

N60508.AR.002500
NAS WHITING FIELD
5090.3a

RESIDENTIAL WELL SAMPLING EVENT FOR OUTLYING LANDING FIELD BARIN NAS
WHITING FIELD FL
2/1/1994
ABB ENVIRONMENTAL

RESIDENTIAL WELL SAMPLING EVENT REPORT

**OUTLYING LANDING FIELD (OLF) BARIN
FOLEY, ALABAMA**

Unit Identification Code (UIC): N60508

Contract No. N62467-89-D-0317

Prepared by:

**ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301**

Prepared for:

**Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418**

Jeff Adams, Engineer-in-Charge, Code 1859

February 1994

EXECUTIVE SUMMARY

ABB Environmental Services, Inc., conducted an assessment of groundwater quality in residential wells outside the boundary of Outlying Landing Field (OLF) Barin, Foley, Alabama, in September and December 1993. The purpose of the assessment was to assess the potential for offbase groundwater contamination that may have resulted from previous spills and waste disposal activities at OLF Barin.

Eighteen compounds including 2 volatile organic compounds, 1 semivolatile organic compound, and 15 inorganic compounds were detected in the groundwater samples from the 26 residential wells. However, only one of the compounds, lead, was detected at a concentration that exceeded regulatory maximum contaminant levels (MCLs) and that was in only one well.

TABLE OF CONTENTS

Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

<u>Section</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION	1-1
2.0	FIELD PROGRAM SAMPLING METHODOLOGY	2-1
3.0	GROUNDWATER SAMPLE RESULTS	3-1
3.1	QUALITY ASSURANCE/QUALITY CONTROL SUMMARY	3-1
3.2	PHYSICAL PARAMETERS	3-1
3.3	ANALYTICAL RESULTS	3-1
4.0	SUMMARY FINDINGS	4-1

REFERENCE

APPENDIX A: Summarized and Qualified Chemical Analytical Results and Data
Validation Narratives

LIST OF FIGURES

Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1-1	Facility Location Map	1-2
2-1	Residential Well Sampling Locations	2-3

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
2-1	Residential Well Construction Details	2-2
3-1	Residential Well Groundwater Sample Physical Parameters	3-2
3-2	Summary of Analytical Results for Residential Well Samples	3-3

GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
CLEAN CRDLs CTO	Comprehensive Long-Term Environmental Action, Navy contract required detection limits Contract Task Order
°C	degrees Celsius
FS	Feasibility Study
MCLs μ mhos/cm μ g/l	maximum contaminant levels micromhos per centimeter micrograms per liter
NAS	Naval Air Station
NEESA	Naval Energy and Environmental Support Activity
OLF	Outlying Landing Field
QA/QC	quality assurance/quality control
PCBs	polychlorinated biphenyls
RI	Remedial Investigation
SOUTHNAV- FACENCOM	Southern Division, Naval Facilities Engineering Command
SVOCs	semivolatile organic compounds
TAL	target analyte list
TCL	target compound list
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds

1.0 INTRODUCTION

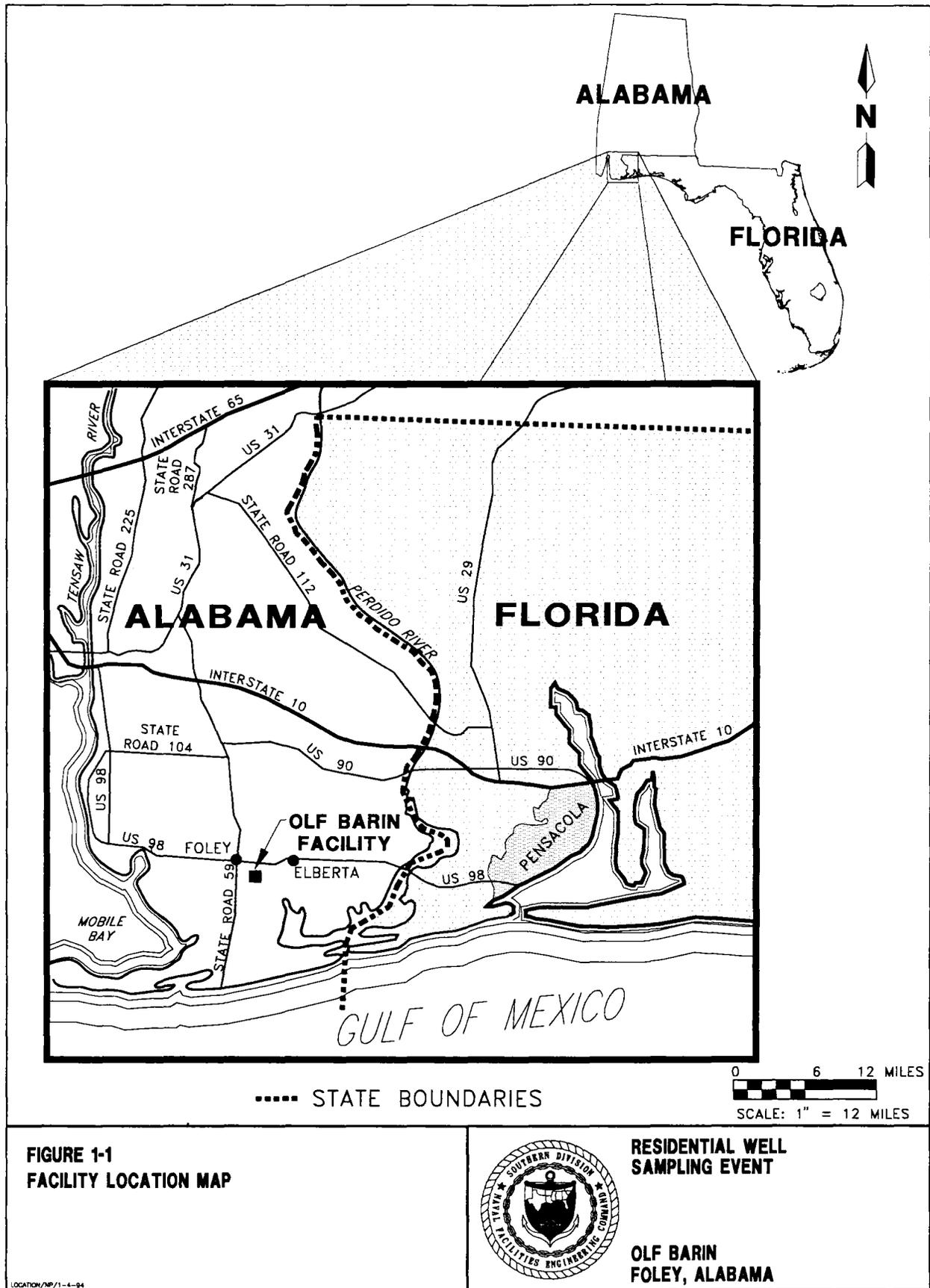
ABB Environmental Services, Inc. (ABB-ES), has prepared this Residential Well Sampling Event Report, Outlying Landing Field (OLF) Barin, Foley, Alabama, for the Department of Navy, Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) under the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Contract No. N62467-89-D-317, Contract Task Order (CTO) No. 031.

OLF Barin is located 40 miles southeast of Mobile in Baldwin County, Alabama. It is approximately 2 miles east of Foley, Alabama, and 35 miles west of Pensacola, Florida (Figure 1-1). Currently, the facility consists of approximately 490 acres and includes a single air field with two active aircraft landing strips.

OLF Barin is under the command of Naval Air Station (NAS) Whiting Field and functions as an outlying landing strip for pilots training at NAS Whiting Field. A single large building is used for base operations and training, and several smaller buildings are used for equipment storage. A small contingent of firefighters are assigned to the station to be present in case of aircraft accidents. The remaining acreage consists primarily of mowed and open grass lands and pine tree plantations.

The purpose of the residential well sampling event was to investigate the potential of off-base residential well contamination that may have resulted from previous spills and waste disposal activities at OLF Barin.

This Sampling Event Report summarizes sampling methods and transmits the field and analytical data generated during the sampling event. Although public health risk evaluations are not included in this report, data generated during this sampling event will be used in the baseline risk assessment generated for OLF Barin as part of the Remedial Investigation and Feasibility Study (RI/FS).



2.0 FIELD PROGRAM SAMPLING METHODOLOGY

Twenty-six groundwater samples were collected from selected residential wells surrounding the OLF Barin facility. Fourteen of the samples (designated OLF-DW-1 through OLF-DW-14) were analyzed for target compound list (TCL) volatile organic compounds (VOCs), TCL semivolatile organic compounds (SVOCs), TCL pesticides and polychlorinated biphenyls (PCBs), and target analyte list (TAL) inorganic compounds including cyanide. The remaining 12 samples (designated OLF-DW-17 through OLF-DW-28) were analyzed for TCL VOCs only. The residential well samples were collected from September 13 through 15 and September 20 and 22, 1993. However, due to difficulties with the analyses (explained in Section 3.1), some wells were resampled for VOC analysis on December 2, 1993. Table 2-1 summarizes residential well sample designations, well owner, and well construction details as reported by the owners. The location of each residential well is shown on Figure 2-1.

Groundwater samples were collected using the in-place residential well pump. To collect the samples, the residential well pump was started by opening a faucet nearest to the wellhead and, if possible, prior to any storage tanks or treatment systems. The well was purged by allowing the pump to run for 15 minutes, at which point a sample for analysis of field parameters including pH, specific conductance, and temperature was collected. At 5-minute intervals thereafter, additional field measurements were collected and recorded. The well purging activities were completed when consecutive measurements of all three field parameters differed by no more than 5 percent. This well purging method was used due to the absence of adequate well construction details for the majority of the residential wells. Without well construction details, representative standing water purge volumes cannot be calculated.

Following well purging activities, the flow rate was decreased at the faucet nearest the wellhead and a sample was collected directly into the sample bottles. Sample bottles were immediately preserved (if required) and placed on ice in preparation for shipment to the laboratory. The samples were sent by overnight carrier to the CH2M Hill Laboratories in Alachua, Florida. All groundwater samples were collected in accordance with U.S. Environmental Protection Agency (USEPA) Region IV Standard Operating Procedures (USEPA, 1991).

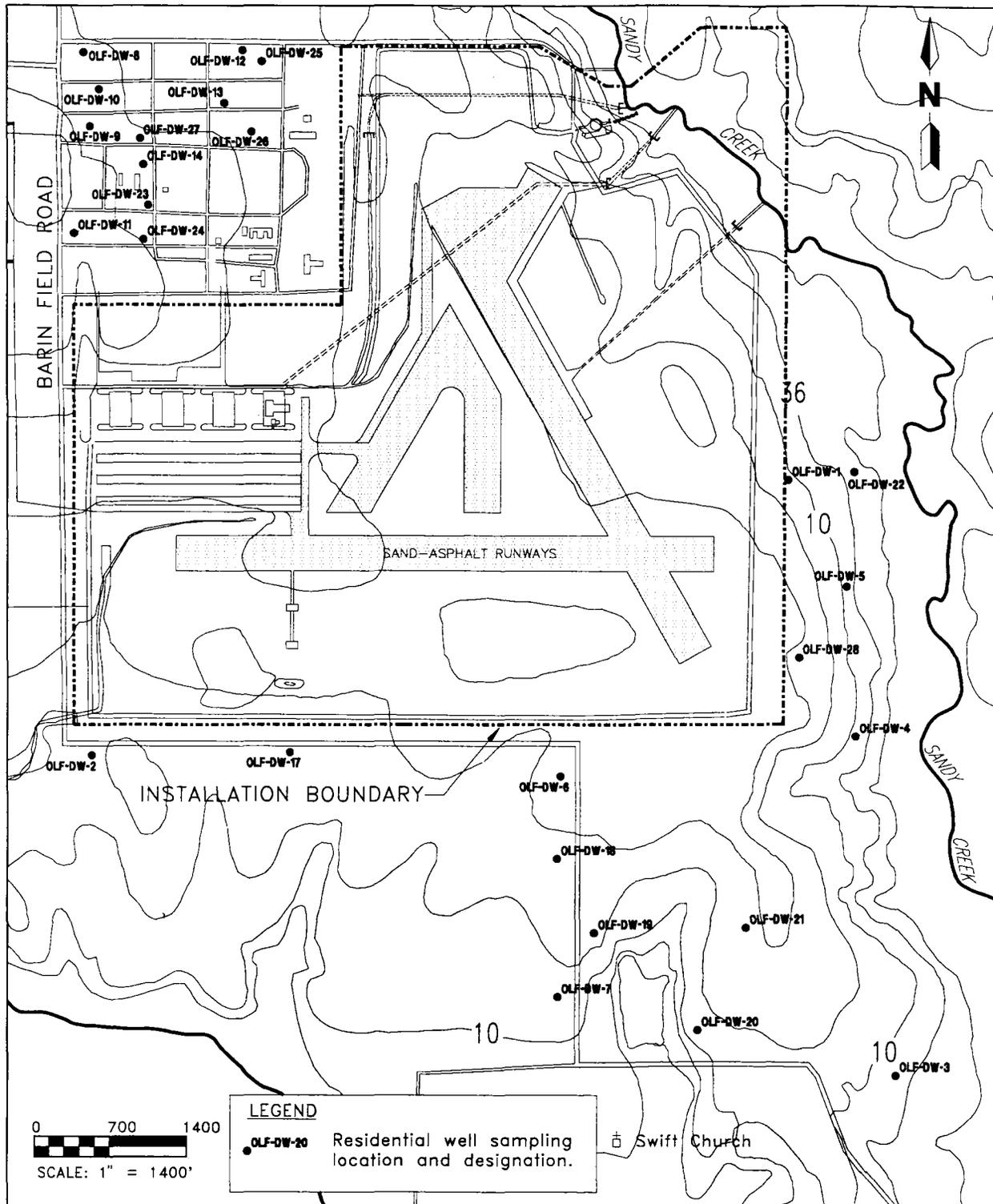
Following laboratory analyses, the data were validated as required under the Naval Energy and Environmental Support Activity (NEESA) Level C protocol. The validated analytical results are included in Appendix A of this report.

**Table 2-1
Residential Well Construction Details**

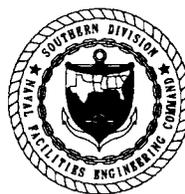
Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

Sample Designation	Residential Well Owner	Well Construction	Well Diameter (inches)	Well Depth (ft bls)	Installation Date	Well Use
OLF-DW-1	William Coleman	PVC	2	65	1984	SF
OLF-DW-2	Elbert Brechner	PVC	2	42	1988	SF
OLF-DW-3	Angie Vasko	PVC	2	108	1985	SF
OLF-DW-4	Robert Harrison	PVC	2	Unknown	Unknown	SF
OLF-DW-5	John Childress	PVC	1.25	Unknown	1989	SF
OLF-DW-6	Lisa Ward	PVC	1.25	Unknown	1988	SF
OLF-DW-7	Anita Woods	Unknown	Unknown	35	1982	SF
OLF-DW-8	Frank Richardson	Unknown	Unknown	Unknown	Unknown	SF
OLF-DW-9	Sheila Trembley	PVC	1.25	Unknown	Unknown	SF
OLF-DW-10	Abandoned Navy well	Unknown	Unknown	Unknown	Unknown	MF
OLF-DW-11	Susan Morgan	PVC	2	Unknown	1988	SF
OLF-DW-12	Donna Aaron	PVC	2	45	1990	MF
OLF-DW-13	Abandoned Navy well (W.L. Adams)	Iron/PVC	Unknown	200	1943	MF
OLF-DW-14	Joel Mimms	Unknown	Unknown	Unknown	Unknown	MF
OLF-DW-17	Marae Bechtold	PVC	2	Unknown	Unknown	SF
OLF-DW-18	Tim Huff	Unknown	Unknown	Unknown	Unknown	SF
OLF-DW-19	Greg Stephenson	PVC	2	Unknown	Unknown	SF
OLF-DW-20	Dave Gridovitz	PVC	2	90	1993	SF
OLF-DW-21	Mike Thompson	PVC	2	25	1993	SF
OLF-DW-22	Colette Stephenson	Unknown	Unknown	Unknown	1983/1984	SF
OLF-DW-23	Joann Wells	PVC	2	Unknown	Unknown	SF
OLF-DW-24	Yolanda Moore	PVC	2	Unknown	Unknown	SF
OLF-DW-25	J. T. Burke	PVC	2	60	1990	SF
OLF-DW-26	Christine Wilson	PVC	2	65	1993	SF
OLF-DW-27	Laurie Roll	PVC	2	65	1988	SF
OLF-DW-28	Susan Langston	PVC	2	100	1986	SF

Notes: ft bls = feet below land surface.
PVC = polyvinyl chloride.
SF = single family.
MF = multiple family.



**FIGURE 2-1
RESIDENTIAL WELL SAMPLING LOCATIONS**



**RESIDENTIAL WELL
SAMPLING EVENT**

**OLF BARIN
FOLEY, ALABAMA**

WELLSAMP/NP/1-4-94

3.0 GROUNDWATER SAMPLE RESULTS

The following sections present the analytical results for the residential well sampling event. Section 3.1 presents a summary of the quality assurance/quality control (QA/QC) results. Section 3.2 presents the field parameter results and Section 3.3 summarizes the analytical results. Appendix A provides full validated data tables including the contract required detection limits (CRDLs) for all the samples collected.

3.1 QUALITY ASSURANCE/QUALITY CONTROL SUMMARY. The analytical results for the groundwater samples collected during the residential well sampling event were evaluated and validated according to NEESA Level C criteria with 10 percent Level D criteria. The data tables included in Appendix A reflect the validation process results. Data review and validation were performed by Heartland Environmental Services, Inc., of St. Peters, Missouri.

Field QC samples collected in conjunction with the investigation included only trip blank and duplicate samples. Field blank and rinsate blank samples were not collected because samples were collected directly from the faucet without sampling equipment. All field QC samples were collected in conformance with the requirements of the USEPA Region IV Standard Operating Procedures and Quality Assurance Manual (February 1, 1991).

Evaluation of the analytical data indicated discrepancies in the initial and continuing calibration of instruments for VOC analysis. Due to these discrepancies, which caused a rejection of the data, 17 of the residential wells (samples OLF-DW-6 through OLF-DW-14 and OLF-DW-21 through OLF-DW-28) were resampled on December 2, 1993, and the samples analyzed for TCL VOCs. Following the reanalysis of samples and validation of the new data, the validators indicated that overall system performance was fair and it was estimated that less than 5 percent of the data was qualified. The data was judged usable for the purposes of this investigation.

3.2 PHYSICAL PARAMETERS. During sample collection, physical parameters including pH, specific conductance, and temperature were measured at each sampling location. Table 3-1 presents a summary of the groundwater sample physical parameters.

The groundwater samples collected from residential wells were reported to have pH values ranging from 5.0 to 6.4 standard units. Specific conductance values were reported to range from 11.1 to 125 micromhos per centimeter ($\mu\text{mhos/cm}$) and temperature values ranged from 19 to 25 degrees Celsius ($^{\circ}\text{C}$).

3.3 ANALYTICAL RESULTS. Table 3-2 summarizes the analytical results for the groundwater samples collected from residential wells in the area surrounding the OLF Barin facility. Fourteen of the samples (OLF-DW-1 through OLF-DW-14) were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides and PCBs, and TAL inorganic parameters. The remaining samples (OLF-DW-17 through OLF-DW-28) were analyzed for TCL VOCs only. Also included in the table are the Federal and State of Alabama maximum contaminant levels (MCLs) that were used for comparison of any

**Table 3-1
Residential Well Groundwater Sample Physical Parameters**

Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

Sample Designation	Well Owner	Date Sampled	pH	Specific Conductance (μmhos/cm)	Temperature (°C)
OLF-DW-1	William Coleman	9/13/93	5.8	23.0	24
OLF-DW-2	Elbert Brechner	9/14/93	6.1	25.1	25
OLF-DW-3	Angie Vasko	9/14/93	5.0	38.6	23
OLF-DW-4	Robert Harrison	9/14/93	5.3	38.5	23
OLF-DW-5	John Childress	9/14/93	5.6	33.2	23
OLF-DW-6	Lisa Ward	9/15/93 ¹	5.7	41.2	24
OLF-DW-7	Anita Woods	9/15/93 ¹	5.5	57.4	21
OLF-DW-8	Frank Richardson	9/20/93 ¹	5.4	103	19
OLF-DW-9	Sheila Trembley	9/20/93 ¹	5.5	94.3	21
OLF-DW-10	Abandoned Navy well	9/20/93 ¹	5.7	119	21
OLF-DW-11	Susan Morgan	9/22/93 ¹	5.7	51.7	22
OLF-DW-12	Donna Aaron	9/22/93 ¹	6.0	52.9	20
OLF-DW-13	Abandoned Navy well (W.L. Adams)	9/22/93 ¹	5.7	64.0	21
OLF-DW-14	Joel Mimms	9/22/93 ¹	5.8	47.6	21
OLF-DW-17	Marae Bechtold	9/14/93	5.3	56.0	22
OLF-DW-18	Tim Huff	9/14/93	5.3	78.0	23
OLF-DW-19	Greg Stephenson	9/14/93	5.6	36.0	22
OLF-DW-20	Dave Gridovitz	9/14/93	5.4	41.0	22
OLF-DW-21	Mike Thompson	12/2/93	5.4	33.8	22
OLF-DW-22	Colette Stephenson	12/2/93	5.9	30.4	21
OLF-DW-23	Joann Wells	12/2/93	6.2	38.4	22
OLF-DW-24	Yolanda Moore	12/2/93	6.4	11.1	22
OLF-DW-25	J. T. Burke	12/2/93	5.8	70.2	21
OLF-DW-26	Christine Wilson	12/2/93	5.9	39.1	22
OLF-DW-27	Laurie Roll	12/2/93	5.3	125	22
OLF-DW-28	Susan Langston	12/2/93	5.5	38.3	21

¹ Due to laboratory instrument discrepancies, the volatile organic compound fraction for this sample was recollected on December 2, 1993.

Notes: pH is reported in standard units.
μmhos = micromhos per centimeter.
°C = degrees Celsius.

Table 3-2
Summary of Analytical Results for Residential Well Samples

Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

Locator:	OLF-TB-1	OLF-TB1	OLF-TB2	OLF-DW-1	OLF-DW-1D	OLF-DW-2	OLF-DW-3	OLF-DW-4	OLF-DW-5	OLF-DW-6
Collect Date:	03-Sep-93	03-Dec-93	14-Sep-93	13-Sep-93	13-Sep-93	15-Sep-93	15-Sep-93	15-Sep-93	15-Sep-93	02-Dec-93
Lab. Sample No.:	9015001	9026618	9015109	90149001	90149002	90151001	90151002	90151003	90151004	90155002
Volatile Organic Compounds										
Chloromethane	--	--	--	--	--	1 J	--	--	1 J	--
Acetone	--	--	--	--	--	7 J	7 J	5 J	--	--
Semivolatile Organic Compounds										
Di-n-butylphthalate	NA	NA	NA	--	--	--	--	--	--	--
Inorganics										
Arsenic	NA	NA	NA	--	--	--	--	--	--	1.5 J
Barium	NA	NA	NA	8.3 J	8.2 J	8.6 J	16.9 J	15.7 J	12.7 J	27.4 J
Beryllium	NA	NA	NA	--	--	--	--	--	--	--
Calcium	NA	NA	NA	369 J	358 J	211 J	713 J	718 J	836 J	468 J
Cobalt	NA	NA	NA	--	--	--	--	2.7 J	2.1 J	--
Copper	NA	NA	NA	9.9 J	9.4 J	31.7	--	10.8 J	13.4 J	20.3 J
Iron	NA	NA	NA	51.8 J	--	44.8 J	218	210	218	--
Lead	NA	NA	NA	1.6 J	2.8 J	--	--	--	--	--
Magnesium	NA	NA	NA	523 J	507 J	467 J	--	539 J	538 J	1,170 J
Manganese	NA	NA	NA	2.9 J	26 J	6.3 J	13.4 J	14.5 J	6.9 J	22.2
Mercury	NA	NA	NA	--	--	--	--	--	--	--
Potassium	NA	NA	NA	--	--	--	--	1,280 J	--	--
Selenium	NA	NA	NA	--	--	--	--	--	--	--
Sodium	NA	NA	NA	2,770 J	2,740 J	3,020 J	3,020 J	2,960	2,800	3,720 J
Zinc	NA	NA	NA	--	--	9.2 J	6.2 J	15.8 J	9.5 J	11.4 J

See notes at end of table.

Table 3-2 (Continued)
Summary of Analytical Results for Residential Well Samples

Residential Well Sampling Event Report
 Outlying Landing Field Barin
 Foley, Alabama

Locator:	OLF-DW-7	OLF-DW-8	OLF-DW-9	OLF-DW-10	OLF-DW-11	OLF-DW-11D	OLF-DW-12	OLF-DW-13
Collect Date ¹ :	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93
Laboratory Sample No.:	90158001	90158001	90158002	90266012	90163001	90163002	90266017	90266015
Volatile Organic Compounds								
Chloromethane	--	--	--	--	--	--	--	--
Acetone	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds								
Di-n-butylphthalate	--	--	10 J	--	--	--	--	0.6 J
Inorganics								
Arsenic	--	--	--	--	--	--	--	--
Barium	15.9 J	102 J	99.5 J	141 J	42.6 J	42.8 J	42.3 J	53.6 J
Beryllium	--	0.52 J	0.26 J	0.32 J	--	--	--	0.26 J
Calcium	482 J	2,650 J	2,300	3,700 J	904 J	913 J	1,940 J	1,460 J
Cobalt	--	--	--	--	--	--	--	--
Copper	5.8 J	--	33.7	61.9 J	10.7 J	--	25.6 J	--
Iron	--	62.1 J	223	35.8 J	54.3 J	--	59.3 J	--
Lead	--	3.8	3.8	12.4	26.3 J	24.2 J	--	--
Magnesium	907 J	5,190	5,080	6,430	2,030 J	2,080 J	2,240 J	2,380 J
Manganese	10.3 J	33.6	30.1	36.0	16.7	17.1	11.0 J	12.8 J
Mercury	--	0.05 J	0.05 J	0.04 J	--	--	--	--
Potassium	--	--	--	1,120 J	--	830 J	930 J	--
Selenium	--	R	R	--	--	--	--	--
Sodium	4,550 J	3,250 J	3,280 J	3,320 J	2,860 J	2,030 J	2,620 J	3,540 J
Zinc	7.4 J	11.7 J	21.7	79.9	9.4 J	6.9 J	10.4 J	5.4 J
See notes at end of table.								

Table 3-2 (Continued)
Summary of Analytical Results for Residential Well Samples

Residential Well Sampling Event Report
 Outlying Landing Field Barin
 Foley, Alabama

Locator:	OLF-DW-14	OLF-DW-17	OLF-DW-18	OLF-DW-19	OLF-DW-20	OLF-DW-21	OLF-DW-21D	OLF-DW-22
Collect Date:	02-Dec-93	22-Sep-93	14-Sep-93	14-Sep-93	14-Sep-93	03-Dec-93	03-Dec-93	02-Dec-93
Laboratory Sample No.:	90266009	90151005	90151006	90151007	90151008	90267001	90267002	90266002
Volatile Organic Compounds								
Chloromethane	--	1 J	--	--	--	--	--	--
Acetone	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds								
Di-n-butylphthalate	--	--	--	--	--	--	--	--
Inorganics								
Arsenic	--	NA	NA	NA	NA	NA	NA	NA
Barium	35.2 J	NA	NA	NA	NA	NA	NA	NA
Beryllium	0.20 J	NA	NA	NA	NA	NA	NA	NA
Calcium	880 J	NA	NA	NA	NA	NA	NA	NA
Cobalt	--	NA	NA	NA	NA	NA	NA	NA
Copper	24.0 J	NA	NA	NA	NA	NA	NA	NA
Iron	67.1 J	NA	NA	NA	NA	NA	NA	NA
Lead	2.3 J	NA	NA	NA	NA	NA	NA	NA
Magnesium	1,660 J	NA	NA	NA	NA	NA	NA	NA
Manganese	22.4	NA	NA	NA	NA	NA	NA	NA
Mercury	--	NA	NA	NA	NA	NA	NA	NA
Potassium	--	NA	NA	NA	NA	NA	NA	NA
Selenium	--	NA	NA	NA	NA	NA	NA	NA
Sodium	3,510 J	NA	NA	NA	NA	NA	NA	NA
Zinc	19.5 J	NA	NA	NA	NA	NA	NA	NA
See notes at end of table.								

Table 3-2 (Continued)
Summary of Analytical Results for Residential Well Samples

Residential Well Sampling Event Report
Outlying Landing Field Barin
Foley, Alabama

Locator:	OLF-DW-23	OLF-DW-24	OLF-DW-25	OLF-DW-26	OLF-DW-27	OLF-DW-28		
Collect Date ¹ :	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	02-Dec-93	Federal	Alabama
Laboratory Sample No.:	90266007	90266008	90266016	90266014	90266010	90266001	MCL	MCL
Volatile Organic Compounds								
Chloromethane	--	--	--	--	--	--	--	--
Acetone	--	--	--	--	--	--	--	--
Semivolatile Organic Compounds								
Di-n-butylphthalate	--	--	--	--	--	--	--	--
Inorganics								
Arsenic	NA	NA	NA	NA	NA	NA	50	50
Barium	NA	NA	NA	NA	NA	NA	2,000	2,000
Beryllium	NA	NA	NA	NA	NA	NA	4	4
Calcium	NA	NA	NA	NA	NA	NA	--	--
Cobalt	NA	NA	NA	NA	NA	NA	--	--
Copper	NA	NA	NA	NA	NA	NA	100	100
Iron	NA	NA	NA	NA	NA	NA	300	300
Lead	NA	NA	NA	NA	NA	NA	15	15
Magnesium	NA	NA	NA	NA	NA	NA	--	--
Manganese	NA	NA	NA	NA	NA	NA	50	50
Mercury	NA	NA	NA	NA	NA	NA	2	2
Potassium	NA	NA	NA	NA	NA	NA	--	--
Selenium	NA	NA	NA	NA	NA	NA	--	--
Sodium	NA	NA	NA	NA	NA	NA	--	--
Zinc	NA	NA	NA	NA	NA	NA	5,000	5,000

¹ Collect date listed is for volatile organic compound parameters only.

Notes: All concentrations are reported in micrograms per liter ($\mu\text{g}/\text{l}$).

MCL = maximum contaminant level.

J = estimated concentration.

-- = compound not detected above instrument detection limits (IDLs).

R = analytical data rejected.

NA = not analyzed.

concentrations detected. Appendix A provides a complete analytical list including the CRDLs.

Two VOCs, acetone and chloromethane, were detected in the residential well samples collected. Concentrations of acetone were detected in samples OLF-DW-2 (7 J micrograms per liter [$\mu\text{g}/\ell$]), OLF-DW-3 (7 J $\mu\text{g}/\ell$) and OLF-DW-4 (5 J $\mu\text{g}/\ell$). Concentrations of chloromethane were reported in samples OLF-DW-2 (1 J $\mu\text{g}/\ell$), OLF-DW-5 (1 J $\mu\text{g}/\ell$), and OLF-DW-17 (1 J $\mu\text{g}/\ell$). All reported concentrations were less than the CRDL but greater than the laboratory instrument detection limit; therefore, all reported values were qualified during the data evaluation process as estimated concentrations, as signified by the "J." Additional reasons for data qualification are provided in Appendix A.

Currently, no Federal or State of Alabama MCLs exist for acetone or chloromethane in drinking water.

A single compound, di-n-butylphthalate, detected in samples OLF-DW-9 and OLF-DW-13 at concentrations of 10 J $\mu\text{g}/\ell$ and 0.6 J $\mu\text{g}/\ell$, respectively, was the only SVOC reported in the residential well samples. This value was also qualified as estimated because the reported concentration was less than the CRDLs. Currently, no Federal or State of Alabama drinking water MCLs are available for this compound.

No pesticide or PCB compounds were detected in any of the residential well samples collected.

A total of 15 inorganic parameters were detected in the residential well samples. All of the inorganic compounds detected occur naturally in groundwater and all reported concentrations, with the exception of lead, were reported at values less than Federal and State of Alabama MCLs. Concentrations of lead detected in sample OLF-DW-11 (26.3 J $\mu\text{g}/\ell$) and duplicate sample OLF-DW-11D (24.2 J $\mu\text{g}/\ell$) were reported to exceed the Federal and State of Alabama MCL of 15 $\mu\text{g}/\ell$. Both concentrations were qualified as estimated by the data validation process because the laboratories matrix spike recoveries for lead were below the lower control limit.

4.0 SUMMARY FINDINGS

The summary findings for the OLF Barin residential well sampling event are indicated below.

- A total of 2 VOCs, 1 SVOC, and 15 inorganic parameters were detected in groundwater samples collected from residential wells surrounding the OLF Barin facility. Currently, there are no Federal or Alabama MCLs available for the two VOCs and the one SVOC detected. All of the reported inorganic concentrations, with the exception of lead detected in one well, were less than the Federal and State of Alabama MCLs. Lead concentrations detected in samples OLF-DW-11 and OLF-DW-11D collected from the Morgan residence exceeded the Federal and State of Alabama MCLs.

REFERENCE

U.S. Environmental Protection Agency (USEPA), 1991, Environmental Compliance Branch, Standard Operating Procedures and Quality Assurance Manual: USEPA Region IV Environmental Services Division, Athens, Georgia.

APPENDIX A

**SUMMARIZED AND QUALIFIED CHEMICAL ANALYTICAL RESULTS
AND DATA VALIDATION NARRATIVES**

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 09:52:30

TRIP BLANKS

Lab Sample Number:	90150001	90151009
Site	OLFBARIN	OLFBARIN
Locator	OLF-TB-1	OLF-TB-2
Collect Date:	13-SEP-93	14-SEP-93

	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP VOLATILES 90-SOW						
Chloromethane	10 U	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08

VOLATILES RESULTS

Lab Sample Number:	90149001	90149002	90151001	90151002								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW1	OLF-DW1D	OLF-DW2	OLF-DW3								
Collect Date:	13-SEP-93	13-SEP-93	15-SEP-93	15-SEP-93								
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	
CLP VOLATILES 90-SOW												
Chloromethane	10 U	ug/l	10	10 U	ug/l	10	1 J	ug/l	10	10 U	ug/l	10
Bromomethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acetone	10 U	ug/l	10	10 U	ug/l	10	7 J	ug/l	10	7 J	ug/l	10
Carbon disulfide	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chloroform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Butanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Bromoform	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Toluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Styrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08

VOLATILES RESULTS

Lab Sample Number:	90151003	90151004	90266004	90266003								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW4	OLF-DW5	OLF-DW6	OLF-DW7								
Collect Date:	15-SEP-93	15-SEP-93	02-DEC-93	02-DEC-93								
VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
CLP VOLATILES 90-SOW												
Chloromethane	10	U	ug/l	10	1	J	ug/l	10	10	U	ug/l	10
Bromomethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Vinyl chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Methylene chloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acetone	5	J	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon disulfide	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethene (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chloroform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Butanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,1-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbon tetrachloride	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromodichloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichloropropane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
cis-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Trichloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibromochloromethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2-Trichloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
trans-1,3-Dichloropropene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Bromoform	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methyl-2-pentanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Hexanone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Tetrachloroethene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Toluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,1,2,2-Tetrachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Ethylbenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Styrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Xylenes (total)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08

VOLATILES RESULTS

Lab Sample Number:	90266013	90266011	90266012	90266005								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW8	OLF-DW9	OLF-DW10	OLF-DW11								
Collect Date:	02-DEC-93	02-DEC-93	02-DEC-93	02-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10									
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	10 U	ug/l	10									
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10									
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10									
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10									
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08
VOLATILES RESULTS

Lab Sample Number:	90266006	90266017	90266015	90266009							
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN							
Locator	OLF-DW11D	OLF-DW12	OLF-DW13	OLF-DW14							
Collect Date:	02-DEC-93	02-DEC-93	02-DEC-93	02-DEC-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10									
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	10 U	ug/l	10									
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethane (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10									
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10									
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10									
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08

VOLATILES RESULTS

Lab Sample Number:	90267001	90267002D	90266002	90266007								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW21	OLF-DW21D	OLF-DW22	OLF-DW23								
Collect Date:	02-DEC-93	02-DEC-93	02-DEC-93	02-DEC-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10									
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	10 U	ug/l	10									
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10									
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10									
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10									
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
XYlenes (total)	10 U	ug/l	10									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:38:08
VOLATILES RESULTS

Lab Sample Number:	90266008	90266016	90266014	90266010							
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN							
Locator	OLF-DW24	OLF-DW25	OLF-DW26	OLF-DW27							
Collect Date:	02-DEC-93	02-DEC-93	02-DEC-93	02-DEC-93							
VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10									
Bromomethane	10 U	ug/l	10									
Vinyl chloride	10 U	ug/l	10									
Chloroethane	10 U	ug/l	10									
Methylene chloride	10 U	ug/l	10									
Acetone	10 U	ug/l	10									
Carbon disulfide	10 U	ug/l	10									
1,1-Dichloroethene	10 U	ug/l	10									
1,1-Dichloroethane	10 U	ug/l	10									
1,2-Dichloroethene (total)	10 U	ug/l	10									
Chloroform	10 U	ug/l	10									
1,2-Dichloroethane	10 U	ug/l	10									
2-Butanone	10 U	ug/l	10									
1,1,1-Trichloroethane	10 U	ug/l	10									
Carbon tetrachloride	10 U	ug/l	10									
Bromodichloromethane	10 U	ug/l	10									
1,2-Dichloropropane	10 U	ug/l	10									
cis-1,3-Dichloropropene	10 U	ug/l	10									
Trichloroethene	10 U	ug/l	10									
Dibromochloromethane	10 U	ug/l	10									
1,1,2-Trichloroethane	10 U	ug/l	10									
Benzene	10 U	ug/l	10									
trans-1,3-Dichloropropene	10 U	ug/l	10									
Bromoform	10 U	ug/l	10									
4-Methyl-2-pentanone	10 U	ug/l	10									
2-Hexanone	10 U	ug/l	10									
Tetrachloroethene	10 U	ug/l	10									
Toluene	10 U	ug/l	10									
1,1,2,2-Tetrachloroethane	10 U	ug/l	10									
Chlorobenzene	10 U	ug/l	10									
Ethylbenzene	10 U	ug/l	10									
Styrene	10 U	ug/l	10									
Xylenes (total)	10 U	ug/l	10									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

VOLATILES RESULTS

Lab Sample Number: 90266001
 Site OLFBARIN
 Locator OLF-DW28
 Collect Date: 02-DEC-93

VALUE QUAL UNITS DL

CLP VOLATILES 90-SOW

Chloromethane	10 U	ug/l	10
Bromomethane	10 U	ug/l	10
Vinyl chloride	10 U	ug/l	10
Chloroethane	10 U	ug/l	10
Methylene chloride	10 U	ug/l	10
Acetone	10 U	ug/l	10
Carbon disulfide	10 U	ug/l	10
1,1-Dichloroethene	10 U	ug/l	10
1,1-Dichloroethane	10 U	ug/l	10
1,2-Dichloroethene (total)	10 U	ug/l	10
Chloroform	10 U	ug/l	10
1,2-Dichloroethane	10 U	ug/l	10
2-Butanone	10 U	ug/l	10
1,1,1-Trichloroethane	10 U	ug/l	10
Carbon tetrachloride	10 U	ug/l	10
Bromodichloromethane	10 U	ug/l	10
1,2-Dichloropropane	10 U	ug/l	10
cis-1,3-Dichloropropene	10 U	ug/l	10
Trichloroethene	10 U	ug/l	10
Dibromochloromethane	10 U	ug/l	10
1,1,2-Trichloroethane	10 U	ug/l	10
Benzene	10 U	ug/l	10
trans-1,3-Dichloropropene	10 U	ug/l	10
Bromoform	10 U	ug/l	10
4-Methyl-2-pentanone	10 U	ug/l	10
2-Hexanone	10 U	ug/l	10
Tetrachloroethene	10 U	ug/l	10
Toluene	10 U	ug/l	10
1,1,2,2-Tetrachloroethane	10 U	ug/l	10
Chlorobenzene	10 U	ug/l	10
Ethylbenzene	10 U	ug/l	10
Styrene	10 U	ug/l	10
Xylenes (total)	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13
SEMIVOLATILES RESULTS

Lab Sample Number:
Site
Locator
Collect Date:

90149001
OLFBARIN
OLF-DW1
13-SEP-93
VALUE QUAL UNITS DL

90149002
OLFBARIN
OLF-DW10
13-SEP-93
VALUE QUAL UNITS DL

90151001
OLFBARIN
OLF-DW2
15-SEP-93
VALUE QUAL UNITS DL

90151002
OLFBARIN
OLF-DW3
15-SEP-93
VALUE QUAL UNITS DL

CLP SEMIVOLATILES 90-SOW

| | VALUE | QUAL UNITS | DL |
|-----------------------------|-------|------------|----|-------|------------|----|-------|------------|----|-------|------------|----|
| Phenol | 10 U | ug/l | 10 |
| bis(2-Chloroethyl) ether | 10 U | ug/l | 10 |
| 2-Chlorophenol | 10 U | ug/l | 10 |
| 1,3-Dichlorobenzene | 10 U | ug/l | 10 |
| 1,4-Dichlorobenzene | 10 U | ug/l | 10 |
| 1,2-Dichlorobenzene | 10 U | ug/l | 10 |
| 2-Methylphenol | 10 U | ug/l | 10 |
| 2,2-oxybis(1-Chloropropane) | 10 U | ug/l | 10 |
| 4-Methylphenol | 10 U | ug/l | 10 |
| N-Nitroso-di-n-propylamine | 10 U | ug/l | 10 |
| Hexachloroethane | 10 U | ug/l | 10 |
| Nitrobenzene | 10 U | ug/l | 10 |
| Isophorone | 10 U | ug/l | 10 |
| 2-Nitrophenol | 10 U | ug/l | 10 |
| 2,4-Dimethylphenol | 10 U | ug/l | 10 |
| bis(2-Chloroethoxy) methane | 10 U | ug/l | 10 |
| 2,4-Dichlorophenol | 10 U | ug/l | 10 |
| 1,2,4-Trichlorobenzene | 10 U | ug/l | 10 |
| Naphthalene | 10 U | ug/l | 10 |
| 4-Chloroaniline | 10 U | ug/l | 10 |
| Hexachlorobutadiene | 10 U | ug/l | 10 |
| 4-Chloro-3-methylphenol | 10 U | ug/l | 10 |
| 2-Methylnaphthalene | 10 U | ug/l | 10 |
| Hexachlorocyclopentadiene | 10 U | ug/l | 10 |
| 2,4,6-Trichlorophenol | 10 U | ug/l | 10 |
| 2,4,5-Trichlorophenol | 25 U | ug/l | 25 |
| 2-Chloronaphthalene | 10 U | ug/l | 10 |
| 2-Nitroaniline | 25 U | ug/l | 25 |
| Dimethylphthalate | 10 U | ug/l | 10 |
| Acenaphthylene | 10 U | ug/l | 10 |
| 2,6-Dinitrotoluene | 10 U | ug/l | 10 |
| 3-Nitroaniline | 25 U | ug/l | 25 |
| Acenaphthene | 10 U | ug/l | 10 |
| 2,4-Dinitrophenol | 25 U | ug/l | 25 |
| 4-Nitrophenol | 25 U | ug/l | 25 |
| Dibenzofuran | 10 U | ug/l | 10 |
| 2,4-Dinitrotoluene | 10 U | ug/l | 10 |
| Diethylphthalate | 10 U | ug/l | 10 |
| 4-Chlorophenyl-phenylether | 10 U | ug/l | 10 |
| Fluorene | 10 U | ug/l | 10 |
| 4-Nitroaniline | 25 U | ug/l | 25 |
| 4,6-Dinitro-2-methylphenol | 25 U | ug/l | 25 |
| N-Nitrosodiphenylamine (1) | 10 U | ug/l | 10 |
| 4-Bromophenyl-phenylether | 10 U | ug/l | 10 |
| Hexachlorobenzene | 10 U | ug/l | 10 |
| Pentachlorophenol | 25 U | ug/l | 25 |
| Phenanthrene | 10 U | ug/l | 10 |
| Anthracene | 10 U | ug/l | 10 |
| Carbazole | 10 U | ug/l | 10 |
| Di-n-butylphthalate | 10 U | ug/l | 10 |
| Fluoranthene | 10 U | ug/l | 10 |
| Pyrene | 10 U | ug/l | 10 |
| Butylbenzylphthalate | 10 U | ug/l | 10 |

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

	90149001			90149002			90151001			90151002		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

	Lab Sample Number: 90151003			90151004			90155001			90155002		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP SEMIVOLATILES 90-SOM												
Phenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethyl) ether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Chlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,3-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,4-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2-Dichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
N-Nitroso-di-n-propylamine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachloroethane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Nitrobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Isophorone	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitrophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dimethylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Chloroethoxy) methane	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
1,2,4-Trichlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Naphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloroaniline	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobutadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chloro-3-methylphenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Methylnaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorocyclopentadiene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,6-Trichlorophenol	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4,5-Trichlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
2-Chloronaphthalene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dimethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Acenaphthylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,6-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Acenaphthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4-Nitrophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Dibenzofuran	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
2,4-Dinitrotoluene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Diethylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Chlorophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluorene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Nitroaniline	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
4,6-Dinitro-2-methylphenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
N-Nitrosodiphenylamine (1)	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
4-Bromophenyl-phenylether	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Hexachlorobenzene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pentachlorophenol	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25	25 U	ug/l	25
Phenanthrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Carbazole	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-butylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13
SEMIVOLATILES RESULTS

Lab Sample Number:	90151003	90151004	90155001	90155002								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW4	OLF-DW5	OLF-DW6	OLF-DW7								
Collect Date:	15-SEP-93	15-SEP-93	15-SEP-93	15-SEP-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITAION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

Lab Sample Number: Site Locator Collect Date:	90158001			90158002			90158003			90163001		
	VALUE	QUAL UNITS	DL									
CLP SEMIVOLATILES 90-SOW												
Phenol	10 U	ug/l	10									
bis(2-Chloroethyl) ether	10 U	ug/l	10									
2-Chlorophenol	10 U	ug/l	10									
1,3-Dichlorobenzene	10 U	ug/l	10									
1,4-Dichlorobenzene	10 U	ug/l	10									
1,2-Dichlorobenzene	10 U	ug/l	10									
2-Methylphenol	10 U	ug/l	10									
2,2-oxybis(1-Chloropropane)	10 U	ug/l	10									
4-Methylphenol	10 U	ug/l	10									
N-Nitroso-di-n-propylamine	10 U	ug/l	10									
Hexachloroethane	10 U	ug/l	10									
Nitrobenzene	10 U	ug/l	10									
Isophorone	10 U	ug/l	10									
2-Nitrophenol	10 U	ug/l	10									
2,4-Dimethylphenol	10 U	ug/l	10									
bis(2-Chloroethoxy) methane	10 U	ug/l	10									
2,4-Dichlorophenol	10 U	ug/l	10									
1,2,4-Trichlorobenzene	10 U	ug/l	10									
Naphthalene	10 U	ug/l	10									
4-Chloroaniline	10 U	ug/l	10									
Hexachlorobutadiene	10 U	ug/l	10									
4-Chloro-3-methylphenol	10 U	ug/l	10									
2-Methylnaphthalene	10 U	ug/l	10									
Hexachlorocyclopentadiene	10 U	ug/l	10									
2,4,6-Trichlorophenol	10 U	ug/l	10									
2,4,5-Trichlorophenol	25 U	ug/l	25									
2-Chloronaphthalene	10 U	ug/l	10									
2-Nitroaniline	25 U	ug/l	25									
Dimethylphthalate	10 U	ug/l	10									
Acenaphthylene	10 U	ug/l	10									
2,6-Dinitrotoluene	10 U	ug/l	10									
3-Nitroaniline	25 U	ug/l	25									
Acenaphthene	10 U	ug/l	10									
2,4-Dinitrophenol	25 U	ug/l	25									
4-Nitrophenol	25 U	ug/l	25									
Dibenzofuran	10 U	ug/l	10									
2,4-Dinitrotoluene	10 U	ug/l	10									
Diethylphthalate	10 U	ug/l	10									
4-Chlorophenyl-phenylether	10 U	ug/l	10									
Fluorene	10 U	ug/l	10									
4-Nitroaniline	25 U	ug/l	25									
4,6-Dinitro-2-methylphenol	25 U	ug/l	25									
N-Nitrosodiphenylamine (1)	10 U	ug/l	10									
4-Bromophenyl-phenylether	10 U	ug/l	10									
Hexachlorobenzene	10 U	ug/l	10									
Pentachlorophenol	25 U	ug/l	25									
Phenanthrene	10 U	ug/l	10									
Anthracene	10 U	ug/l	10									
Carbazole	10 U	ug/l	10									
Di-n-butylphthalate	10 U	ug/l	10									
Fluoranthene	10 U	ug/l	10									
Pyrene	10 U	ug/l	10									

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

	90158001			90158002			90158003			90163001		
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
Butylbenzylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3,3-Dichlorobenzidine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Chrysene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Ethylhexyl) phthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-octylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (b) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (k) fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (a) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Indeno (1,2,3-cd) pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

Lab Sample Number:	90163002	90162001	90162002	90162003												
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN												
Locator	OLF-DW11D	OLF-DW12	OLF-DW13	OLF-DW14												
Collect Date:	22-SEP-93	22-SEP-93	22-SEP-93	22-SEP-93												
VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
CLP SEMIVOLATILES 90-SOM																
Phenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethyl) ether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,3-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,4-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2-Dichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,2-oxybis(1-Chloropropane)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
N-Nitroso-di-n-propylamine	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Isophorone	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
bis(2-Chloroethoxy) methane	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Naphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloroaniline	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Methylnaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4,5-Trichlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
2-Chloronaphthalene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dimethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
3-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Acenaphthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4-Nitrophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Dibenzofuran	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
2,4-Dinitrotoluene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Diethylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Chlorophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluorene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Nitroaniline	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
4,6-Dinitro-2-methylphenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
N-Nitrosodiphenylamine (1)	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
4-Bromophenyl-phenylether	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pentachlorophenol	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25	25	U	ug/l	25
Phenanthrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Anthracene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Carbazole	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Di-n-butylphthalate	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10
Pyrene	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10	10	U	ug/l	10

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:32:13

SEMIVOLATILES RESULTS

	Lab Sample Number: 90163002			90162001			90162002			90162003		
	Site	Collector	DL	Site	Collector	DL	Site	Collector	DL	Site	Collector	DL
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
Butylbenzylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
3,3-Dichlorobenzidine	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Chrysene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
bis(2-Ethylhexyl) phthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Di-n-octylphthalate	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (b) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (k) fluoranthene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (a) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Indeno (1,2,3-cd) pyrene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Dibenz (a,h) anthracene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10
Benzo (g,h,i) perylene	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10	10 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 09:48:57
PESTICIDES/PCBS RESULTS

Lab Sample Number:	90149001	90149002	90151001	90151002								
Site:	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator:	OLFDW1	OLFDW1D	OLF-DW2	OLF-DW3								
Collect Date:	13-SEP-93	13-SEP-93	15-SEP-93	15-SEP-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05									
beta-BHC	.05 U	ug/l	.05									
delta-BHC	.05 U	ug/l	.05									
gamma-BHC (Lindene)	.05 U	ug/l	.05									
Heptachlor	.05 U	ug/l	.05									
Aldrin	.05 U	ug/l	.05									
Heptachlor epoxide	.05 U	ug/l	.05									
Endosulfan I	.05 U	ug/l	.05									
Dieldrin	.1 U	ug/l	.1									
4,4-DDE	.1 U	ug/l	.1									
Endrin	.1 U	ug/l	.1									
Endosulfan II	.1 U	ug/l	.1									
4,4-DDD	.1 U	ug/l	.1									
Endosulfan sulfate	.1 U	ug/l	.1									
4,4-DDT	.1 U	ug/l	.1									
Methoxychlor	.5 U	ug/l	.5									
Endrin ketone	.1 U	ug/l	.1									
Endrin aldehyde	.1 U	ug/l	.1									
alpha-Chlordane	.05 U	ug/l	.05									
gamma-Chlordane	.05 U	ug/l	.05									
Toxaphene	5 U	ug/l	5									
Aroclor-1016	1 U	ug/l	1									
Aroclor-1221	2 U	ug/l	2									
Aroclor-1232	1 U	ug/l	1									
Aroclor-1242	1 U	ug/l	1									
Aroclor-1248	1 U	ug/l	1									
Aroclor-1254	1 U	ug/l	1									
Aroclor-1260	1 U	ug/l	1									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITAION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 09:48:57
PESTICIDES/PCBS RESULTS

Lab Sample Number:	90151003	90151004	90155001	90155002								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW4	OLF-DW5	OLF-DW6	OLF-DW7								
Collect Date:	15-SEP-93	15-SEP-93	15-SEP-93	15-SEP-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05									
beta-BHC	.05 U	ug/l	.05									
delta-BHC	.05 U	ug/l	.05									
gamma-BHC (Lindane)	.05 U	ug/l	.05									
Heptachlor	.05 U	ug/l	.05									
Aldrin	.05 U	ug/l	.05									
Heptachlor epoxide	.05 U	ug/l	.05									
Endosulfan I	.05 U	ug/l	.05									
Dieldrin	.1 U	ug/l	.1									
4,4-DDE	.1 U	ug/l	.1									
Endrin	.1 U	ug/l	.1									
Endosulfan II	.1 U	ug/l	.1									
4,4-DDD	.1 U	ug/l	.1									
Endosulfan sulfate	.1 U	ug/l	.1									
4,4-DDT	.1 U	ug/l	.1									
Methoxychlor	.5 U	ug/l	.5									
Endrin ketone	.1 U	ug/l	.1									
Endrin aldehyde	.1 U	ug/l	.1									
alpha-Chlordane	.05 U	ug/l	.05									
gamma-Chlordane	.05 U	ug/l	.05									
Toxaphene	5 U	ug/l	5									
Aroclor-1016	1 U	ug/l	1									
Aroclor-1221	2 U	ug/l	2									
Aroclor-1232	1 U	ug/l	1									
Aroclor-1242	1 U	ug/l	1									
Aroclor-1248	1 U	ug/l	1									
Aroclor-1254	1 U	ug/l	1									
Aroclor-1260	1 U	ug/l	1									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 09:48:57
PESTICIDES/PCBS RESULTS

Lab Sample Number:	90158001		90158002		90158003		90163001		
Site	OLFBARIN		OLFBARIN		OLFBARIN		OLFBARIN		
Locator	OLF-DW8		OLF-DW9		OLF-DW10		OLF-DW11		
Collect Date:	20-SEP-93		20-SEP-93		20-SEP-93		13-SEP-93		
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05									
beta-BHC	.05 U	ug/l	.05									
delta-BHC	.05 U	ug/l	.05									
gamma-BHC (Lindane)	.05 U	ug/l	.05									
Heptachlor	.05 U	ug/l	.05									
Aldrin	.05 U	ug/l	.05									
Heptachlor epoxide	.05 U	ug/l	.05									
Endosulfan I	.05 U	ug/l	.05									
Dieldrin	.1 U	ug/l	.1									
4,4-DDE	.1 U	ug/l	.1									
Endrin	.1 U	ug/l	.1									
Endosulfan II	.1 U	ug/l	.1									
4,4-DDD	.1 U	ug/l	.1									
Endosulfan sulfate	.1 U	ug/l	.1									
4,4-DDT	.1 U	ug/l	.1									
Methoxychlor	.5 U	ug/l	.5									
Endrin ketone	.1 U	ug/l	.1									
Endrin aldehyde	.1 U	ug/l	.1									
alpha-Chlordane	.05 U	ug/l	.05									
gamma-Chlordane	.05 U	ug/l	.05									
Toxaphene	5 U	ug/l	5									
Aroclor-1016	1 U	ug/l	1									
Aroclor-1221	2 U	ug/l	2									
Aroclor-1232	1 U	ug/l	1									
Aroclor-1242	1 U	ug/l	1									
Aroclor-1248	1 U	ug/l	1									
Aroclor-1254	1 U	ug/l	1									
Aroclor-1260	1 U	ug/l	1									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 09:48:57
PESTICIDES/PCBS RESULTS

Lab Sample Number:	90163002	90162001	90162002	90162003
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN
Locator	OLF-DW11D	OLF-DW12	OLF-DW13	OLF-DW14
Collect Date:	13-SEP-93	22-SEP-93	22-SEP-93	22-SEP-93
	VALUE QUAL UNITS DL			

CLP PESTICIDES/PCBS 90-SOW

alpha-BHC	.05 U	ug/l	.05									
beta-BHC	.05 U	ug/l	.05									
delta-BHC	.05 U	ug/l	.05									
gamma-BHC (Lindane)	.05 U	ug/l	.05									
Heptachlor	.05 U	ug/l	.05									
Aldrin	.05 U	ug/l	.05									
Heptachlor epoxide	.05 U	ug/l	.05									
Endosulfan I	.05 U	ug/l	.05									
Dieldrin	.1 U	ug/l	.1									
4,4-DDE	.1 U	ug/l	.1									
Endrin	.1 U	ug/l	.1									
Endosulfan II	.1 U	ug/l	.1									
4,4-DDD	.1 U	ug/l	.1									
Endosulfan sulfate	.1 U	ug/l	.1									
4,4-DDT	.1 U	ug/l	.1									
Methoxychlor	.5 U	ug/l	.5									
Endrin ketone	.1 U	ug/l	.1									
Endrin aldehyde	.1 U	ug/l	.1									
alpha-Chlordane	.05 U	ug/l	.05									
gamma-Chlordane	.05 U	ug/l	.05									
Toxaphene	5 U	ug/l	5									
Aroclor-1016	1 U	ug/l	1									
Aroclor-1221	2 U	ug/l	2									
Aroclor-1232	1 U	ug/l	1									
Aroclor-1242	1 U	ug/l	1									
Aroclor-1248	1 U	ug/l	1									
Aroclor-1254	1 U	ug/l	1									
Aroclor-1260	1 U	ug/l	1									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:46:35

METALS RESULTS

	Lab Sample Number: 90149001			90149002			90151001			90151002		
	Site	Collector	Collect Date:	Site	Collector	Collect Date:	Site	Collector	Collect Date:	Site	Collector	Collect Date:
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL
CLP METALS AND CYANIDE												
Aluminum	52.9 U	ug/l	200	59.8 U	ug/l	200	41.8 U	ug/l	200	30.9 U	ug/l	200
Antimony	11.7 U	ug/l	60	11.7 U	ug/l	60	11.7 U	ug/l	60	11.7 U	ug/l	60
Arsenic	1.4 U	ug/l	10	1.4 U	ug/l	12	1.4 U	ug/l	10	1.4 U	ug/l	10
Barium	8.3 J	ug/l	200	8.2 J	ug/l	200	8.6 J	ug/l	200	16.9 J	ug/l	200
Beryllium	.45 U	ug/l	5	.45 U	ug/l	5	.15 U	ug/l	5	.15 U	ug/l	5
Cadmium	2.9 U	ug/l	5	2.9 U	ug/l	5	2.9 U	ug/l	5	2.9 U	ug/l	5
Calcium	369 J	ug/l	5000	358 J	ug/l	5000	211 J	ug/l	5000	713 J	ug/l	5000
Chromium	2.3 U	ug/l	10	2.3 U	ug/l	10	2.3 U	ug/l	10	2.3 U	ug/l	10
Cobalt	2.2 U	ug/l	50	2.3 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50
Copper	9.9 J	ug/l	25	9.4 J	ug/l	25	31.7	ug/l	25	1.4 U	ug/l	25
Iron	51.8 J	ug/l	100	25.8 U	ug/l	100	44.8 J	ug/l	100	218	ug/l	100
Lead	1.6 J	ug/l	5	2.8 J	ug/l	5	1.6 U	ug/l	3	1.6 U	ug/l	3
Magnesium	523 J	ug/l	5000	507 J	ug/l	5000	467 J	ug/l	5000	544 U	ug/l	5000
Manganese	2.9 J	ug/l	15	2.6 J	ug/l	15	6.3 J	ug/l	15	13.4 J	ug/l	15
Mercury	.07 U	ug/l	.2	.09 U	ug/l	.2	.09 U	ug/l	.2	.08 J	ug/l	.2
Nickel	8.7 U	ug/l	40	8.7 U	ug/l	40	8.7 U	ug/l	40	8.7 U	ug/l	40
Potassium	788 U	ug/l	5000	788 U	ug/l	5000	788 U	ug/l	5000	788 U	ug/l	5000
Selenium	2.1 U	ug/l	5	2.1 U	ug/l	5	2.1 U	ug/l	5	2.1 U	ug/l	5
Silver	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10
Sodium	2770 J	ug/l	5000	2740 U	ug/l	5000	3020 J	ug/l	5000	3020 J	ug/l	5000
Thallium	1 U	ug/l	10	1 UJ	ug/l	10	1 U	ug/l	10	1 U	ug/l	10
Vanadium	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50
Zinc	4.6 U	ug/l	20	4.8 U	ug/l	20	9.2 J	ug/l	20	6.2 J	ug/l	20
Cyanide	.96 U	ug/l	10	.96 U	ug/l	10	.96 U	ug/l	10	.96 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

METALS RESULTS

	90151003			90151004			90155001			90155002		
	VALUE	QUAL UNITS	DL									
CLP METALS AND CYANIDE												
Aluminum	28.6 U	ug/l	200	26.3 U	ug/l	200	57.2 U	ug/l	200	40 U	ug/l	200
Antimony	11.7 U	ug/l	60	11.7 U	ug/l	60	11.7 U	ug/l	60	12 U	ug/l	60
Arsenic	1.4 U	ug/l	10	1.4 U	ug/l	10	1.5 J	ug/l	10	1.4 U	ug/l	10
Barium	15.7 J	ug/l	200	12.7 J	ug/l	200	27.4 J	ug/l	200	15.9 J	ug/l	200
Beryllium	.15 U	ug/l	5									
Cadmium	2.9 U	ug/l	5									
Calcium	718 J	ug/l	5000	836 J	ug/l	5000	468 J	ug/l	5000	482 J	ug/l	5000
Chromium	2.3 U	ug/l	10	2.5 U	ug/l	10	2.3 U	ug/l	10	2.3 U	ug/l	10
Cobalt	2.7 J	ug/l	50	2.1 J	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50
Copper	10.8 J	ug/l	25	13.4 J	ug/l	25	20.3 J	ug/l	25	5.8 J	ug/l	25
Iron	210	ug/l	100	218	ug/l	100	23.5 U	ug/l	100	24.3 U	ug/l	100
Lead	1.6 U	ug/l	3									
Magnesium	539 J	ug/l	5000	538 J	ug/l	5000	1170 J	ug/l	5000	907 J	ug/l	5000
Manganese	14.5 J	ug/l	15	6.9 J	ug/l	15	22.2	ug/l	15	10.3 J	ug/l	15
Mercury	.07 U	ug/l	.2	.07 U	ug/l	.2	.06 U	ug/l	.2	.07 U	ug/l	.2
Nickel	8.7 U	ug/l	40									
Potassium	1280 J	ug/l	5000	788 U	ug/l	5000	788 U	ug/l	5000	788 U	ug/l	5000
Selenium	2.1 U	ug/l	5									
Silver	1.6 U	ug/l	10									
Sodium	2960 J	ug/l	5000	2800 J	ug/l	5000	3720 J	ug/l	5000	4550 J	ug/l	5000
Thallium	1 U	ug/l	10									
Vanadium	1.9 U	ug/l	50									
Zinc	15.8 J	ug/l	20	9.5 J	ug/l	20	11.4 J	ug/l	20	7.4 J	ug/l	20
Cyanide	.96 U	ug/l	10									

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:46:35

METALS RESULTS

	90158001			90158002			90158003			90163001								
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL						
CLP METALS AND CYANIDE																		
Aluminum	76.7	U	ug/l	200	89.8	U	ug/l	200	113	U	ug/l	200	63.4	U	ug/l	200		
Antimony	11.7	UJ	ug/l	60	11.7	UJ	ug/l	60	11.7	UJ	ug/l	60	11.7	U	ug/l	60		
Arsenic	1.4	U	ug/l	10	1.4	U	ug/l	10	1.4	U	ug/l	10	1	UJ	ug/l	10		
Barium	102	J	ug/l	200	99.5	J	ug/l	200	141	J	ug/l	200	42.6	J	ug/l	200		
Beryllium	.52	J	ug/l	5	.26	J	ug/l	5	.32	J	ug/l	5	.15	U	ug/l	5		
Cadmium	2.9	U	ug/l	5	2.9	U	ug/l	5	2.9	U	ug/l	5	2.9	U	ug/l	5		
Calcium	2650	J	ug/l	5000	2300	J	ug/l	5000	3700	J	ug/l	5000	904	J	ug/l	5000		
Chromium	2.3	U	ug/l	10	2.3	U	ug/l	10	2.3	U	ug/l	10	2.3	U	ug/l	10		
Cobalt	1.9	U	ug/l	50	1.9	U	ug/l	50	1.9	U	ug/l	50	1.9	U	ug/l	50		
Copper	23.1	UJ	ug/l	25	33.7	J	ug/l	25	61.9	J	ug/l	25	10.7	J	ug/l	25		
Iron	62.1	J	ug/l	100	223	ug/l	100	35.8	J	ug/l	100	54.3	J	ug/l	100			
Lead	3.8	ug/l	3	3.8	ug/l	3	12.4	ug/l	3	26.3	J	ug/l	5	26.3	J	ug/l	5	
Magnesium	5190	ug/l	5000	5080	ug/l	5000	6430	ug/l	5000	2030	J	ug/l	5000	2030	J	ug/l	5000	
Manganese	33.6	ug/l	15	30.1	ug/l	15	36	ug/l	15	16.7	ug/l	15	16.7	ug/l	15			
Mercury	.05	J	ug/l	.2	.05	J	ug/l	.2	.04	J	ug/l	.2	.04	U	ug/l	.2		
Nickel	8.7	U	ug/l	40	8.7	U	ug/l	40	8.7	U	ug/l	40	8.7	U	ug/l	40		
Potassium	788	U	ug/l	5000	788	U	ug/l	5000	1120	J	ug/l	5000	788	U	ug/l	5000		
Selenium	2.1	R	ug/l	5	2.1	R	ug/l	5	2.1	R	ug/l	5	1.5	U	ug/l	5		
Silver	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10	1.6	U	ug/l	10		
Sodium	3250	U	ug/l	5000	3280	J	ug/l	5000	3320	J	ug/l	5000	2860	J	ug/l	5000		
Thallium	1	UJ	ug/l	10	1	UJ	ug/l	10	1	UJ	ug/l	10	1.4	UJ	ug/l	10		
Vanadium	1.9	U	ug/l	50	1.9	U	ug/l	50	1.9	U	ug/l	50	1.9	U	ug/l	50		
Zinc	11.7	U	ug/l	20	21.7	ug/l	20	79.9	ug/l	20	9.4	J	ug/l	20	9.4	J	ug/l	20
Cyanide	1.6	U	ug/l	10	2.7	U	ug/l	10	2.2	U	ug/l	10	1.1	U	ug/l	10		

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
 J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
 D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

02/18/94 OLF BARIN RESIDENTIAL WELL SAMPLING 08:46:35
METALS RESULTS

Lab Sample Number:	90163002	90162001	90162002	90162003								
Site	OLFBARIN	OLFBARIN	OLFBARIN	OLFBARIN								
Locator	OLF-DW11D	OLF-DW12	OLF-DW13	OLF-DW14								
Collect Date:	13-SEP-93	22-SEP-93	22-SEP-93	22-SEP-93								
	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL	VALUE	QUAL UNITS	DL

CLP METALS AND CYANIDE

Aluminum	51.8 U	ug/l	200	65 U	ug/l	200	65.6 U	ug/l	200	49.4 U	ug/l	200
Antimony	11.7 U	ug/l	60	11.7 UJ	ug/l	60	11.7 UJ	ug/l	60	11.7 UJ	ug/l	60
Arsenic	1 UJ	ug/l	10	1.4 U	ug/l	10	1.4 U	ug/l	10	1.4 U	ug/l	10
Barium	42.8 J	ug/l	200	42.3 J	ug/l	200	53.6 J	ug/l	200	35.2 J	ug/l	200
Beryllium	.15 U	ug/l	5	.15 U	ug/l	5	.26 J	ug/l	5	.2 J	ug/l	5
Cadmium	2.9 U	ug/l	5	2.9 U	ug/l	5	2.9 U	ug/l	5	2.9 U	ug/l	5
Calcium	913 J	ug/l	5000	1940 J	ug/l	5000	1460 J	ug/l	5000	880 J	ug/l	5000
Chromium	2.3 U	ug/l	10	2.3 U	ug/l	10	2.3 U	ug/l	10	2.3 U	ug/l	10
Cobalt	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50
Copper	9.6 U	ug/l	25	25.6 J	ug/l	25	11.2 UJ	ug/l	25	24 J	ug/l	25
Iron	25.3 U	ug/l	100	59.3 J	ug/l	100	23.2 U	ug/l	100	67.1 J	ug/l	100
Lead	24.2 J	ug/l	5	1.6 U	ug/l	3	1.6 U	ug/l	3	2.3 J	ug/l	3
Magnesium	2080 J	ug/l	5000	2240 J	ug/l	5000	2380 J	ug/l	5000	1660 J	ug/l	5000
Manganese	17.1	ug/l	15	11 J	ug/l	15	12.8 J	ug/l	15	22.4	ug/l	15
Mercury	.04 U	ug/l	.2	.04 U	ug/l	.2	.04 U	ug/l	.2	.04 U	ug/l	.2
Nickel	8.7 U	ug/l	40	8.7 U	ug/l	40	8.7 U	ug/l	40	8.7 U	ug/l	40
Potassium	830 J	ug/l	5000	930 J	ug/l	5000	788 U	ug/l	5000	788 U	ug/l	5000
Selenium	1.5 U	ug/l	5	2.1 R	ug/l	5	2.1 R	ug/l	5	2.1 R	ug/l	5
Silver	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10	1.6 U	ug/l	10
Sodium	2830 J	ug/l	5000	2620 J	ug/l	5000	3540 J	ug/l	5000	3510 J	ug/l	5000
Thallium	1.4 U	ug/l	10	1 UJ	ug/l	10	1 UJ	ug/l	10	1 UJ	ug/l	10
Vanadium	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50	1.9 U	ug/l	50
Zinc	6.9 J	ug/l	20	10.4 J	ug/l	20	5.4 J	ug/l	20	19.5 J	ug/l	20
Cyanide	.88 U	ug/l	10	1.7 U	ug/l	10	2.6 U	ug/l	10	2.4 U	ug/l	10

U = NOT DETECTED R = RESULT IS REJECTED AND UNUSABLE
J = ESTIMATED VALUE UJ = REPORTED QUANTITATION LIMIT IS ESTIMATED
D = SAMPLE WAS DILUTED DL = CONTRACT REQUIRED DETECTION LIMIT

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90266

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

One (1) of the initial calibrations that were analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on 07/21/93 contained compounds with %RSDs greater than 30%. No qualifications are required because samples were not analyzed in the same tuning period following the calibration.

chloromethane

SDG 90266

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>
<u>ABB ID</u>	<u>CH2M ID</u>	<u>Matrix</u>	<u>VOA</u>
OLF-DW28	90266001	WATER	X
OLF-DW22	90266002	WATER	X
OLF-DW7	90266003	WATER	X
OLF-DW6	90266004	WATER	X
OLF-DW11	90266005	WATER	X
OLF-DW11D	90266006	WATER	X
OLF-DW23	90266007	WATER	X
OLF-DW24	90266008	WATER	X
OLF-DW14	90266009	WATER	X
OLF-DW27	90266010	WATER	X
OLF-DW9	90266011	WATER	X
OLF-DW10	90266012	WATER	X
OLF-DW8	90266013	WATER	X
OLF-DW26	90266014	WATER	X
OLF-DW13	90266015	WATER	X
OLF-DW25	90266016	WATER	X
OLF-DW12	90266017	WATER	X
TB-1	90266018	WATER	X
Total Samples			18
Total Billable Samples			18

* Denotes Non Billable Sample

MS - Matrix Spike MSD - Matrix Spike Duplicate D - Duplicate

Individual fractions were reviewed as follows:

		<u>Primary</u>	<u>Secondary</u>
VOA -	Volatiles	Gene Watson	Dan Heil

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The two (2) continuing calibrations that were analyzed with this data package exhibited %Ds that were within %D continuing calibration criteria. All RRFs were within calibration criteria. No qualifications are required.

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed did not exhibit contamination for TCLs. No qualifications are required.

Trip Blanks

The trip blank, TB-1, did not exhibit contamination for TCLs. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water samples were not within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD, OLF-DW21 found in SDG 90267, that was analyzed for the volatile samples exhibited percent recoveries and RPDs that were within advisory limits. No qualification are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u> _____	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------------	-------------------	-----------	-----------	--------------------------

No qualifications are required.

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form 1's).

Case V90267

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

One (1) of the initial calibrations that were analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on 07/21/93 contained compounds with %RSDs greater than 30%. No qualifications are required because samples were not analyzed in the same tuning period following the calibration.

chloromethane

SDG 90267

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>
<u>ABB ID</u>	<u>CH2M ID</u>	<u>Matrix</u>	<u>VOA</u>
OLF-DW21	90267001	WATER	X
OLF-DW21MS	90267001	WATER	X
OLF-DW21MSD	90267001	WATER	X
OLF-DW21D	90267002	WATER	X
Total Samples			4
Total Billable Samples			4

* Denotes Non Billable Sample

MS - Matrix Spike MSD - Matrix Spike Duplicate D - Duplicate

Individual fractions were reviewed as follows:

		<u>Primary</u>	<u>Secondary</u>
VOA -	Volatiles	Gene Watson	Dan Heil

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were within %D continuing calibration criteria. All RRFs were within calibration criteria. No qualifications are required.

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blank that was analyzed did not exhibit contamination for TCLs. No qualifications are required.

Trip Blanks

The trip blank TB-1, found in SDG 90266, did not exhibit contamination for TCLs. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water samples were not within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The MS/MSD, OLF-DW21, that was analyzed for the volatile samples exhibited percent recoveries and RPDs were within advisory limits. No qualification are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u> _____	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------------	-------------------	-----------	-----------	--------------------------

No qualifications are required.

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ORGANIC

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case # S75412

Holding Times

All extraction and analysis holding times for all samples were met for all samples per the SOW and National Functional Guidelines. No qualifications are required.

Tuning

All of the DFTPP tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was acceptable for all compound %RSDs. The average RRFs for all of the criteria compounds met the initial calibration criteria. No qualifications are required.

Continuing Calibrations

One (1) of the two (2) continuing calibrations that were analyzed with this data package require qualification for non compliant %Ds. All of the criteria and non criteria compounds met RRF requirements.



SDG# LFDW1 Level D

SAMPLES AND FRACTIONS REVIEWED

<u>Sample Identifications</u>			<u>Analytical Fractions</u>	
<u>ABB ID</u>	<u>CH2M ID</u>	<u>WAD ID</u>	<u>Matrix</u>	<u>SV</u>
OLF-DW1	90149001	F9790	WATER	X
OLF-DW1D	90149002	F9791	WATER	X
OLF-DW1DMS	90149M02	F9791MS	WATER	X
OLF-DW1DMD	90149D02	F9791MSD	WATER	X
OLFDW2	90151001	G0100	WATER	X
OLFDW3	90151002	G0101	WATER	X
OLFDW4	90151003	G0102	WATER	X
OLFDW5	90151004	G0103	WATER	X
OLFDW6	90155001	G0329	WATER	X
OLFDW7	90155002	G0330	WATER	X
OLFDW8	90158001	G1091	WATER	X
OLFDW9	90158002	G1092	WATER	X
OLFDW10	90158003	G1093	WATER	X
OLFDW12	90162001	G2088	WATER	X
OLFDW13	90162002	G2089	WATER	X
OLFDW14	90162003	G2090	WATER	X
OLFDW11	90163001	G2086	WATER	X
OLFDW11D	90163002	G2087	WATER	X

Total Samples (Water/Soil) 18/0

Total Billable Samples (Water/Soil) 18/0

MS - Matrix Spike MSD - Matrix Spike Duplicate

Individual fraction was reviewed as follows:

	<u>Primary</u>	<u>Secondary</u>
SVOA - CLP Semivolatiles	Dan Heil	Gene Watson

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 2

Continuing Calibrations (continued)

Specific Findings:

1. The continuing calibration, 4SML0929, contained compounds with %Ds greater than 25% D but less than 50% D. For the samples and non compliant compounds listed below, qualify all positive results as estimated (J).

SBLK3A	3-nitroaniline
OLFDW8	
OLFDW9	
OLFDW10	
OLFDW11	
SBLK4	
OLFDW12	
OLFDW13	
OLFDW14	

Internal Standards

The internal standard EICP areas met the EICP internal standard area QA/QC criteria for all samples and blanks. No qualifications are required.

Method Blanks

One of the method blanks that were analyzed exhibited contamination for di-n-butylphthalate. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific Findings:

2. The following samples have been qualified for blank contamination. Qualifications are for all method blanks.

OLFDW9	di-n-butylphthalate	CRQL
--------	---------------------	------

DATA ASSESSMENT NARRATIVE

SEMIVOLATILE ANALYSIS

PAGE - 3

Rinseate Blanks

No rinseate blanks were analyzed for the semivolatile in this SDG. No qualifications are required.

Field Blanks

No field blanks were analyzed for the semivolatile in this SDG. No qualifications are required.

Surrogates

Surrogate recoveries for all samples and blanks did not meet QA/QC criteria. No qualifications are required. The SOW and Functional Guidelines allow one surrogate from each fraction to fall outside of the QA/QC criteria as long as the recoveries are greater than 10%.

Matrix Spike/Matrix Spike Duplicate

All spike and RPD recoveries were within the advisory limit for MS/MSD OLFDW1, that was analyzed for the semivolatile samples in this SDG. No qualifications are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

Overall performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates less than 5% of data required qualification.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
SBLK3A OLFDW8 OLFDW9 OLFDW10 OLFDW11 SBLK4 OLFDW12 OLFDW13 OLFDW14	3-nitroaniline	+	J	1
OLFDW9	di-n-butylphthalate	+	CRQL 2	.

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90149

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

chloroethane
2-butanone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, CSV0029990, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-DW1	chloroethane
OLFDW1D	1,1-dichloroethene
OLF-DW1DMS	2-butanone
OLF-DW1DMSD	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for methylene chloride, acetone, and TICs. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific findings:

3. The following samples have been qualified for blank contamination. The qualifications are for all the blanks.

OLF-DW1	methylene chloride	CRQL
OLF-DW1D		
OLF-DW1DMS		
OLF-DW1DMSD		

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The trip blank OLF-TB-1 was not analyzed and/or not submitted with this SDG.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKW	chloromethane	+	J	2
OLF-DW1	chloroethane			
OLF-DW1D	1,1-dichloroethene			
OLF-DW1DMS	2-butanone			
OLF-DW1DMSD				
OLF-DW1	methylene chloride	+	CRQL	3
OLF-DW1D				
OLF-DW1DMS				
OLF-DW1DMSD				

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form 1s). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of two (2) water samples, a field duplicate pair, with one (1) MS\MSD and the re-extracted and re-analyzed MS\MSD included as, **Laboratory Case # 90149**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level D deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All sample holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. The MS\MSD were re-extracted one day outside of holding time. No qualifications were deemed necessary.

GC Instrument Performance

The resolution requirements were met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No significant peaks were confirmed within the RTWs of either Method Blank. No qualification of the reported sample non detect results was required.

The instrument blanks were acceptable. A sulfur cleanup blank was not required because sulfur cleanup was performed on all of the samples. No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. Raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

The original MS\MSD of sample OLF-DW1 exhibited 0% surrogate recoveries. The spiked compound recoveries for this MS\MSD ranged from 77 to 91%. It was apparent that the laboratory inadvertently failed to add the surrogate spike to the MS\MSD. All other surrogate recoveries were within QC limits. No qualifications were deemed necessary.

Matrix Spikes/Matrix Spike Duplicates

Both the original and the re-extracted MS/MSDs of sample OLF-DW1D exhibited acceptable recoveries and RPDs, within the QC limits.

The reported Blank Spike recoveries were within the laboratory control limits. No qualifications were required.

Analyte Identification/Quantitation

The field duplicate pair, OLF-DW1 and OLF-DW1D, did not exhibit any positive results.

No additional positive results were reported by the laboratory for any of the samples.

No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported non detect results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------	-------------------	-----------	-----------	--------------------------

No qualifications required.

- * DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
- QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

DATA ASSESSMENT NARRATIVE
Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90149, the analysis of two (2) field water samples and one Matrix Spike and Duplicate pair for TAL Metals and Cyanides. Overall, the inorganic data quality was good. The All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited contamination for the following elements.

Aluminum	22.1	ug/l
Beryllium	0.33	ug/l
Cobalt	2.1	ug/l
Iron	9.41	ug/l
Mercury	0.07	ug/l
Sodium	25.0	ug/l
Zinc	2.1	ug/l

The USEPA requires that all sample values below five times the preparation blank contamination be qualified as non-detect, "U".

2. The preparation blank exhibited negative bias for the following elements.

Copper	-11.1	ug/l
--------	-------	------

Metals Data Assessment Narrative (continued - Page 2)

It is the USEPA's policy to review the impact and requires the reviewer to make judgement on the impact negative bias will have on the data. It is the reviewer's position that all data points below ten times the absolute value of the negative prep results be qualified as estimated, "J" or "UJ".

Interferences

No significant interferences were observed.

Spike Recovery

No deficiencies in this section.

Duplicate

no deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

3. The Serial Dilution for Sodium was outside the control limit. All positive results are qualified as estimated, "J".

MSA

4. The following analytes exhibited low recovery during the GFAA spiking procedures. All positive and non-detect data is qualified as estimated, "J" or "UJ".

<u>Analyte</u>	<u>Samples</u>
Thallium	OLF-DW1D.

5. The following analytes exhibited high recovery during the GFAA spiking procedures. All positive data is qualified as estimated, "J".

<u>Analyte</u>	<u>Samples</u>
Arsenic	OLF-DW1.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Be, Co, Fe, Hg, Na and Zn.	+	U	1
All water samples	Cu.	+/U	J/UJ	2
All water samples	Na.	+	J	3
OLF-DW1D.	Tl.	+/U	J/UJ	4
OLF-DW1.	As.	+	J	5

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90150

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

chloroethane
2-butanone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, CSV0029990, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-TB-1	chloroethane
	1,1-dichloroethene
	2-butanone

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for methylene chloride. However, the associated samples did not exhibit any contamination. No qualifications are required.

Trip Blanks

The trip blank OLF-TB-1 that was analyzed did not exhibit any contamination. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

002

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Surrogates

All of the surrogate recoveries for the water and soil samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90151

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

chloroethane
2-butanone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, CSV0030003, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-DW2	vinyl chloride
OLF-DW3	chloroethane
OLF-DW4	
OLF-DW5	
OLF-DW17	
OLF-DW18	
OLF-DW19	
OLF-DW20	
OLF-TB-2	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for methylene chloride, acetone, and TICs. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Method Blanks (continued)

Specific findings:

3. The following samples have been qualified for blank contamination. The qualifications are for all the blanks.

OLF-DW2	methylene chloride	CRQL
OLF-DW3		
OLF-DW17		
OLF-DW18		
OLF-TB-2		

Trip Blanks

The trip blank OLF-TB-2 exhibited contamination for methylene chloride. However, the methylene chloride contamination was attributed to the method blank. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 4

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKW	chloromethane	+	J	2
OLF-DW2	vinyl chloride			
OLF-DW3	chloroethane			
OLF-DW4				
OLF-DW5				
OLF-DW17				
OLF-DW18				
OLF-DW19				
OLF-DW20				
OLF-TB-2				
OLF-DW2	methylene chloride		CRQL 3	
OLF-DW3				
OLF-DW17				
OLF-DW18				
OLF-TB-2				

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of four (4) water samples as **Laboratory Case # 90151**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level C deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. No extraction records were included in this NEESA C package.

GC Instrument Performance

The resolution requirements were apparently met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No target compounds were reported in the single water method blank.

The instrument blanks were acceptable based on the Form 1s.

A sulfur cleanup blank was not required because sulfur cleanup was performed on all of the samples.

No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. No raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

All reported surrogate recoveries were within QC limits ranging from 68 to 98%. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was included in this data package.

The reported Blank Spike recoveries were within the laboratory control limits. No qualifications were required.

Analyte Identification/Quantitation

No positive results were reported by the laboratory for the samples. No significant peaks were identified in the chromatograms supplied with this NEESA Level C package. No qualifications were required based on the information available.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------	-------------------	-----------	-----------	--------------------------

No qualifications required.

- * DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
- QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

DATA ASSESSMENT NARRATIVE Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90151, the analysis of four (4) field water samples and one Matrix Spike and Duplicate pair for TAL Metals and Cyanides. Overall, the inorganic data quality was fair. The All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited contamination for the following elements.

Aluminum	20.7	ug/l
Antimony	17.4	ug/l
Beryllium	0.38	ug/l
Calcium	15.0	ug/l
Chromium	2.5	ug/l
Iron	6.1	ug/l
Mercury	0.07	ug/l
Sodium	68.6	ug/l

The USEPA requires that all sample values below five times the preparation blank contamination be qualified as non-detect, "U".

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

No deficiencies in this section.

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Sb, Ca, Cr, Fe, Hg and Na.	+	U	1

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90155

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

One (1) of the initial calibration that were analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

acetone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, BSV018531, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKWG	2-butanone
OLF-DW26	
OLF-DW27	
OLF-TB-3	

3. The continuing calibration, 0101002, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	carbon disulfide
OLF-DW6	1,1-dichloroethane
OLF-DW7	1,2-dichloroethane(total)
OLF-DW22	chloroform
OLF-DW23	2-hexanone
OLF-DW24	
OLF-DW25	
OLF-DW25R	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for methylene chloride and/or acetone. However, none of the associated samples exhibited similar contamination for acetone or methylene chloride. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The trip blank OLF-TB-3 did not exhibit any contamination. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were not within QA/QC limits.

4. Samples OLF-DW25 and OLF-DW25R exhibited low surrogate recoveries for bromofluorobenzene. Qualify all positive results as estimated (J) and qualify all non detects as estimated (UJ).

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

Specific Finding:

5. Reject all results (R) for sample OLF-DW25R in favor of the original samples analysis due to similar non compliant surrogate recoveries.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKWG OLF-DW26 OLF-DW27 OLF-TB-3	2-butanone	+	J	2
VBLKW OLF-DW6 OLF-DW7 OLF-DW22 OLF-DW23 OLF-DW24 OLF-DW25 OLF-DW25R	carbon disulfide 1,1-dichloroethane 1,2-dichloroethane(total) chloroform 2-hexanone	+	J	3
OLF-DW25 OLF-DW25R	All analytes	+/-	J/UJ	4
OLF-DW25R	All analytes	+/-	R	5

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of two (2) water samples as **Laboratory Case # 90155**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level C deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. No extraction records were included in this NEESA C package.

GC Instrument Performance

The resolution requirements were apparently met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No target compounds were reported in the single water method blank.

The instrument blanks were acceptable based on the Form 1s.

A sulfur cleanup blank was not required because sulfur cleanup was performed on all of the samples.

No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. No raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

All reported surrogate recoveries were within QC limits ranging from 76 to 107%. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was included in this data package.

The reported Blank Spike recoveries were within the laboratory control limits. No qualifications were required.

Analyte Identification/Quantitation

No positive results were reported by the laboratory for the samples. No significant peaks were identified in the chromatograms supplied with this NEESA Level C package. No qualifications were required based on the information available.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------	-------------------	-----------	-----------	--------------------------

No qualifications required.

- * DL denotes the Form I laboratory qualifier/value
 - + in the DL column denotes a positive result
- QL denotes the qualifier(s) used by Validator
 - + in the QL column denotes a validator revised result

DATA ASSESSMENT NARRATIVE Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90155, the analysis of two (2) field water samples and no Matrix Spike and Duplicate pair for TAL Metals and Cyanides. The QA/QC for this SDG can be found in SDG 90151. Overall, the inorganic data quality was fair. The All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited contamination for the following elements.

Aluminium	20.7	ug/l
Antimony	17.4	ug/l
Beryllium	0.38	ug/l
Calcium	15.0	ug/l
Chromium	2.5	ug/l
Iron	6.1	ug/l
Mercury	0.07	ug/l
Sodium	68.6	ug/l

The USEPA requires that all sample values below five times the preparation blank contamination be qualified as non-detect, "U".

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

No deficiencies in this section.

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Sb, Ca, Cr, Fe, Hg and Na.	+	U	1

DL - denotes laboratory qualifier/reported value
+ denotes positive values
U denotes non-detect values

QL - denotes data validation qualifier

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90158

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

The initial calibration that was analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

chloroethane
2-butanone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, CSV0029990, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-DW8	chloroethane
OLF-DW9	1,1-dichloroethene
OLF-DW10	2-butanone
OLF-DW28	
OLF-TB-4	

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

The method blanks that were analyzed exhibited contamination for methylene chloride, acetone, and TICs. The method blank results will be compared to their associated samples. Refer to the glossary of data qualifiers for a list and definition of the method blank qualifiers: CRQL, U and No Action.

Specific findings:

3. The following samples have been qualified for blank contamination. The qualifications are for all the blanks.

OLF-DW9	methylene chloride	CRQL
OLF-DW10		
OLF-DW28		
OLF-TB-4		

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The trip blank OLF-TB-4 exhibited contamination for methylene chloride and acetone. However, the methylene chloride contamination was attributed to the method blank and none of the samples exhibited contamination for acetone. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKW	chloromethane	+	J	2
OLF-DW8	chloroethane			
OLF-DW9	1,1-dichloroethene			
OLF-DW10	2-butanone			
OLF-DW28				
OLF-TB-4				
OLF-DW9	methylene chloride	+	CRQL	3
OLF-DW10				
OLF-DW28				
OLF-TB-4				

- * DL denotes the Form I qualifier supplied by the laboratory
- QL denotes the qualifier used by the data validation firm
- + in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of three (3) water samples as **Laboratory Case # 90158**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level C deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. No extraction records were included in this NEESA C package.

GC Instrument Performance

The resolution requirements were apparently met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No target compounds were reported in the single water method blank.

The instrument blanks were acceptable based on the Form 1s.

A sulfur cleanup blank was not required because sulfur cleanup was performed on all of the samples.

No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. No raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

All reported surrogate recoveries were within QC limits ranging from 68 to 104%. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was included in this data package.

The reported Blank Spike recoveries were within the laboratory control limits. No qualifications were required.

Analyte Identification/Quantitation

No positive results were reported by the laboratory for the samples. No significant peaks were identified in the chromatograms supplied with this NEESA Level C package. No qualifications were required based on the information available.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------	-------------------	-----------	-----------	--------------------------

No qualifications required.

- * DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
- QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

DATA ASSESSMENT NARRATIVE

Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90158, the analysis of three (3) field water samples and no Matrix Spike and Duplicate pair for TAL Metals and Cyanides. The QA/QC for this SDG can be found in SDG 90159. Overall, the inorganic data quality was fair. The All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited contamination for the following elements.

Aluminum	31.1	ug/l
Copper	5.01	ug/l
Iron	4.70	ug/l
Sodium	39.3	ug/l
Cyanide	0.99	ug/l

The USEPA requires that all sample values below five times the preparation blank contamination be qualified as non-detect, "U".

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

2. The Matrix Spike recovery for Selenium was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".
3. The Matrix Spike recoveries for Antimony and Thallium were below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate

4. The Duplicate analysis for Copper was outside the control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Cu, Fe, Na and Cn.	+	U	1
All water samples	Se.	+ U	J R	2
All water samples	Sb and Tl.	+/U	J/UJ	3
All water samples	Cu.	+/U	J/UJ	4

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level C. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90162

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

One (1) of the initial calibrations that were analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

acetone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, BSV018531, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-TB-5	bromomethane

3. The continuing calibration, 0101002, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW1	carbon disulfide
OLF-DW12	1,1-dichloroethane
OLF-DW13	1,2-dichloroethane(total)
OLF-DW14	chloroform
	2-hexanone

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

One (1) of the method blanks that were analyzed exhibited contamination for acetone. However, none of the associated samples exhibited similar contamination for acetone. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The trip blank OLF-TB-5 exhibited contamination for acetone. However, none of the associated samples exhibited similar contamination for acetone. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were not within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

No qualificatiuons are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKW OLF-TB-5	chloromethane bromomethane	+	J	2
VBLKW1 OLF-DW12 OLF-DW13 OLF-DW14	carbon disulfide 1,1-dichloroethane 1,2-dichloroethane(total) chloroform 2-hexanone	+	J	3

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form Is). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of three (3) water samples as **Laboratory Case # 90162**. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level C deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. No extraction records were included in this NEESA C package.

GC Instrument Performance

The resolution requirements were apparently met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No target compounds were reported in the single water method blank.

The instrument blanks were acceptable based on the Form 1s.

A sulfur cleanup blank was not required because sulfur cleanup was performed on all of the samples.

No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. No raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

The Method Blank and one sample exhibited TCX surrogate recoveries below the QC limits. Although all other reported surrogate recoveries were within QC limits, the TCX recoveries averaged 59.5%, while the DCB recoveries averaged 98.6%, yielding an RPD between average recoveries of 49.5%. No qualifications were required.

Matrix Spike/Matrix Spike Duplicate

No MS/MSD was included in this data package.

The reported Blank Spike recoveries were within the laboratory control limits. No qualifications were required.

Analyte Identification/Quantitation

No positive results were reported by the laboratory for the samples. No significant peaks were identified in the chromatograms supplied with this NEESA Level C package. No qualifications were required based on the information available.

Overall Assessment

The overall quality of the data package is good. The reported results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

SUMMARY OF PESTICIDE/AROCLOR DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
------------------	-------------------	-----------	-----------	--------------------------

No qualifications required.

- * DL denotes the Form I laboratory qualifier/value
+ in the DL column denotes a positive result
- QL denotes the qualifier(s) used by Validator
+ in the QL column denotes a validator revised result

DATA ASSESSMENT NARRATIVE

Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90162, the analysis of three (3) field water samples and no Matrix Spike and Duplicate pair for TAL Metals and Cyanides. The QA/QC for this SDG can be found in SDG 90159. Overall, the inorganic data quality was fair. The All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited contamination for the following elements.

Aluminum	31.1	ug/l
Copper	5.01	ug/l
Iron	4.70	ug/l
Sodium	39.3	ug/l
Cyanide	0.99	ug/l

The USEPA requires that all sample values below five times the preparation blank contamination be qualified as non-detect, "U".

Interferences

No significant interferences were observed.

Metals Data Assessment Narrative (continued - Page 2)

Spike Recovery

2. The Matrix Spike recovery for Selenium was below 30%. All non-detect results are rejected and all positive results are qualified as estimated, "J".
3. The Matrix Spike recoveries for Antimony and Thallium were below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate

4. The Duplicate analysis for Copper was outside the control limits. All positive and non-detect results are qualified as estimated, "J" or "UJ".

LCS

No deficiencies in this section.

Serial Dilution

No deficiencies in this section.

MSA

No deficiencies in this section.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Cu, Fe, Na and Cn.	+	U	1
All water samples	Se.	+ U	J R	2
All water samples	Sb and Tl.	+ / U	J / UJ	3
All water samples	Cu.	+ / U	J / UJ	4

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

DATA ASSESSMENT AND NARRATIVE

VOLATILE ORGANICS

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC/MS performance, tuning results, calibration results and internal standard areas. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the U.S. EPA CLP, 3/90 SOW; the National Functional Guidelines for Organic Data Review, and NEESA Level D. All comments made within this report should be considered when examining the analytical results (Form I's).

Case V90163

Holding Times

The holding times for all of the samples were met per the Organic Functional Guidelines and the CLP SOW (fourteen (14) days from collection date). No qualifications are required.

Tuning

All of the BFB tunes in the initial and continuing calibrations met the percent relative abundance criteria of the SOW and the Organic Functional Guidelines. No qualifications are required.

Initial Calibrations

One (1) of the initial calibrations that were analyzed by the laboratory for these samples was not acceptable for all compound %RSDs. The average RRFs for all of the compounds met the initial calibration criteria.

Specific Finding:

1. The initial calibration analyzed on, 09/07/93, contained compounds with %RSDs greater than 30%. No qualifications are required because, no samples were analyzed following the calibration.

acetone

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 2

Continuing calibrations

The continuing calibration that was analyzed with this data package exhibited %Ds that were not within %D continuing calibration criteria. All RRFs were within calibration criteria.

Specific Finding:

2. The continuing calibration, 0101002, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW1	carbon disulfide
OLF-DW11D	1,1-dichloroethane
	1,2-dichloroethane(total)
	chloroform
	2-hexanone

3. The continuing calibration, 0101001, contained compounds with %Ds greater than 25%, but less than 50%. For the samples and non compliant compound listed below, qualify all positive results as estimated (J).

VBLKW	chloromethane
OLF-DW11	bromomethane

Internal Standards

All internal standard EICP areas met the internal standard EICP area QA/QC criteria. No qualifications are required.

Method Blanks

One (1) of the method blanks that were analyzed exhibited contamination for acetone. However, none of the associated samples exhibited similar contamination for acetone or methylene chloride. No qualifications are required.

DATA ASSESSMENT AND NARRATIVE

VOLATILE ANALYSIS

PAGE - 3

Trip Blanks

The associated trip blank was analyzed at a different laboratory within the CH2M Hill laboratory system. No qualifications are required.

Rinseate Blanks

A rinseate blank was not analyzed with this SDG.

Field Blanks

A field blank was not analyzed with this SDG.

Surrogates

All of the surrogate recoveries for the water and soil samples were not within QA/QC limits. No qualifications are required.

Matrix Spike/Matrix Spike Duplicate (MS/MSD)

For the MS/MSD that was analyzed for the volatile samples, all spike and RPD recoveries were within advisory limits. No qualification are required.

Compound Identification/Quantitation

No qualifications are required.

System Performance and Overall Assessment

The overall system performance was fair. The laboratory did not encounter any large problems. The data reviewer estimates that less than 5% of the data is qualified.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported quantitation limit is qualified as estimated

R = Result is rejected and unusable

NJ = Presumptive evidence for the presence of the material at an estimated value

K = Result is biased high

L = Result is biased low

METHOD BLANK QUALIFICATION CODES

CRQL = The sample result for the blank contaminant is less than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that analyte is reported.

U = The sample result for the blank contaminant is greater than the sample CRQL and is less than 10X the method blank value. The sample result for the blank contaminant is qualified as non detected at the analyte value reported.

No Action = The sample result for the blank contaminant is greater than the sample CRQL and is greater than 10X the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

The specific findings will be noted in numerical form on the Form Is in this data validation report. These specific finding footnotes will reflect the conclusions found in the data validation process that resulted in the qualification of the data.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE ID</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDINGS</u>
VBLKW1 OLF-DW11D	carbon disulfide 1,1-dichloroethane 1,2-dichloroethane(total) chloroform 2-hexanone	+	J	2
VBLKW OLF-DW11	chloromethane bromomethane	+	J	3

- * DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE

PESTICIDE/AROCLOR ANALYSIS

General

The organic findings offered in this screening report assume that all analytical results are correct as reported and are based upon the examination of the reported holding times, GC instrument performance, initial and continuing calibrations, analytical sequence, blank analysis results, surrogate recoveries, and MS/MSD results. All comments made within this report should be considered when examining the analytical results (Form 1s). Please refer the specific findings found in each category to the Summary of Data Qualification table.

This data package contained the laboratory results of the analysis of two (2) water samples, a field duplicate pair, as Laboratory Case # 90163. The validator has reviewed the data for these samples for the TCL list for Pesticides/Aroclors using the requirements contained in: the EPA CLP OLM01.8 Statement of Work, dated August 1991; and the Draft EPA Pesticide/Aroclor Data Review Guidelines, 06/91. Analytical data in this report were screened to determine usability of results and also to determine contractual compliance relative to the requirements and deliverables of U.S. EPA CLP, and NEESA Level D deliverables. This screening assumes analytical results are correct as reported and merely provides an interpretation of the reported quality control results. In general, the laboratory performance and data package presented were acceptable.

Holding Times

All sample holding times were apparently met based on the Chain-of-Custody and the Form 4s in the package. No qualifications were required.

GC Instrument Performance

The resolution requirements were met on both columns.

All surrogate retention times were within the established retention time windows (RTWs) as presented on Form 8D.

All percent breakdowns were below the required QC limit for the both columns. The reported Breakdowns were acceptable and no qualifications were required based on instrument performance.

Initial Calibration

The initial calibrations on both columns were acceptably linear. All %RSDs for were within QC limits for all compounds on both columns. No qualifications were required.

Continuing Calibrations

The peaks of all compounds in the continuing calibration standards were within the laboratory reported Retention Time Windows (RTWs) for both columns.

All relative percent differences, RPDs, were within the QC limits.

No qualifications were required based on the continuing calibration analyses.

Blanks

No significant peaks were confirmed within the RTWs in the Method Blank. No qualification of the reported sample non detect results was required.

The instrument blanks were acceptable. A sulfur cleanup blank was not required because sulfur cleanup was reportedly performed on all of the samples. No qualification of the data was required based on any of the associated Blanks.

Florisil/GPC Checks

The florisil cartridge check exhibited acceptable spike recoveries as reported on the Form 9A. Raw data for the check standard was present in the package.

No GPC calibration information was required for these water samples.

Surrogate Recoveries

The TCX surrogate recoveries for the Method Blank were slightly low. All sample surrogate recoveries were within QC limits. No qualifications were required.

Matrix Spikes\Matrix Spike Duplicates

No MS\MSD raw data was included in this package. The associated MS\MSD was reported in package 90149. No qualifications were deemed necessary.

The reported Blank Spike recoveries were within the laboratory control limits. No raw data was present in the package for the Blank Spikes. No qualifications were required.

Analyte Identification/Quantitation

The field duplicate pair, OLF-DW1 and OLF-DW1D, did not exhibit any positive results.

No additional positive results were reported by the laboratory for any of the samples.

No qualifications were required.

Overall Assessment

The overall quality of the data package is good. The reported non detect results are accepted as reported by the laboratory without qualification.

QUALIFICATION CODES

U	=	Not detected
J	=	Reported result is quantitatively estimated
UJ	=	Reported quantitation limit is qualified as estimated
R	=	Result is rejected and unusable
N	=	Result is negated, do not consider result in sample
NJ	=	Presumptive evidence for the presence of the material at an estimated concentration

Validation specific findings are noted in numerical form on the Form Is in this data validation report. These specific finding footnotes reflect the conclusions found in the data validation process that resulted in the qualifications of the data.

DATA ASSESSMENT NARRATIVE

Metals

General

The inorganic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, calibration standards, blank analysis results and MS/MSD results. A minimum of ten percent of all laboratory calculations and reported results are reviewed utilizing the raw instrument data. All comments made within this report should be considered when examining the analytical results (Form Is).

This data package consisted of results from OLF Barin, SDG# 90163, the analysis of two (2) field water samples and one Matrix Spike and Duplicate pair for TAL Metals and Cyanide. Overall, the inorganic data quality was good. All protocol requirements were followed.

Specific QA/QC deficiency Findings are listed numerically in the following categories:

Holding Times

The holding times were met as specified in Section 3 of the NEESA (20.2-047B) QA protocol.

Calibration

No deficiencies in this section.

Preparation and Field Blanks

1. The preparation blank exhibited positive bias for the following elements.

Aluminum	30.8	ug/l
Barium	1.56	ug/l
Calcium	16.7	ug/l
Cobalt	2.1	ug/l
Iron	10.7	ug/l
Selenium	2.0	ug/l
Sodium	108.3	ug/l
Cyanide	0.58	ug/l

It is the USEPA's policy to qualify all values below five times the prep blank contamination as non-detect, "U".

Metals Data Assessment Narrative (continued - Page 2)

2. The preparation blank exhibited negative bias for the following elements.

Arsenic -1.52 ug/l

It is the USEPA's policy to review the impact and requires the reviewer to make judgement on the impact negative bias will have on the data. It is the reviewer's position that all data points below ten times the absolute value of the negative prep results be qualified as estimated, "J" or "UJ".

Interferences

No significant interferences were observed.

Spike Recovery

3. The Matrix Spike recovery for Lead was below the lower control limit. All positive and non-detect results are qualified as estimated, "J" or "UJ".

Duplicate

No deficiencies in this section.

LCS

No deficiencies in this section.

Serial Dilution

4. The Serial Dilutions for Calcium and Sodium were outside the control limits. All positive results are qualified as estimated, "J".

MSA

5. The following analytes exhibited low recovery during the GFAA spiking procedures. All positive and non-detect data is qualified as estimated, "J" or "UJ".

<u>Analyte</u>	<u>Samples</u>
Thallium	OLF-DW11.

7. The following analytes exhibited high recovery during the GFAA spiking procedures. All positive data is qualified as estimated, "J".

<u>Analyte</u>	<u>Samples</u>
Selenium	OLF-DW11 and OLF-DW11D.

SUMMARY OF DATA QUALIFICATIONS

<u>SAMPLE ID</u>	<u>ANALYTE</u>	<u>DL</u>	<u>QL</u>	<u>SPECIFIC FINDING</u>
All water samples	Al, Ba, Ca, Co, Fe, Se, Na and Cn.	+	U	1
All water samples	As.	+/U	J/UJ	2
All water samples	Pb.	+/U	J/UJ	3
All water samples	Ca and Na.	+/U	J/UJ	4
OLF-DW11.	Tl.	+/U	J/UJ	5
OLF-DW11 and OLF-DW11D.	Se.	+	J	6

DL - denotes laboratory qualifier/reported value
 + denotes positive values
 U denotes non-detect values

QL - denotes data validation qualifier

