]:

1. [ ] Client notified by (name and date): _____
   - [ ] in writing
   - [ ] by FAX
   - [ ] by phone
   - [ ] Other (explain)
2. [ ] Client's name _____ and response:
   - [ ] process "as is"
   - [ ] resample
   - [ ] on hold til ____
   - [ ] Other (explain)

PROJECT MANAGER (signature & date): _____

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

IT CORPORATION

LOG #: KN-94-_____ page 2 of 2

CORRECTIVE ACTION

☑ ROOT CAUSE: INITIALS/DATE_____

1) Samples received five (5) days after collection
2) LIMS Westinghouse Hanford contract was not updated by P.M. until two days after samples were received.

☑ CORRECTIVE ACTION: INITIALS/DATE_____

Samples were logged in as soon as possible after contract was updated.

☐ RESPONSIBILITY FOR PERFORMING CORRECTIVE ACTION ASSIGNED TO:

☐ ACTIONS TO PREVENT RECURRENCE: INITIALS/DATE_____

FIRST LEVEL SUPERVISOR: _____ DATE: _____

RESPONSIBLE MANAGER: _____ DATE: _____

QC REVIEW

☐ NONCONFORMANCE ☐ DEFICIENCY ☐ RERUN

☐ FURTHER ACTION REQUIRED: _____

ASSIGNED TO: _____

QC COORDINATOR: _____ DATE: _____

CORRECTIVE ACTION VERIFICATION

☐ VERIFIED ☐ CANNOT VERIFY (specify reason)

REASON: _____

NCM CLOSURE

QC COORDINATOR: _____ DATE: _____

SIGNED ORIGINAL MUST BE RETAINED IN FILE: ☐ QUALITY/OPERATIONS FILE ☐ PROJECT FILE

LOG #: KK-[illegible] page 1 of 2

ITAS-Knoxville
LABORATORY NONCONFORMANCE MEMO (NCM)

PROJECT ID (Name/Number): WO# 534
NCM INITIATED BY (Name/Date): KAKlemm 5-16-94
PARAMETER(S): Sulfide, TSS and BNAs + Pest/PCBs, pH, NO2/NO3, sulfide
SAMPLE NUMBER(S) AFFECTED: AA8781, 84, 86, 87, 89, 90, AA8802, 03, ~~05~~ KAK 5/16/94

AREA:
- [x] SHIP/REC
- [ ] ORG EXT
- [ ] INORG PREP
- [ ] OTHER:
- [ ] GC
- [ ] HPLC
- [ ] GCMS
- [ ] GEN CHEM
- [ ] METALS
- [ ] GEO
- [ ] BIOASSAY
- [ ] RADIOCHEM
- [ ] COUNTING
- [ ] pH
- [ ] DATA VERIFICATION
- [ ] REPORTING

NONCONFORMANCE [check appropriate item(s)]:

1. [ ] Not enough sample received for proper analysis.
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   - 2.1 [ ] CATEGORY I: Out of Laboratory Control
     - [ ] Holding time expired at receipt.
   - 2.2. [x] CATEGORY II: Laboratory Dependent
     - [x] work backlog
     - [ ] instrument failure
     - [x] communication
     - [x] other (see #10)
   - 2.3 [ ] CATEGORY III: Laboratory Reruns
     - 2.3.1 [ ] *QA/QC:*
       - [ ] surrogates
       - [ ] internal standards
       - [ ] spike recoveries
       - [ ] blank contamination
     - 2.3.2 [ ] *CONFIRMATION:*
       - [ ] second column
       - [ ] contamination check
       - [ ] other (see #10)
     - 2.3.3. [ ] *DILUTION:*
       - [ ] over calibration
       - [ ] under calibration
       - [ ] other (see #10)
     - 2.3.4 [ ] *OTHER: (see #10)*
3. [ ] Sample lost during extraction/analysis; no re-prep or re-analysis possible.
4. [ ] QC data reported to client outside of:
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   - [ ] internal limits
   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] regulatory limits
   - [ ] blank criteria
5. [ ] Incorrect procedure(s) used. (See #10)
6. [ ] Invalid instrument calibration. (See #10)
7. [ ] Incorrect/incomplete data reported to client. (See #10)
8. [ ] Reported detection limit(s) higher than:
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   - [ ] QAPP limits
   - [ ] contract limits
   - [ ] other (see #10)

   Due to:
   - [ ] sample matrix
   - [ ] insufficient sample
   - [ ] instrumentation
   - [ ] other (see #10)
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   - [ ] in writing
   - [ ] by FAX
   - [ ] by phone
   - [ ] Other (explain)
2. [ ] Client's name _____ and response:
   - [ ] process "as is"
   - [ ] resample
   - [ ] on hold til ____
   - [ ] Other (explain)

PROJECT MANAGER (signature & date): _____

FURTHER ACTION REQUIRED, SEE PAGE 2 OF 2

9613479.3016

VEDD Printout

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMQ6	NCLP	NA	ITASKN	207	SW		J			
B0BMQ6	NCLP	NA	ITASKN	100-01-6	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	100-02-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	101-55-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	105-67-9	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	106-44-5	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	106-46-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	106-47-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	108-60-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	108-95-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	111-44-4	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	111-91-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	117-81-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	117-84-0	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	118-74-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	120-12-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	120-82-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	120-83-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	121-14-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	129-00-0	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	131-11-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	132-64-9	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMQ6	NCLP	NA	ITASKN	15117-96-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	191-247-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	193-39-5	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	205-99-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	208-96-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	50-32-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	51-28-5	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	53-70-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	534-52-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	541-73-1	SW		UJ			

entered by: 10/3/94

checked by:

000319a

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMQ6	NCLP	NA	ITASKN	56-55-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	59-50-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	606-20-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	621-64-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMQ6	NCLP	NA	ITASKN	67-72-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	7005-72-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	7439-89-6	SW		J			
B0BMQ6	NCLP	NA	ITASKN	7440-28-0	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMQ6	NCLP	NA	ITASKN	77-47-4	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	7782-49-2	SW		BJ			
B0BMQ6	NCLP	NA	ITASKN	78-59-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	83-32-9	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	84-66-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	84-74-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	85-01-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	85-68-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	86-30-6	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	86-73-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	86-74-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	87-68-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	87-86-5	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	88-06-2	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	88-74-4	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	88-75-5	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	91-20-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	91-57-6	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	91-58-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	91-94-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	95-48-7	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	95-50-1	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	95-57-8	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	95-95-4	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	98-95-3	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	99-09-2	SW		UJ			

9613479.3018

000320

entered by: 10/3/94

checked by:

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMQ6	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMQ6	NCLP	NA	ITASKN	COD	SW		UJ			
B0BMQ6	NCLP	NA	ITASKN	TDS	SW		J			
B0BMQ7	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMQ7	NCLP	NA	ITASKN	7439-92-1	SW		BJ			
B0BMQ8	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMQ8	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMR4	NCLP	NA	ITASKN	207	SW		J			
B0BMR4	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMR4	NCLP	NA	ITASKN	15117-96-1	SW		UJ			
B0BMR4	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMR4	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMR4	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMR4	NCLP	NA	ITASKN	67-64-1	SW	10	U			
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B0BMR4	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMR4	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMR4	NCLP	NA	ITASKN	COD	SW		J			
B0BMR4	NCLP	NA	ITASKN	TDS	SW		J			
B0BMR5	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMR5	NCLP	NA	ITASKN	7782-49-2	SW		UJ			
B0BMR6	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMR6	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMS2	NCLP	NA	ITASKN	207	SW		J			
B0BMS2	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMS2	NCLP	NA	ITASKN	15117-96-1	SW		J			
B0BMS2	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMS2	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMS2	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMS2	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMS2	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMS2	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMS2	NCLP	NA	ITASKN	COD	SW		J			
B0BMS2	NCLP	NA	ITASKN	TDS	SW		J			
B0BMS3	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMS3	NCLP	NA	ITASKN	7782-49-2	SW		UJ			

000321

entered by: 10/3/94

checked by:

9613479.3019

HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMS4	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMS4	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMS4	NCLP	NA	ITASKN	78-93-3	SW	10	U			
B0BMS6	NCLP	NA	ITASKN	207	SW		J			
B0BMS6	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMS6	NCLP	NA	ITASKN	15117-96-1	SW		J			
B0BMS6	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMS6	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMS6	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMS6	NCLP	NA	ITASKN	67-64-1	SW	10	U			
B0BMS6	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMS6	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMS6	NCLP	NA	ITASKN	7782-49-2	SW		UJ			
B0BMS6	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMS6	NCLP	NA	ITASKN	COD	SW		UJ			
B0BMS6	NCLP	NA	ITASKN	TDS	SW		J			
B0BMS7	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMS7	NCLP	NA	ITASKN	7782-49-2	SW		UJ			
B0BMS8	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMS8	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMT4	NCLP	NA	ITASKN	207	SW		J			
B0BMT4	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMT4	NCLP	NA	ITASKN	15117-96-1	SW		UJ			
B0BMT4	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMT4	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMT4	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMT4	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMT4	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMT4	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMT4	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMT4	NCLP	NA	ITASKN	COD	SW		UJ			
B0BMT4	NCLP	NA	ITASKN	TDS	SW		J			
B0BMT5	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMT5	NCLP	NA	ITASKN	7782-49-2	SW		BJ			
B0BMT6	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMT6	NCLP	NA	ITASKN	75-09-2	SW	10	U			

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMW4	NCLP	NA	ITASKN	207	SW		J			
B0BMW4	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMW4	NCLP	NA	ITASKN	15117-96-1	SW		J			
B0BMW4	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMW4	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMW4	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMW4	NCLP	NA	ITASKN	67-64-1	SW	10	U			
B0BMW4	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMW4	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMW4	NCLP	NA	ITASKN	COD	SW		J			
B0BMW4	NCLP	NA	ITASKN	TDS	SW		J			
B0BMW5	NCLP	NA	ITASKN	7439-89-6	SW		J			
B0BMW6	NCLP	NA	ITASKN	67-64-1	SW		U			
B0BMW6	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMX6	NCLP	NA	ITASKN	207	SW		J			
B0BMX6	NCLP	NA	ITASKN	100-01-6	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	100-02-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	101-55-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	1024-57-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	1031-07-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	105-67-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	106-44-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	106-46-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	106-47-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	108-60-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	108-95-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	11096-82-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	11097-69-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	111-44-4	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	111-91-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	11104-28-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	11141-16-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	117-81-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	117-84-0	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	118-74-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	120-12-7	SW		UJ			

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMX6	NCLP	NA	ITASKN	120-82-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	120-83-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	121-14-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	12672-29-6	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	12674-11-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	129-00-0	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	131-11-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	132-64-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	14265-44-2	SW		UR			
B0BMX6	NCLP	NA	ITASKN	15117-96-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	191-247-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	193-39-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	205-99-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	206-44-0	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	207-08-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	208-96-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	218-01-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	309-00-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	319-84-6	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	319-85-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	319-86-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	33213-65-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	50-29-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	50-32-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	51-28-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	51003-74-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	5103-71-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	53-70-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	534-52-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	53469-21-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	53494-70-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	541-73-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	56-55-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	58-89-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	59-50-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	60-57-1	SW		UJ			

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMX6	NCLP	NA	ITASKN	606-20-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	621-64-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	67-64-1	SW	10	U			
B0BMX6	NCLP	NA	ITASKN	67-72-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	7005-72-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	72-20-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	72-43-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	72-54-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	72-55-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	7421-93-4	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMX6	NCLP	NA	ITASKN	75-09-2	SW	10	U			
B0BMX6	NCLP	NA	ITASKN	76-44-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	77-47-4	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	78-59-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	8001-35-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	83-32-9	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	84-66-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	84-74-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	85-01-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	85-68-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	86-30-6	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	86-73-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	86-74-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	87-68-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	87-86-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	88-06-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	88-74-4	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	88-75-5	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	91-20-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	91-57-6	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	91-58-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	91-94-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	95-48-7	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	95-50-1	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	95-57-8	SW		UJ			

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
B0BMX6	NCLP	NA	ITASKN	95-95-4	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	959-98-8	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	98-95-3	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	99-09-2	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	ALKALINITY	SW		J			
B0BMX6	NCLP	NA	ITASKN	C68	SW		J			
B0BMX6	NCLP	NA	ITASKN	COD	SW		UJ			
B0BMX6	NCLP	NA	ITASKN	TDS	SW		J			
B0BMX7	NCLP	NA	ITASKN	7439-89-6	SW		U			
B0BMX8	NCLP	NA	ITASKN	591-78-6	SW	10	U			
B0BMX8	NCLP	NA	ITASKN	75-09-2	SW	10	U			
BOBMQ6	NCLP	NA	ITASKN	1024-57-3	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	1031-07-8	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	11096-82-5	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	11097-69-1	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	11104-28-2	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	11141-16-5	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	12672-29-6	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	12674-11-2	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	309-00-2	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	319-84-6	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	319-85-7	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	319-86-8	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	33213-65-9	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	50-29-3	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	51003-74-2	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	5103-71-9	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	53469-21-9	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	53494-70-5	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	58-89-9	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	60-57-1	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	72-20-8	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	72-43-5	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	72-54-8	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	72-55-9	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	7421-93-4	SW		UJ			

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HEIS-SN	Form	FormNr	LabCode	ConstID	Media	Value	ConcFlag	Qual	CountErr	Units
BOBMQ6	NCLP	NA	ITASKN	76-44-8	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	8001-35-2	SW		UJ			
BOBMQ6	NCLP	NA	ITASKN	959-98-8	SW		UJ			

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