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MCAS CHERRY POINT  
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RECEPTOR STUDY CAPE HEART HOUSING WITH TRANSMITTAL MCAS CHERRY POINT  
NC  
1/21/2000  
CATLIN ENGINEERS AND SCIENTISTS

**CATLIN**

**ENVIRONMENTAL AND  
ENGINEERING CONSULTANTS**

**LAW**

**WILMINGTON, N.C.  
RALEIGH, N.C.**

**RECEPTOR STUDY  
CAPEHART HOUSING**

**MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

**January 21, 2000**

**CONTRACT No. N62470-95-D-6009**

**DELIVERY ORDER No. 0067**

**CATLIN Engineers and Scientists Project No. 199136**



**Prepared By:  
CATLIN Engineers and Scientists  
Wilmington, North Carolina  
(910) 452-5861**

CATLIN

ENVIRONMENTAL AND  
ENGINEERING CONSULTANTS

LAW

WILMINGTON, N.C.  
RALEIGH, N.C.

January 21, 2000

LANTNAVFACENGCOM

Attn: John Kresky, P.E., Code 18213  
1510 Gilbert Street  
Norfolk, Virginia 23511-2699

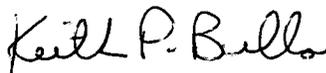
Re: **FINAL RECEPTOR STUDY**  
**CAPEHART HOUSING**  
**CONTRACT NO. N62470-95-D-6009**  
**DELIVERY ORDER NO. 0067**  
**CATLIN Project No. 199136**

Dear Mr. Kresky:

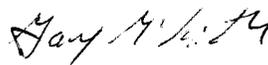
CATLIN Engineers and Scientists is pleased to provide you with one copy of the Final Receptor Study Report at Capehart Housing located at MCAS Cherry Point, North Carolina. The enclosed report has been revised in accordance with your comments.

CATLIN appreciates the opportunity to continue to provide services to LANTDIV and the Air Station on your environmental projects.

Sincerely,



Keith P. Bulla, P.E.  
Project Engineer



Gary McSmith, EIT  
Project Manager

KPB/GM/dbc

Enclosure

cc: John Myers, MCAS EAD (w/2 copies)  
Christine Foskey, LANTNAVFACENGCOM (letter only)

9136RPT2.LTR

**RECEPTOR STUDY REPORT**

**CAPEHART HOUSING**

**MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

**JANUARY 21, 2000**

**Contract No. N62470-95-D-6009  
Delivery Order No. 0067  
CATLIN Engineers and Scientists Project No. 199136**



*Keth P. Bella 1/21/00*

**Prepared by:**

**CATLIN ENGINEERS AND SCIENTISTS  
220 OLD DAIRY ROAD  
WILMINGTON, NORTH CAROLINA 28405  
(910) 452-5861**

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**DRAFT RECEPTOR STUDY REPORT  
CAPEHART HOUSING  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

**CATLIN PROJECT NO. 199136**

**JANUARY 21, 2000**

**1.0 INTRODUCTION**

*(Refer to Figure 1)*

In accordance with Delivery Order No. 0067, Contract Number N62470-95-D-6009, CATLIN Engineers and Scientists conducted a Receptor Study for heating oil tanks (HOTs) at Capehart Housing, aboard Marine Corps Air Station (MCAS) Cherry Point, North Carolina to determine possible effects from 54 HOTs that may have been abandoned in-place. This Receptor Study was performed in conjunction with the Tank Survey to determine the location of the HOTs under the same Delivery Order. The general location of the investigation is illustrated on Figure 1. The Staff and Officers family quarters that make up Capehart Housing were once heated by #2 fuel oil supplied from the unregulated 250-gallon HOTs. These HOTs were either closed in-place or removed during past renovations of housing.

The locations of the HOTs were determined to assist with the receptor survey. Though the HOTs are not suspected to have released fuel or any other contaminant to the environment, the MCAS is proactive in protection of the nearby Neuse River and its tributary, Slocum Creek. This investigation will insure that no contamination from No. 2 fuel oil in ground water is flowing into the Neuse River.

**2.0 DESCRIPTION OF FIELD ACTIVITIES**

*(Refer to Table 1 and Figures 2 through 10)*

As documented in the Tank Survey Report dated October 29, 1999, the HOTs were located using subsurface exploratory techniques. Once the HOTs were located, twenty-five piezometers were installed in the vicinity of the Officers Family Housing Units and five temporary piezometers were installed in the vicinity of the Staff Family Housing Units Numbers 5, 6, and 11 on Vance Road. The Delivery Order identified Staff Family Units Numbers 20 and 42 to have piezometers installed; however, as determined during the Tank Survey Study, HOTs were not found to exist at these locations and the piezometers were not installed.

The elevations of the tops of the piezometers were surveyed from established benchmarks and depth to ground water measurements were taken. The horizontal locations of the piezometers were surveyed utilizing Global Positioning System (GPS) to determine the North Carolina State Plane (NCSP) NAD83 coordinates. If ground structure interference

with satellite transmission prevented the use of GPS, the locations of the piezometers were measured from corners of the closest housing unit and positioned on MCAS Cherry Point's Geographic Information System (GIS). The location of the piezometers are illustrated on Figures 2, 3, and 4. The piezometer elevation data is summarized in Table 1.

Using the ground water elevation data, the ground water contours were calculated and the direction of ground water flow determined. The ground water elevation data is summarized in Table 1. The ground water contours for the sites are illustrated on Figures 2, 3, and 4.

The ground water flow direction was used to established the locations of ground water samples located downgradient from selected HOTs. Twenty-six ground water samples were taken at the Officers Family Housing Units and four ground water samples were taken at the Staff Housing Units in the vicinity of HOTs at Units 5 and 11, Vance Road. The locations of the sampling points are illustrated in Figures 5 through 10. The ground water samples were collected utilizing Direct Push Power Probe Technology (DPT).

### **2.1 *Direct Push Technology (DPT)*** *(Refer to Figures 5 through 10)*

A total of 30 DPT Power Probes (DP-26 through DP-55, 55DUP S-6 and S-11) were installed by a truck-mounted hydraulic sampling device to provide ground water data concerning potential contamination at the subject site.

Static force and a percussion hammer were utilized to advance a 2-inch diameter sampling device into the subsurface. Soil probe samples were collected continuously from ground water until the saturated zone was penetrated. Refer to Figures 5 through 10 for DPT locations.

### **2.2 *Description of Subsurface Samples*** *(Refer to Appendix A)*

Soil samples were continuously collected from the DPT probes in 4-foot intervals utilizing smooth bore samplers with acetate liners. Soils were described in the field by a geologist trained in using visual/manual techniques as described in American Society for Testing and Materials (ASTM) D-2488. The soils were classified in accordance with the Unified Soil Classification System (USCS). A drilling record for each selected probehole was produced. Boring logs are provided in Appendix A.

### **2.3 *DPT Ground Water Investigation***

The DPT ground water samples were collected from each of the 30 DPT probe locations by installing a temporary monitoring well (1-inch diameter) into probe borings. A ground water sample was collected after purging, when the temporary well accumulated sufficient water for the analysis required. Ground water samples were obtained with a peristaltic pump utilizing dedicated polyethylene tubing.

### 2.3.1 Sample Collection and Laboratory Analysis

The sampling program consisted of purging approximately three well volumes of water from each DPT (temporary monitoring well), then collected ground water samples from each. The sampling was performed in accordance with State acceptable procedures and practices.

Ground water samples were collected and placed into containers outlined below based upon the type of laboratory analysis scheduled for that sample:

Analytical Method	Bottle Type & Size	Total Number of Bottles per Sample Off-Site Lab	Preservative
EPA 602	Glass Vial/40 ml	1	HCL, <4° C
EPA 625	Amber Glass Jar/ 1 liter	1	<4° C

### 3.0 RESULTS OF GROUND WATER SAMPLING

*(Refer to Tables 1 through 3 and Figures 2 through 4)*

The chemical concentrations detected from the ground water sample analyses were plotted on site maps, Figures 5 through 10. As specified, the following analyses were utilized to characterize ground water quality at the Officers and Staff Capehart Housing sites:

- Drinking Water Volatiles - EPA Method 602
- Base/Neutral Extractables - EPA Method 625

All temporary monitoring wells DP-01 through DP-26, DPS-5, DPS-5DUP, DP-S6, and DP-S11 were analyzed per EPA Methods 602 and 625. North Carolina Groundwater Quality Standards (NCAC T15A:02L) have been established for the maximum allowable concentrations of specific compounds. The following Class GA standards apply to compounds identified from this investigation:

- Benzene 1 ppb
- MTBE 200 ppb
- Ethylbenzene 29 ppb
- Toluene 1,000 ppb
- Total Xylenes 530 ppb
- Bis(2-ethylhexyl)phthalate 3 ppb

Where no numerical Groundwater Quality Standard exists for a compound, then the laboratory detected limit of that compound is equivalent to the standard.

**3.1 EPA Method 602 - Drinking Water Volatiles**  
(Refer to Table 2, Figures 5 through 7)

Drinking water volatile compounds were not identified in excess of accepted State Standards. Total drinking water volatile concentrations ranged from Below Quantitation Limits (BQL) to 17 ppb.

Detectable concentrations were identified only in temporary wells DP-009, DP-021, DP-033, DP-023, and DP-S6. Table 2 summarizes the results of the volatile compounds identified from ground water samples and compares the data to NCAC T15A:02L Standards. Figure 5 through Figure 7 illustrate the individual constituent concentrations identified.

**3.2 EPA Method 625 - Base/Neutrals (B/N)**  
(Refer to Table 3, Figures 8 through 10)

Results of the B/N analysis revealed only one sample from a temporary monitoring well, DP-015, with detectable target B/N compounds. The compound identified was bis(2-ethylhexyl)phthalate at a concentration of 47 ppb. However, tentatively identified compounds (TICs) other than target B/N compounds were identified in all the temporary wells.

The bis(2-ethylhexyl)phthalate is a plasticizer and cannot be attributed to heating oil. The identification of the bis(2-ethylhexyl)phthalate may be attributed to the sample coming in contact with plastic from the well casing, sample container and/or laboratory analytical equipment.

Since the TICs are not present in the list of target compounds, they are identified and quantified using individual standards. The TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantified only if the peak height is equal or greater than 10% of that of the nearest internal standard. The quantitations provided in the analytical results are estimates.

The TICs identified and their locations are as follows:

Tentatively Identified Compound	Locations	Range of Concentration (ppb)
.alpha.-pinene	DP-001	31
.alpha.-3-cyclohexene-1-methanol	DP-001	26
trans-1,2-dichlorocyclohexane	DP-001 DP-002 DP-003 DP-004 DP-005 DP-006 DP-007	8 to 11
7-Oxabicyclo[4.1.0]heptone	DP-003	35
Sulfur, mol. (S8)	DP-002	5
Unknowns (Total)	All Wells	11 to 107

Table 3 summarizes the results of the B/N compounds identified from the ground water samples. Figures 8 through 10 illustrate the individual constituent concentrations identified.

These tentatively identified compounds do not appear to be associated with the HOTs.

#### 4.0 QUALITY CONTROL PROCEDURES

##### 4.1 *Equipment Decontamination*

Potable water obtained from on-site sources was utilized for equipment decontamination.

##### 4.1.1 DPT Sampler

The DPT sampler and associated tools were cleaned in accordance with the following guidelines:

- DPT sampler and all support equipment were cleaned of excess grease, oils, and caked-on soil prior to arrival at the site.
- Rods and other DPT equipment were decontaminated between borings as follows:
  - High temperature and pressure water rinse.

- If any noticeable petroleum hydrocarbon film was present, the tools were washed with phosphate-free detergent and tap water using a brush.
- High temperature and pressure tap water rinse.
- Allowed to air dry.
- Placed on and covered with clean plastic until next use.
- Equipment such as pumps and pump lines were flushed thoroughly with potable water prior to use. Dedicated tubing was used for each DPT water sample.

#### 4.1.2 Soil and Ground Water Sample Collection Equipment

Disposable polyethylene tubing used for ground water sampling was disposed of after the sampling of each DPT sample probes and other sample collection equipment were decontaminated between sample events as follows:

- Tap water rinse.
- Washed with phosphate-free detergent and tap water using a brush to remove any particle matter or surface film.
- Tap water rinse.
- Rinsed thoroughly with distilled water.
- Rinsed with alcohol.
- Rinsed with distilled water and allowed to air dry.
- Wrapped completely with aluminum foil and sealed in airtight plastic bags or placed on clean plastic if planned for immediate reuse.

## 4.2 *Sample Collection and Shipment*

### 4.2.1 Sample Identification

Prior to collecting each soil and ground water sample, sample bottles were labeled with the following information:

- Date and time of sample collection;
- Project identification number;

- Sample location number;
- Initials of person collecting sample;
- Type of preservative added to sample; and,
- Parameter(s) or parameter group to be analyzed.

Additional specific information, such as sampling interval, may have been added. The sample location number on the label corresponds to the sample location numbers assigned on the field site map.

#### 4.2.2 Chain of Custody and Transportation Procedures (Refer to Appendix B)

Chain of Custody (COC) procedures were followed to establish documentation of sample possession from the time of collection until completion of analysis. As few people as possible handled the sample(s). The sampler was responsible for the care and custody of the samples until they were dispatched for shipment to the off-site laboratory. An accurate record of sample collection, transport, and analysis was maintained and documented. Chain of Custody records are provided in Appendix B.

The COC Record was used by personnel responsible for ensuring the integrity of samples from the time of collection to shipment to the off-site laboratory. The laboratory did not proceed with sample analysis without correctly prepared COC Records and Analytical Request Forms. The laboratory was responsible for maintaining COC of the sample(s) from time of receipt to disposal. Chain of Custody procedures were instituted and followed throughout the investigation.

The COC Record was signed by each individual who maintained custody of the samples. General preparation of the COC Record for samples to be delivered to the off-site laboratory was as follows:

- Samples were accompanied by a COC Record at all times.
- The COC Record was initiated in the field by the person collecting the samples. Every sample was assigned a unique identification number that was entered on the COC Record.
- The COC Record was completed in the field identifying the project, sampler, RC&A assigned project number, etc.
- If the person collecting the samples did not transport the samples to the laboratory or deliver the sample containers for shipment, the first block for "Relinquished By \_\_\_\_\_" was signed by the sampler.

- The person transporting the samples to the laboratory or delivering them for shipment signed the Record as "Relinquished By \_\_\_\_\_."

#### 4.2.3 Off-Site Laboratory

Collected soil and ground water samples were transported by courier to Paradigm Analytical Laboratories, Inc. in Wilmington, North Carolina. Prior to the start of the field investigation, necessary arrangements were made with the laboratory to assure proper and prompt delivery and log in of the collected samples. Shipment and COC procedures were as follows:

- Samples were packed properly for shipment so that bottles would not dislodge and/or break. The samples were kept cool using either ice packs or ice in zip-lock bags.
- Samples were transported via a Paradigm courier.
- The COC record was sealed in a watertight container and placed in the shipping container.
- The courier double checked the contents of the shipping container to assure that the samples were properly packed and the COC inventory was correct.

## 5.0 FINDINGS OF RECEPTOR STUDY

The ground water investigation at the Staff and Officers Capehart did not find indications of releases from the HOTs. Ground water samples were analyzed per EPA Methods 602 and 625 which did not indicate a heating oil signature in any sample analyzed. The investigation did reveal one noncompliant target constituent, bis(2-ethylhexyl)phthalate at 47 ppb. The NCAC 2L Standard for this constituent is 3 ppb. This compound is identified as a plasticizer and could be attributed to sampling or laboratory contamination.

The analytical results also identified TICs, however, the TICs identified cannot be attributed to the release from the HOTs.

## 6.0 RECOMMENDATION

The HOTs are not regulated and should be closed if no longer needed for service.

## TABLES

**TABLE 1**  
**TEMPORARY PIEZOMETER WELL CASING AND WATER ELEVATIONS**  
**CAPEHART HOUSING**  
**MARINE CORPS AIR STATION**  
**CHERRY POINT, NORTH CAROLINA**

<b>WELL NO.</b>	<b>WELL TYPE</b>	<b>DATE MEASURED</b>	<b>TOTAL DEPTH (Feet)</b>	<b>TOP OF CASING ELEVATION (Feet)</b>	<b>DEPTH TO GROUND WATER (Feet)</b>	<b>WATER TABLE ELEVATION (Feet)</b>
P-1	II	9/2/99	22	18.725	15.54	3.085
P-2	II	9/2/99	20	20.705	17.13	3.575
P-3	II	9/2/99	20	19.900	16.09	3.81
P-4	II	9/2/99	20	20.515	16.61	3.905
P-5	II	9/2/99	20	29.150	17.33	11.82
P-6	II	9/2/99	20	25.080	16.41	8.67
P-7	II	9/2/99	20	26.650	18.30	8.35
P-8	II	9/2/99	20	26.660	17.26	9.40
P-9	II	9/2/99	20	28.030	17.17	10.86
P-10	II	9/2/99	20	28.880	17.51	11.37
P-11	II	9/2/99	20	28.590	16.59	12.00
P-12	II	9/2/99	20	28.780	17.80	10.98
P-13	II	9/2/99	20	27.140	18.17	8.97
P-14	II	9/2/99	20	27.650	18.30	9.35
P-15	II	9/2/99	20	27.050	18.39	8.66
P-16	II	9/2/99	22.5	28.280	21.48	6.80
P-17	II	9/2/99	25	29.490	23.93	5.56
P-18	II	9/2/99	20	21.730	16.63	5.10
P-19	II	9/2/99	25	28.310	21.87	6.44
P-20	II	9/2/99	25	26.910	21.38	5.53
P-21	II	9/2/99	25	29.565	21.41	8.155
P-22	II	9/2/99	25	24.285	18.57	5.715
P-23	II	9/2/99	20	26.820	15.51	11.31
P-24	II	9/2/99	25	20.845	17.30	3.545
P-25	II	9/2/99	25	21.510	17.65	3.85

**TABLE 2 (Page 1 of 3)**

**SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
EPA METHOD 602 (PURGEABLE AROMATICS)**

**CAPEHART HOUSING  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

	<b>T15A:02L Standards</b>	<b>01</b>	<b>02</b>	<b>03</b>	<b>04</b>	<b>05</b>	<b>06</b>	<b>07</b>	<b>08</b>	<b>09</b>	<b>010</b>
<b>DATE SAMPLED</b>		9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99
<b>ANALYTE</b>											
Benzene	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	29	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE	200	<2	<2	<2	<2	<2	<2	<2	<2	<2	1
Toluene	1,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	530	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	530	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

\* All results in ug/l (ppb)

\*\* All other compounds as listed in the Laboratory Analytical Results contained in Appendix B.

<# ( i.e. <1) = Below Quantitation Limits

TABLE 2 (Page 2 of 3)

SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
EPA METHOD 602 (PURGEABLE AROMATICS)

CAPEHART HOUSING  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA

	T15A:02L Standards	010	011	012	013	014	015	016	017	018	019
DATE SAMPLED		9/9/99	9/9/99	9/9/99	9/9/99	11/4/99	11/4/99	11/4/99	10/28/99	11/8/99	11/3/99
ANALYTE											
Benzene	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	29	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE	200	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toluene	1,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
m/p-Xylene	530	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
o-Xylene	530	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2

\* All results in ug/l (ppb)

\*\* All other compounds as listed in the Laboratory Analytical Results contained in Appendix B.

<# ( i.e. <1) = Below Quantitation Limits

TABLE 2 (Page 3 of 3)

SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
EPA METHOD 602 (PURGEABLE AROMATICS)

CAPEHART HOUSING  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA

	T15A:02L Standards	020	021	022	023	024	025	026	S-5	S-5 DUP	S-6	S-11
<b>DATE SAMPLED</b>		11/3/99	11/3/99	11/3/99	11/3/9	11/4/99	11/4/99	11/4/99	11/8/99	11/8/99	11/8/99	11/8/99
<b>ANALYTE</b>												
Benzene	1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	29	<1	3	<1	<1	<1	<1	<1	<1	<1	<1	<1
MTBE	200	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Toluene	1,000	<1	3	2	3	<1	<1	<1	<1	<1	1	<1
m/p-Xylene	530	<2	7	2	3	<2	<2	<2	<2	<2	<2	<2
o-Xylene	530	<2	3	<2	<2	<2	<2	<2	<2	<2	<2	<2

\* All results in ug/l (ppb)

\*\* All other compounds as listed in the Laboratory Analytical Results contained in Appendix B.

<# ( i.e. <1) = Below Quantitation Limits

TABLE 3 (Page 1 of 3)

SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
 EPA METHOD 625 (BASE/NEUTRALS)  
 PLUS 10 LARGEST NON-TARGET PEAKS

CAPEHART HOUSING  
 MARINE CORPS AIR STATION  
 CHERRY POINT, NORTH CAROLINA

	T15A:02L Standards	01	02	03	04	05	06	07	08	09	010
DATE SAMPLED		9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99	9/9/99
ANALYTE											
bis(2-ethylhexyl)phthalate	3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	<b>TEN LARGEST NON-TARGET PEAKS</b>										
.alpha.-pinene	--	31	--	--	--	--	--	--	--	--	--
.alpha.-3-cyclohexene-1-methanol	--	26	--	--	--	--	--	--	--	--	--
trans-1,2-dichlorocyclo-hexane	--	9	10	11	9	8	10	8	--	--	--
7-oxabicyclo[4.1.0] heptane	--	--	--	35	--	--	--	--	--	--	--
Sulfur, mol. (S8)	--	--	5	--	--	--	--	--	--	--	--
Unknown Semivolatiles	--	4 - 15	5 - 10	5 - 27	4 - 29	8 - 15	5 - 11	6 - 18	4 - 17	4 - 11	6 - 33

\* All results in ug/l (ppb)

-- Not Available

Shaded areas indicate concentrations exceeding NCAC T15A:02L Groundwater Quality Standards for Target Compounds.

<#, i.e. <10 = Below Quantitation Limits (BQL). This indicates that the substance was not detected at or above this practical quantitation limit. Therefore, there is no violation of the standard in accordance with NCAC T15A:02L .0202(b)(1).

Note: All samples were analyzed by Paradigm Analytical Laboratories, Inc.

TABLE 3 (Page 2 of 3)

SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
 EPA METHOD 625 (BASE/NEUTRALS)  
 PLUS 10 LARGEST NON-TARGET PEAKS

CAPEHART HOUSING  
 MARINE CORPS AIR STATION  
 CHERRY POINT, NORTH CAROLINA

	T15A:02L Standards	011	012	013	014	015	016	017	018	019	020
DATE SAMPLED		9/9/99	9/9/99	9/9/99	11/4/99	11/4/99	11/4/99	10/28/99	11/8/99	11/3/99	11/3/99
ANALYTE											
bis(2-ethylhexyl)phthalate	3	<10	<10	<10	<10	47	<10	<10	<10	<10	<10
<b>TEN LARGEST NON-TARGET PEAKS</b>											
.alpha.-pinene	--	--	--	--	--	--	--	--	--	--	--
.alpha.-3-cyclohexene-1-methanol	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-dichlorocyclo-hexane	--	--	--	--	--	--	--	--	--	--	--
7-oxabicyclo[4.1.0] heptane	--	--	--	--	--	--	--	--	--	--	--
Sulfur, mol. (S8)	--	--	--	--	--	--	--	--	--	--	--
Unknown Semivolatiles	--	4 - 16	5 - 11	4 - 13	7 - 38	7 - 34	12 - 36	7 - 20	5 - 6	8 - 40	4 - 18

\* All results in ug/l (ppb)

-- Not Available

Shaded areas indicate concentrations exceeding NCAC T15A:02L Groundwater Quality Standards for Target Compounds.

<#, i.e. <10 = Below Quantitation Limits (BQL). This indicates that the substance was not detected at or above this practical quantitation limit. Therefore, there is no violation of the standard in accordance with NCAC T15A:02L .0202(b)(1).

Note: All samples were analyzed by Paradigm Analytical Laboratories, Inc.

TABLE 3 (Page 3 of 3)

**SUMMARY OF LABORATORY RESULTS\* - GROUND WATER  
EPA METHOD 625 (BASE/NEUTRALS)  
PLUS 10 LARGEST NON-TARGET PEAKS**

**CAPEHART HOUSING  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

	T15A:02L Standards	021	022	023	024	025	026	S-5	S-5 DUP	S-6	S-11
<b>DATE SAMPLED</b>		11/3/99	11/3/99	11/3/99	11/4/99	11/4/99	11/4/99	11/8/99	11/8/99	11/8/99	11/8/99
<b>ANALYTE</b>											
bis(2-ethylhexyl)phthalate	3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
	<b>TEN LARGEST NON-TARGET PEAKS</b>										
.alpha.-pinene	--	--	--	--	--	--	--	--	--	--	--
.alpha.-3-cyclohexene-1- methanol	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-dichlorocyclo-hexane	--	--	--	--	--	--	--	--	--	--	--
7-oxabicyclo[4.1.0] heptane	--	--	--	--	--	--	--	--	--	--	--
Sulfur, mol. (S8)	--	--	--	--	--	--	--	--	--	--	--
Unknown Semivolatiles	--	19	6 - 37	10 - 43	7 - 34	8 - 36	6 - 38	12 - 20	6 - 9	5 - 20	5 - 15

\* All results in ug/l (ppb)

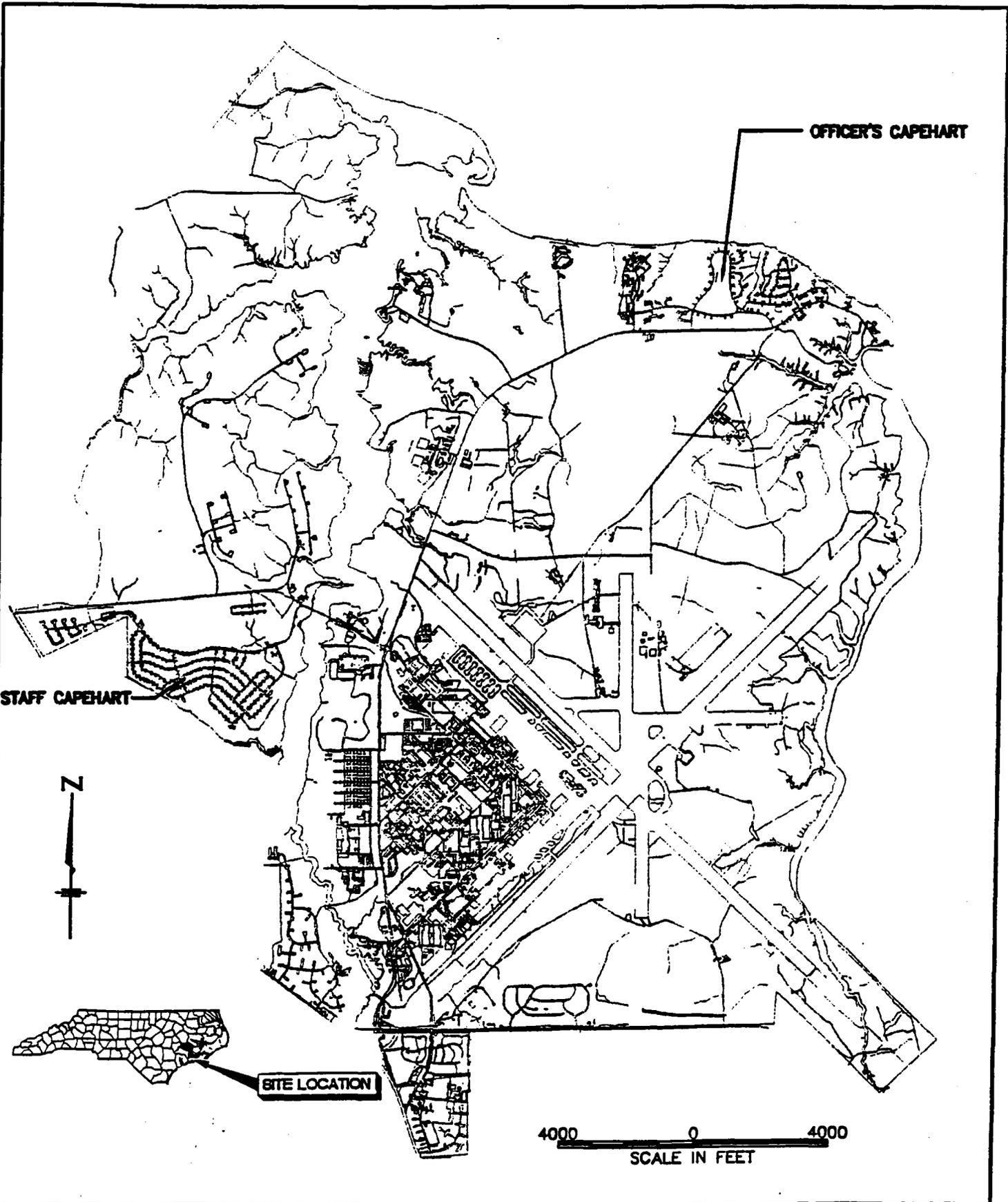
-- Not Available

Shaded areas indicate concentrations exceeding NCAC T15A:02L Groundwater Quality Standards for Target Compounds.

<#, i.e. <10 = Below Quantitation Limits (BQL). This indicates that the substance was not detected at or above this practical quantitation limit. Therefore, there is no violation of the standard in accordance with NCAC T15A:02L .0202(b)(1).

Note: All samples were analyzed by Paradigm Analytical Laboratories, Inc.

## FIGURES

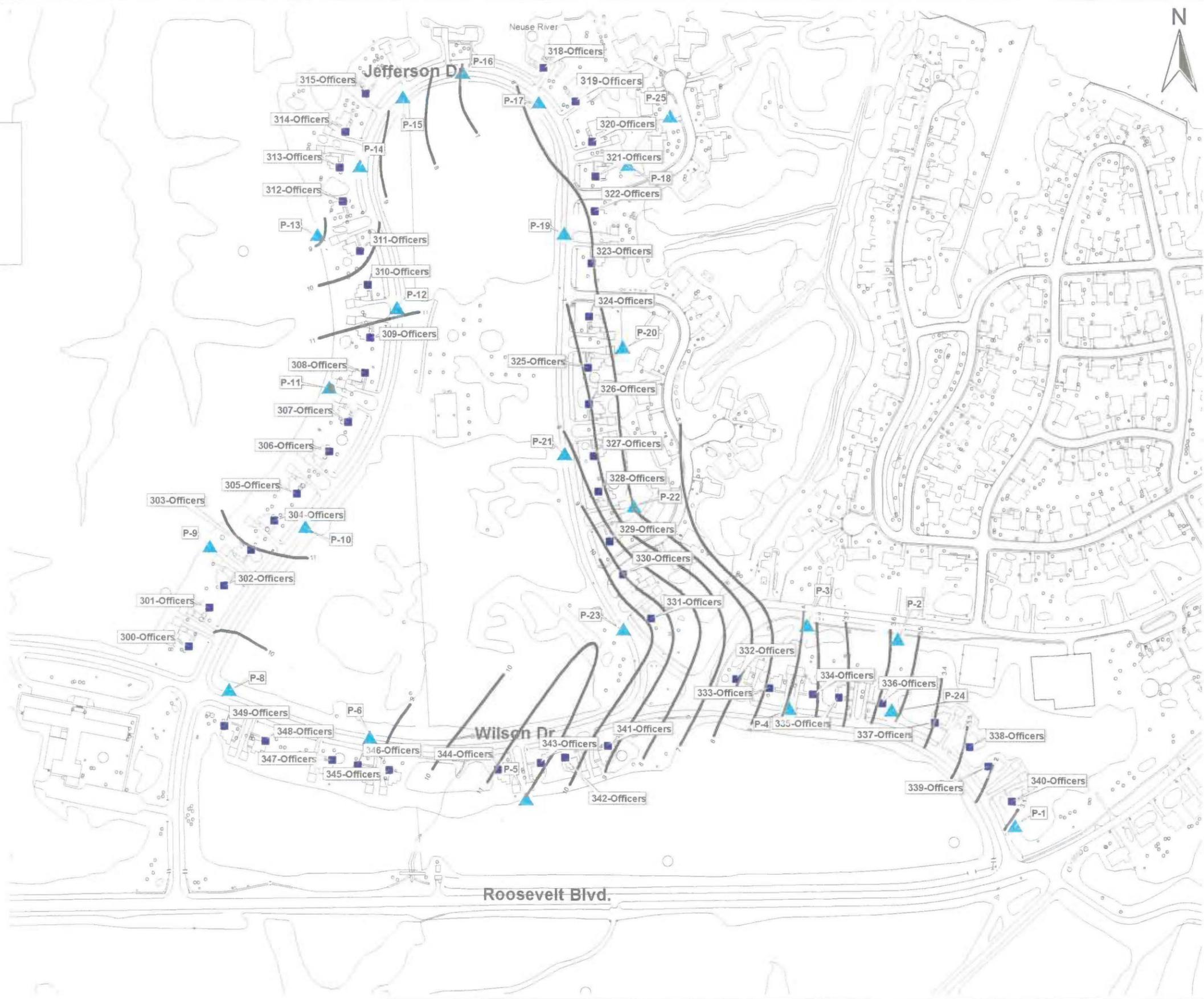


 <b>ENGINEERS AND SCIENTISTS</b>	<b>PROJECT</b> TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING MCAS CHERRY POINT, NC	<b>TITLE</b> GENERAL LOCATION MAP	<b>FIGURE</b> 1
	<b>JOB NO.</b> 99136-F <b>DATE:</b> JULY 1999	<b>SCALE:</b> AS SHOWN <b>DRAWN BY:</b> WJW <b>CHECKED BY:</b> GM	

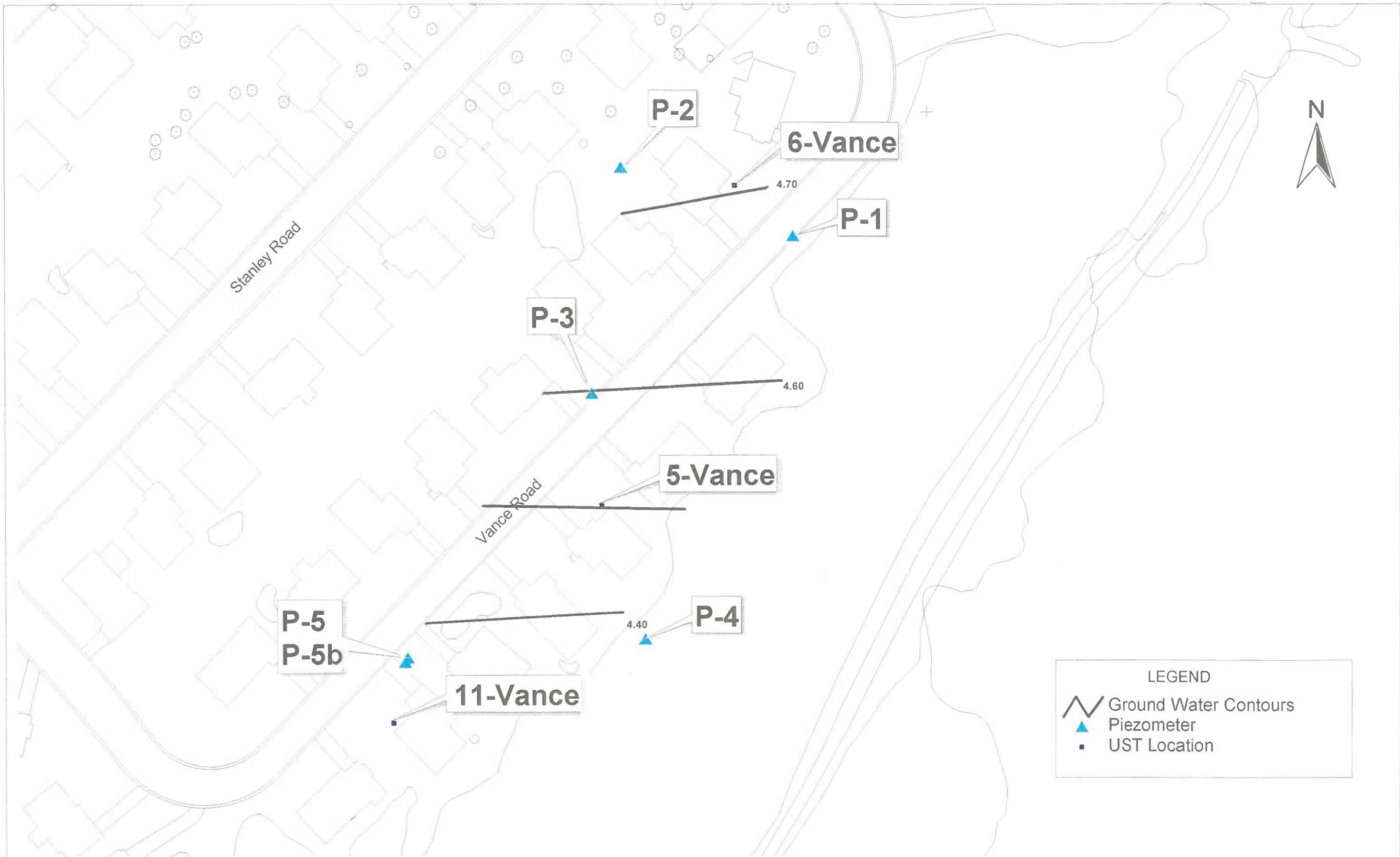


**LEGEND**

-  Ground Water Contours
-  Piezometer
-  Tank Location



PROJECT MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING		TITLE GROUND WATER CONTOUR MAP CAPEHART OFFICER'S HOUSING		FIGURE <b>2</b>
JOB NO 99136	DATE JAN 99	SCALE AS SHOWN	DRAWN BY MWW	CHECKED BY KB



**LEGEND**

-  Ground Water Contours
-  Piezometer
-  UST Location



	PROJECT	MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING	TITLE	GROUND WATER CONTOUR MAP CAPEHART STAFF HOUSING UNITS 5,6, AND 11 VANCE ROAD	FIGURE	3			
	JOB NO.	99136	DATE:	JAN 99	SCALE:	AS SHOWN	DRAWN BY:	MWW	CHECKED BY:



20 Gates Road

Catawba Road

Gates Road

42 Gates Road

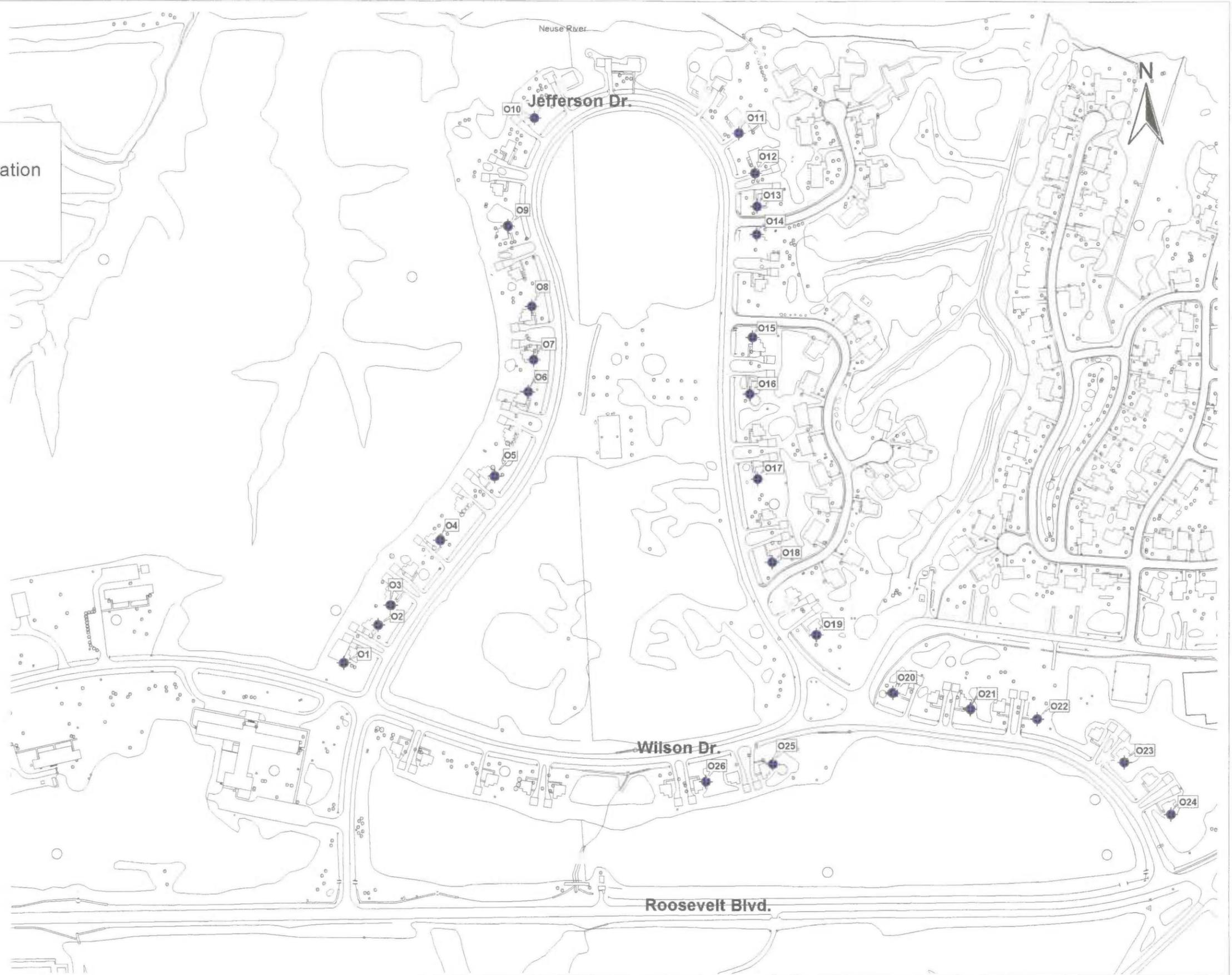
A thorough investigation did not locate tanks at:  
  
20 Gates Road or  
42 Gates Road  
  
They are believed to have been previously removed,  
therefore ground water measurements were not taken.



	PROJECT	MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING		TITLE	GROUND WATER CONTOURS CAPEHART STAFF HOUSING - GATES ROAD UNITS 20 AND 42		FIGURE	4	
	JOB NO	99136	DATE	JAN 99	SCALE	AS SHOWN	DRAWN BY		MWW

**LEGEND**

- ⊕ Power Probe Sample Location
- 602 2L Non-Compliant
- ◆ 602 2L Compliant



	PROJECT	MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING		TITLE	EPA METHOD 602 CAPEHART OFFICER'S HOUSING	FIGURE	5		
	JOB NO.	99136	DATE	JAN 99	SCALE	AS SHOWN	DRAWN BY	MWW	CHECKED BY



	PROJECT MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING	TITLE EPA METHOD 602 CAPEHART STAFF HOUSING UNITS 5,6, AND 11 VANCE ROAD	FIGURE <b>6</b>
	JOB NO. 99136 DATE JAN 99	SCALE AS SHOWN DRAWN BY MWW CHECKED BY KB	



PROJECT		TITLE		FIGURE
MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING		EPA METHOD 602 CAPEHART STAFF HOUSING - GATES ROAD UNITS 20 AND 42		7
JOB NO:	99136	DATE:	JAN 99	SCALE: AS SHOWN
		DRAWN BY:	MWW	CHECKED BY: KB

Neuse River



**LEGEND**

- ⊕ Power Probe Sample Location
- ◆ 625 2L Non-Compliant
- 625 2 2L Compliant



Notes □ 1. 2L Standard refers to North Carolina  
Ground Water Quality Standard 15A NCAC 2L 0202  
2. The "Date Sampled" field in the table should be interpreted as "YYYYMMDD"

Sample ID	Date Sampled	Method	Parameter	Result	Units	2L Standard
O15	19991104	EPA 625	Bis(2-ethylhexyl)phthalate	47.00000	ug/L	3.00000



PROJECT MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING	TITLE EPA METHOD 625 CAPEHART OFFICER'S HOUSING	FIGURE <b>8</b>
JOB NO. 99136	DATE JAN 99	SCALE AS SHOWN
DRAWN BY: MWW		CHECKED BY: KB



	PROJECT MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING	TITLE EPA METHOD 625 CAPEHART STAFF HOUSING UNITS 5,6, AND 11 VANCE ROAD	FIGURE <b>9</b>
	JOB NO. 99136 DATE: JAN 99	SCALE AS SHOWN	DRAWN BY: MWW CHECKED BY: KB



	PROJECT	MCAS CHERRY POINT TANK SURVEY AND RECEPTOR PROTECTION STUDY CAPEHART HOUSING		TITLE	EPA METHOD 625 CAPEHART STAFF HOUSING - GATES ROAD UNITS 20 AND 42	FIGURE	10		
	JOB NO.	99136	DATE:	JAN 99	SCALE	AS SHOWN		DRAWN BY:	MWW

**APPENDIX A**  
**BORING LOGS**



## BORING LOG

BORING NUMBER 324 (#015)  
 TOTAL DEPTH 24.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY B. Miller  
 LOGGED BY R. Wenzel

DRILLING DATE 10/28/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	1.0	Black, fine grained SANDY SILT with plant roots (topsoil).	ML	Moist	--	--	--
1.0	2.0	Orange, fine to medium grained SANDY CLAY.	CL	Moist	--	--	--
2.0	3.0	Dark gray to tan, fine grained SAND, well sorted.	SP	Moist	--	--	--
3.0	4.0	Orange, fine to medium grained SANDY CLAY.	CL	Moist	--	--	--
4.0	7.0	Orange to tan, fine to medium grained SILTY SAND, moderately sorted.	SP	Moist	--	--	--
7.0	12.0	Orange, fine grained SAND, well sorted with pockets of clayey fine sand.		Moist	--	--	--
12.0	15.0	Mottled orange, tan, and white, fine grained SAND, well sorted with pockets of gray clay.			--	--	--
15.0	19.0	Mottled orange, tan, and gray, fine to medium grained, alternating layers of SANDY CLAY and CLAYEY SAND.		Moist	--	--	--
19.0	20.0	Mottled orange, tan, and gray, fine to coarse grained CLAYEY SAND, poorly sorted.			--	--	--
20.0	24.0	Orange, brown, and tan, fine to medium grained SAND, moderately sorted.		Saturated	--	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1

## BORING LOG

BORING NUMBER 325 (#016)  
 TOTAL DEPTH 20.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY B. Miller  
 LOGGED BY R. Wenzel

DRILLING DATE 10/28/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/ FID PPM	BLOW COUNT
0	1.0	Black, fine grained SANDY SILT with plant roots.	ML	Moist	--	--	--
1.0	2.0	Orange, fine grained SANDY CLAY with plant roots.	CL	Moist	--	--	--
2.0	3.0	Tan, fine grained SAND, well sorted.	SP	Moist	--	--	--
3.0	4.0	Orange, fine grained SANDY CLAY.	CL	Moist	--	--	--
4.0	8.0	Orangish-brown and tan, fine grained CLAYEY SAND, well sorted.	SP	Moist	--	--	--
8.0	11.0	Orange, fine grained SAND, well sorted.	SP	Moist	--	--	--
11.0	13.0	Orange, fine grained CLAY, well sorted with pockets of gray clay.	SP	Moist	--	--	--
13.0	20.0	Mottled orange, gray, and tan, fine to medium grained, SAND and CLAYEY SAND with interbedded lenses of gray clay, moderately sorted.	SP/ CL	Moist to Wet	--	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1





## BORING LOG

BORING NUMBER 331 (#019)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/03/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	2.0	Dark brown to brown, SILTY SAND with top 6" organic.	SM		No	--	--
2.0	4.0	Brown to yellowish-brown CLAY.	MH		No	--	--
4.0	5.0	Mottled brownish-tan and orangish-brown SILTY SAND.	SM		No	--	--
5.0	7.0	Brown to orangish-brown SILTY SAND.	SM		No	--	--
7.0	8.0	Yellowish-orange, fine grained SAND.	SP		No	--	--
8.0	9.0	Tan/orangish-brown SILTY SAND.	SM		No	--	--
9.0	10.0	Gray and yellowish-orange CLAY/SAND/SILT.	SC		No	--	--
10.0	11.0	Yellowish-orange, fine grained SAND layered with light gray fat clay.	SP/CH		No	--	--
11.0	12.0	Orangish-brown and gray CLAYEY SILT.	ML		No	--	--
12.0	13.0	Yellowish-orange, fine to medium grained SAND.	SP		No	--	--
13.0	14.0	Mottled gray and orangish-brown SILTY CLAY.	CL		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 2



## BORING LOG

BORING NUMBER 332 (#020)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/03/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	2.0	Dark brown, fine grained SAND with fines and organics in top 6".	SM		No	--	--
2.0	4.0	Tan to light brown, fine grained SAND.	SP		No	--	--
4.0	8.0	Tan SILTY SAND.	SM		No	--	--
8.0	9.0	Tan to yellowish-orange SILTY SAND.	SM		No	--	--
9.0	10.0	Light tan, fine grained SAND.	SP		No	--	--
10.0	10.5	Mottled yellowish-orange, tan, and gray, fine grained CLAYEY SAND.	ML		No	--	--
10.0	12.0	Yellowish-orange, fine grained SAND.	SP		No	--	--
12.0	13.0	Mottled yellowish-orange and light gray CLAY with minor fine grained SAND.	CH		No	--	--
13.0	14.0	Mottled yellowish-orange and light gray SANDY CLAY.	SC		No	--	--
14.0	16.0	Mottled yellowish-orange and light gray SILTY CLAY.	ML		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1

## BORING LOG

BORING NUMBER 334 (#021)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/03/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	2.0	Dark brown SILTY SAND with organics in top 6".	SM		No	--	--
2.0	4.0	Brown SILTY SAND.	SM		No	--	--
4.0	5.0	Mottled brownish-gray with reddish-orange CLAYEY SILT.	ML		No	--	--
5.0	6.0	Light brown CLAYEY SILT.	ML		No	--	--
6.0	7.0	Light brown SANDY CLAY.	SC		No	--	--
7.0	8.0	Gray and brown CLAYEY SILT with black petro staining.	ML		Yes	--	--
8.0	9.0	Brown SILTY SAND.	SM		No	--	--
9.0	12.0	Layered light tan, fine grained SAND with yellowish-orange silty sand and gray silty clay.	SP/SM /MH		No	--	--
12.0	16.0	Mottled yellowish-orange and gray SANDY to SILTY CLAY.	CL		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1

## BORING LOG

BORING NUMBER 336 (#022)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/03/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	2.0	Dark brown SILTY SAND with organics in top 6".	SM		No	--	--
2.0	4.0	Brown SILTY SAND.	SM		No	--	--
4.0	5.0	Brown SILTY SAND.	SM		No	--	--
5.0	6.5	Mottled brown and gray CLAY with fines.	MH		No	--	--
6.5	8.0	Brown, fine grained CLAYEY SAND/SILT.	SC		No	--	--
8.0	9.0	Brown, fine grained CLAYEY SAND/SILT.	SC		No	--	--
9.0	9.5	Orangish-brown, fine to medium grained SAND.	SP		No	--	--
9.5	10.0	Orangish-brown and gray CLAYEY SAND.	SC		No	--	--
10.0	10.5	Light gray, fine grained SAND.	SP		No	--	--
10.5	12.0	Brown and gray CLAYEY SAND/SILT.	SC		No	--	--
12.0	15.0	Orangish-brown and gray SILTY SAND.	SM		No	--	--
15.0	16.0	Light tan, fine grained SAND.	SP		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1





## BORING LOG

BORING NUMBER 341 (#025)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/04/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	4.0	Olive/tan SILTY SAND with organics in top 6".			No	--	--
4.0	5.0	Tan, fine grained SAND.	SP		No	--	--
5.0	8.0	Yellow-orange SILTY SAND.	SM		No	--	--
8.0	9.5	Yellow-orange SILTY SAND.	SM		No	--	--
9.5	10.0	Tan, fine grained SAND.	SP		No	--	--
10.0	11.0	Orange, fine grained SAND.	SP		No	--	--
11.0	12.0	Light tan and light gray SILTY SAND.	SM		No	--	--
12.0	13.0	Yellow-orange and light gray SILT.	MH		No	--	--
13.0	13.5	Gray SILTY CLAY.	MH		No	--	--
13.5	14.0	Gray, fine grained SAND.	SP		No	--	--
14.0	15.0	Gray SILTY CLAY.	MH		No	--	--
15.0	16.0	Orange to yellowish-orange, fine grained SAND with gray silty clay layers.	SC		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1

## BORING LOG

BORING NUMBER 343 (#026)  
 TOTAL DEPTH 16.0'

SITE LOCATION CAPEHART HOUSING  
MCAS Cherry Point, North Carolina

DRILLED BY S. Tyler  
 LOGGED BY B. Harrison

DRILLING DATE 11/04/99

SAMPLE DEPTH (FT.)		SAMPLE DESCRIPTION	USCS	WATER CONTENT	ODOR	PID/FID PPM	BLOW COUNT
0	4.0	Dark brown SILTY SAND, organic.	SM		No	--	--
4.0	6.0	Tan SILTY SAND with root mass.	SM		No	--	--
6.0	8.0	Light tan SILTY SAND.	SM		No	--	--
8.0	12.0	Light tan SILTY SAND.	SM		No	--	--
12.0	13.0	Orange, fine grained SAND with black organic staining.	SP		No	--	--
13.0	14.0	Gray and light brown SANDY/SILTY CLAY.	CL		No	--	--
14.0	14.5	Yellowish-orange, fine grained SAND.	SP		No	--	--
14.5	15.5	Gray SILTY SAND.	SM		No	--	--
15.5	16.0	Gray to dark gray CLAYEY SILT.	ML		No	--	--

REMARKS \_\_\_\_\_

PAGE 1 OF 1







**APPENDIX B**

**LABORATORY ANALYTICAL REPORTS AND  
CHAIN-OF-CUSTODY DOCUMENTATION**

RECEIVED  
DATE 11/30/99

PARADIGM ANALYTICAL LABORATORIES, INC.  
2627 Northchase Parkway S.E.  
Wilmington, North Carolina 28405  
(910) 350-1903  
Fax (910) 350-1557

Mr. Keith Bulla  
Richard Catlin & Associates  
P.O. Box 10279  
Wilmington, NC 28404-0279

November 22, 1999

Report Number: G128-513

Client Project ID: 99136-F

Dear Mr. Bulla,

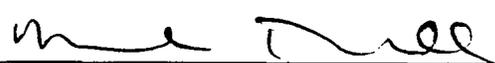
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

  
\_\_\_\_\_  
Laboratory Director  
Mark Randall

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 014  
 Client Project ID: 99136-F  
 Lab Sample ID: 75488  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 015  
Client Project ID: 99136-F  
Lab Sample ID: 75489  
Lab Project ID: G128-513

Analyzed By: EKR  
Date Collected: 11/4/99  
Date Received: 11/5/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 016  
Client Project ID: 99136-F  
Lab Sample ID: 75490  
Lab Project ID: G128-513

Analyzed By: EKR  
Date Collected: 11/4/99  
Date Received: 11/5/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 019  
 Client Project ID: 99136-F  
 Lab Sample ID: 75492  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/9/99	1	1	BQL
Diisopropyl ether (DIPE)	11/9/99	1	1	BQL
Ethylbenzene	11/9/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/9/99	1	2	BQL
Toluene	11/9/99	1	1	BQL
m/p-Xylene	11/9/99	1	2	BQL
o-Xylene	11/9/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 020  
Client Project ID: 99136-F  
Lab Sample ID: 75493  
Lab Project ID: G128-513

Analyzed By: EKR  
Date Collected: 11/3/99  
Date Received: 11/5/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/9/99	1	1	BQL
Diisopropyl ether (DIPE)	11/9/99	1	1	BQL
Ethylbenzene	11/9/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/9/99	1	2	BQL
Toluene	11/9/99	1	1	BQL
m/p-Xylene	11/9/99	1	2	BQL
o-Xylene	11/9/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 021  
 Client Project ID: 99136-F  
 Lab Sample ID: 75494  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/9/99	1	1	1
Diisopropyl ether (DIPE)	11/9/99	1	1	BQL
Ethylbenzene	11/9/99	1	1	3
Methyl-tert-butyl ether (MTBE)	11/9/99	1	2	BQL
Toluene	11/9/99	1	1	3
m/p-Xylene	11/9/99	1	2	7
o-Xylene	11/9/99	1	2	3

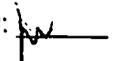
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 022  
 Client Project ID: 99136-F  
 Lab Sample ID: 75495  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	2
m/p-Xylene	11/10/99	1	2	2
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 023  
 Client Project ID: 99136-F  
 Lab Sample ID: 75496  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	3
m/p-Xylene	11/10/99	1	2	3
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	102

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 024  
 Client Project ID: 99136-F  
 Lab Sample ID: 75497  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	101

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 025  
 Client Project ID: 99136-F  
 Lab Sample ID: 75498  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	97

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 026  
 Client Project ID: 99136-F  
 Lab Sample ID: 75499  
 Lab Project ID: G128-513

Analyzed By: EKR  
 Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	BQL
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	39	98

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 014  
Client Project ID: 99136-F  
Lab Sample ID: 75488  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/11/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 625**

Client Sample ID: 014  
 Client Project ID: 99136-F  
 Lab Sample ID: 75488  
 Lab Project ID: G128-513  
 Matrix: Water

Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/11/99  
 Analyzed By: MRC  
 Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

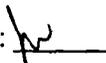
<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2-Fluorobiphenyl	20	13.3	66
2-Fluorophenol	20	15.7	79
Nitrobenzene-d5	20	14.1	70
Phenol-d6	20	12.8	64
2,4,6-Tribromophenol	20	15.7	79
4-Terphenyl-d14	20	15.3	77

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**

by GCMS

Client Sample ID: 014  
 Client Project ID: 99136-F  
 Lab Sample ID: 75488  
 Lab Project ID: G128-513  
 Matrix: Water

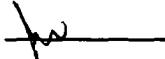
Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/11/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			38
2	Unknown			26
3	Unknown			7
4	Unknown			7
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 015  
Client Project ID: 99136-F  
Lab Sample ID: 75489  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/11/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	47
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS 625

Client Sample ID: 015  
Client Project ID: 99136-F  
Lab Sample ID: 75489  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/11/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

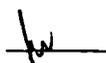
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.3	83
2-Fluorophenol	10	7.9	79
Nitrobenzene-d5	10	7.7	77
Phenol-d6	10	7	70
2,4,6-Tribromophenol	10	7.6	76
4-Terphenyl-d14	10	9.9	99

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 



PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 016  
Client Project ID: 99136-F  
Lab Sample ID: 75490  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Semivolatiles**  
by GCMS 625

Client Sample ID: 016  
Client Project ID: 99136-F  
Lab Sample ID: 75490  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

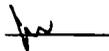
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.6	76
2-Fluorophenol	10	7.5	75
Nitrobenzene-d5	10	7.4	74
Phenol-d6	10	6.6	66
2,4,6-Tribromophenol	10	7.3	73
4-Terphenyl-d14	10	8.8	88

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: 016  
 Client Project ID: 99136-F  
 Lab Sample ID: 75490  
 Lab Project ID: G128-513  
 Matrix: Water

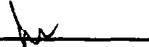
Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			36
2	Unknown			22
3	Unknown			13
4	Unknown			12
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 019  
Client Project ID: 99136-F  
Lab Sample ID: 75492  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 019  
Client Project ID: 99136-F  
Lab Sample ID: 75492  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.8	68
2-Fluorophenol	10	5.7	57
Nitrobenzene-d5	10	6.1	61
Phenol-d6	10	5.1	51
2,4,6-Tribromophenol	10	7.1	71
4-Terphenyl-d14	10	8.8	88

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: 019  
 Client Project ID: 99136-F  
 Lab Sample ID: 75492  
 Lab Project ID: G128-513  
 Matrix: Water

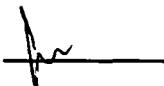
Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			40
2	Unknown			11
3	Unknown			8
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 020  
Client Project ID: 99136-F  
Lab Sample ID: 75493  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/9/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 020  
Client Project ID: 99136-F  
Lab Sample ID: 75493  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/9/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

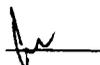
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	3.7	37
2-Fluorophenol	10	2.8	28
Nitrobenzene-d5	10	2.9	29
Phenol-d6	10	2.9	29
2,4,6-Tribromophenol	10	2.5	25
4-Terphenyl-d14	10	4.7	47

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**

*by GCMS*

Client Sample ID: 020  
 Client Project ID: 99136-F  
 Lab Sample ID: 75493  
 Lab Project ID: G128-513  
 Matrix: Water

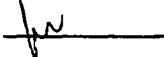
Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/9/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			18
2	Unknown			4
3				
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 021  
Client Project ID: 99136-F  
Lab Sample ID: 75494  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/10/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 021  
Client Project ID: 99136-F  
Lab Sample ID: 75494  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/10/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

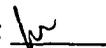
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	3.5	35
2-Fluorophenol	10	2	20
Nitrobenzene-d5	10	2.7	27
Phenol-d6	10	2.6	26
2,4,6-Tribromophenol	10	2.7	27
4-Terphenyl-d14	10	4.3	43

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 



PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 022  
Client Project ID: 99136-F  
Lab Sample ID: 75495  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 625**

Client Sample ID: 022  
 Client Project ID: 99136-F  
 Lab Sample ID: 75495  
 Lab Project ID: G128-513  
 Matrix: Water

Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2-Fluorobiphenyl	10	7.1	70
2-Fluorophenol	10	5.6	56
Nitrobenzene-d5	10	6.2	62
Phenol-d6	10	5.4	54
2,4,6-Tribromophenol	10	6.8	68
4-Terphenyl-d14	10	9	90

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 



**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: 022  
 Client Project ID: 99136-F  
 Lab Sample ID: 75495  
 Lab Project ID: G128-513  
 Matrix: Water

Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			37
2	Unknown			11
3	Unknown			10
4	Unknown			8
5	Unknown			7
6	Unknown			6
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by:  \_\_\_\_\_

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 023  
Client Project ID: 99136-F  
Lab Sample ID: 75496  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 023  
Client Project ID: 99136-F  
Lab Sample ID: 75496  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/3/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

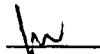
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8	80
2-Fluorophenol	10	8	80
Nitrobenzene-d5	10	7.7	77
Phenol-d6	10	6.8	67
2,4,6-Tribromophenol	10	8.3	83
4-Terphenyl-d14	10	9.3	92

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: 023  
 Client Project ID: 99136-F  
 Lab Sample ID: 75496  
 Lab Project ID: G128-513  
 Matrix: Water

Date Collected: 11/3/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			43
2	Unknown			10
3				
4				
5				
6				
7				
8				
9				
10				

**Comment:**

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Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by:  \_\_\_\_\_

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 024  
Client Project ID: 99136-F  
Lab Sample ID: 75497  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 024  
Client Project ID: 99136-F  
Lab Sample ID: 75497  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	7.9	79
2-Fluorophenol	10	8.7	87
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	7.5	75
2,4,6-Tribromophenol	10	7.5	75
4-Terphenyl-d14	10	8.7	87

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results of Library Search for Semivolatile Compounds  
by GCMS

Client Sample ID: 024  
Client Project ID: 99136-F  
Lab Sample ID: 75497  
Lab Project ID: G128-513  
Matrix: Water

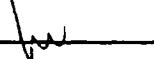
Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			34
2	Unknown			26
3	Unknown			13
4	Unknown			11
5	Unknown			9
6	Unknown			7
7	Unknown			7
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 025  
Client Project ID: 99136-F  
Lab Sample ID: 75498  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 025  
Client Project ID: 99136-F  
Lab Sample ID: 75498  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	6.5	65
2-Fluorophenol	10	5.8	58
Nitrobenzene-d5	10	5.8	58
Phenol-d6	10	5.9	59
2,4,6-Tribromophenol	10	7	70
4-Terphenyl-d14	10	9.4	94

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By:

**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: 025  
 Client Project ID: 99136-F  
 Lab Sample ID: 75498  
 Lab Project ID: G128-513  
 Matrix: Water

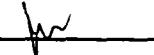
Date Collected: 11/4/99  
 Date Received: 11/5/99  
 Date Analyzed: 11/12/99  
 Analyzed By: MRC  
 Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			36
2	Unknown			20
3	Unknown			15
4	Unknown			12
5	Unknown			8
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 026  
Client Project ID: 99136-F  
Lab Sample ID: 75499  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results of Library Search for Semivolatile Compounds  
by GCMS

Client Sample ID: 026  
Client Project ID: 99136-F  
Lab Sample ID: 75499  
Lab Project ID: G128-513  
Matrix: Water

Date Collected: 11/4/99  
Date Received: 11/5/99  
Date Analyzed: 11/12/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			38
2	Unknown			10
3	Unknown			9
4	Unknown			8
5	Unknown			7
6	Unknown			6
7	Unknown			6
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

Client: CATUM ENGINEERS, SUE Project ID: 99136-F Date: 11-5-99 Report To: CATUM  
 Address: 220 OLD DAIRY RD. P.O. Number: 991105-01 Turnaround: Standard MR. KEITH BOWEN  
 Address: WILM. NC Contact: \_\_\_\_\_ Job Number: \_\_\_\_\_  
 Quote #: \_\_\_\_\_ Phone: \_\_\_\_\_ Invoice To: CATUM

Sample ID	Date	Time	Matrix	Preservatives				Analyses								Comments: Please specify any special reporting requirements	
				HCC	VOAS	EPA 602	EPA 625+ TLCS										
014	11-4-99	1340	GRND WTR	✓	✓	✓	✓										
015	↓	1300	↓	✓	✓	✓	✓										ADD files
016	↓	1430	↓	✓	✓	✓	✓										
<del>018</del>																	<del>Not sampled</del>
019	1100	11-3	↓	✓	✓	✓	✓										
020	1215	11-3	↓	✓	✓	✓	✓										
021	1340	11-3	↓	✓	✓	✓	✓										
022	1430	11-3	↓	✓	✓	✓	✓										
023	1540	11-3	↓	✓	✓	✓	✓										
Relinquished By		Date	Time	Received By		Date	Time	Temperature	Sampled By		Airbill #						
[Signature]		11-5-99	1115	[Signature]		11-5-99	1115	WILKIN-ONCE									

Client: CATCO ENGR & SCIE Project ID: 99136-F Date: 11-5-99 Report To: CATCO  
 Address: 220 OLD DAIRY P.O. Number: 991105-01 Turnaround: \_\_\_\_\_  
 Address: WILM. NC Contact: \_\_\_\_\_ Job Number: \_\_\_\_\_  
 Quote #: \_\_\_\_\_ Phone: \_\_\_\_\_ Invoice To: CATCO

Sample ID	Date	Time	Matrix	Preservatives			Analyses							Comments: Please specify any special reporting requirements		
				MCL IN COAGS			EPA 602	EPA 625 TLPs								
024	11-4-99	0850	Grnd WTR.	✓			✓	✓								G128-513
025	11-4-99	0950		✓			✓	✓								
026	11-4-99	1100		✓			✓	✓								
Relinquished By				Date	Time	Received By		Date	Time	Temperature	Sampled By		Airbill #			
				11-5-99	1115			11/5/99	1115	WILM-ONCE						

RECEIVED  
11/30/99

**PARADIGM ANALYTICAL LABORATORIES, INC.**  
2627 Northchase Parkway S.E.  
Wilmington, North Carolina 28405  
(910) 350-1903  
Fax (910) 350-1557

Mr. Keith Bulla  
Richard Catlin & Associates  
P.O. Box 10279  
Wilmington, NC 28404-0279

November 19, 1999

Report Number: G128-514

Client Project ID: 99136-F

Dear Mr. Bulla,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.

  
\_\_\_\_\_  
Laboratory Director  
Mark Randall

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: 018  
Client Project ID: 99136-F  
Lab Sample ID: 75628  
Lab Project ID: G128-514

Analyzed By: EKR  
Date Collected: 11/8/99  
Date Received: 11/9/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/12/99	1	1	BQL
Diisopropyl ether (DIPE)	11/12/99	1	1	BQL
Ethylbenzene	11/12/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/12/99	1	2	BQL
Toluene	11/12/99	1	1	BQL
m/p-Xylene	11/12/99	1	2	BQL
o-Xylene	11/12/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: S-5  
Client Project ID: 99136-F  
Lab Sample ID: 75629  
Lab Project ID: G128-514

Analyzed By: EKR  
Date Collected: 11/8/99  
Date Received: 11/9/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/12/99	1	1	BQL
Diisopropyl ether (DIPE)	11/12/99	1	1	BQL
Ethylbenzene	11/12/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/12/99	1	2	BQL
Toluene	11/12/99	1	1	BQL
m/p-Xylene	11/12/99	1	2	BQL
o-Xylene	11/12/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: hw

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: S-5 Dup  
Client Project ID: 99136-F  
Lab Sample ID: 75630  
Lab Project ID: G128-514

Analyzed By: EKR  
Date Collected: 11/8/99  
Date Received: 11/9/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/12/99	1	1	BQL
Diisopropyl ether (DIPE)	11/12/99	1	1	BQL
Ethylbenzene	11/12/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/12/99	1	2	BQL
Toluene	11/12/99	1	1	BQL
m/p-Xylene	11/12/99	1	2	BQL
o-Xylene	11/12/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	99

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: S-6  
 Client Project ID: 99136-F  
 Lab Sample ID: 75631  
 Lab Project ID: G128-514

Analyzed By: EKR  
 Date Collected: 11/8/99  
 Date Received: 11/9/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/10/99	1	1	BQL
Diisopropyl ether (DIPE)	11/10/99	1	1	BQL
Ethylbenzene	11/10/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/10/99	1	2	BQL
Toluene	11/10/99	1	1	1
m/p-Xylene	11/10/99	1	2	BQL
o-Xylene	11/10/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: S-11  
Client Project ID: 99136-F  
Lab Sample ID: 75632  
Lab Project ID: G128-514

Analyzed By: EKR  
Date Collected: 11/8/99  
Date Received: 11/9/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/12/99	1	1	BQL
Diisopropyl ether (DIPE)	11/12/99	1	1	BQL
Ethylbenzene	11/12/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/12/99	1	2	BQL
Toluene	11/12/99	1	1	BQL
m/p-Xylene	11/12/99	1	2	BQL
o-Xylene	11/12/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: 018  
Client Project ID: 99136-F  
Lab Sample ID: 75628  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL



**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 625**

Client Sample ID: 018  
 Client Project ID: 99136-F  
 Lab Sample ID: 75628  
 Lab Project ID: G128-514  
 Matrix: Water

Date Collected: 11/8/99  
 Date Received: 11/9/99  
 Date Analyzed: 11/13/99  
 Analyzed By: MRC  
 Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

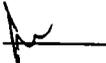
<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2-Fluorobiphenyl	10	8.7	87
2-Fluorophenol	10	7.9	79
Nitrobenzene-d5	10	8.4	84
Phenol-d6	10	8.7	87
2,4,6-Tribromophenol	10	9	90
4-Terphenyl-d14	10	10.4	104

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results of Library Search for Semivolatile Compounds  
by GCMS

Client Sample ID: 018  
Client Project ID: 99136-F  
Lab Sample ID: 75628  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			6
2	Unknown			5
3				
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by:  \_\_\_\_\_

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-5  
Client Project ID: 99136-F  
Lab Sample ID: 75629  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 625**

Client Sample ID: S-5  
 Client Project ID: 99136-F  
 Lab Sample ID: 75629  
 Lab Project ID: G128-514  
 Matrix: Water

Date Collected: 11/8/99  
 Date Received: 11/9/99  
 Date Analyzed: 11/13/99  
 Analyzed By: MRC  
 Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

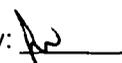
<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2-Fluorobiphenyl	10	8.2	82
2-Fluorophenol	10	7.7	77
Nitrobenzene-d5	10	7.9	79
Phenol-d6	10	8.5	85
2,4,6-Tribromophenol	10	8.8	88
4-Terphenyl-d14	10	9.6	96

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds  
by GCMS

Client Sample ID: S-5  
Client Project ID: 99136-F  
Lab Sample ID: 75629  
Lab Project ID: G128-514  
Matrix: Water

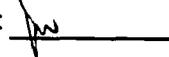
Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			20
2	Unknown			12
3				
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-5 Dup  
Client Project ID: 99136-F  
Lab Sample ID: 75630  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-5 Dup  
Client Project ID: 99136-F  
Lab Sample ID: 75630  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

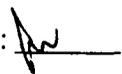
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	8.4	84
2-Fluorophenol	10	6.6	66
Nitrobenzene-d5	10	8.1	81
Phenol-d6	10	8.5	85
2,4,6-Tribromophenol	10	9	90
4-Terphenyl-d14	10	11	110

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 



PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-6  
Client Project ID: 99136-F  
Lab Sample ID: 75631  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/17/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-6  
Client Project ID: 99136-F  
Lab Sample ID: 75631  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/17/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2-Fluorobiphenyl	10	9.8	98
2-Fluorophenol	10	9.6	96
Nitrobenzene-d5	10	9.9	99
Phenol-d6	10	9.7	97
2,4,6-Tribromophenol	10	10	100
4-Terphenyl-d14	10	11.2	112

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 



PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 625

Client Sample ID: S-11  
Client Project ID: 99136-F  
Lab Sample ID: 75632  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 625**

Client Sample ID: S-11  
 Client Project ID: 99136-F  
 Lab Sample ID: 75632  
 Lab Project ID: G128-514  
 Matrix: Water

Date Collected: 11/8/99  
 Date Received: 11/9/99  
 Date Analyzed: 11/13/99  
 Analyzed By: MRC  
 Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

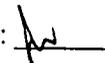
<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2-Fluorobiphenyl	10	7.6	76
2-Fluorophenol	10	5.6	56
Nitrobenzene-d5	10	6.6	66
Phenol-d6	10	7.2	72
2,4,6-Tribromophenol	10	9.3	93
4-Terphenyl-d14	10	10.2	102

**Comments:**

Results are corrected for %solids and dilution where applicable.

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

Results of Library Search for Semivolatile Compounds  
by GCMS

Client Sample ID: S-11  
Client Project ID: 99136-F  
Lab Sample ID: 75632  
Lab Project ID: G128-514  
Matrix: Water

Date Collected: 11/8/99  
Date Received: 11/9/99  
Date Analyzed: 11/13/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			15
2	Unknown			7
3	Unknown			5
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

Client: CATUN Eng. & Survey

Project ID: 99136 - F

Date: 11-9-99

Report To: CATUN

Address: 220 Old Dairy Rd.

P.O. Number: 99109 - 1

Turnaround: Standard

ATTN: KEITH BULLA

Address: WILM. NC

Contact: Keith Bulla

Job Number: \_\_\_\_\_

Quote #: \_\_\_\_\_

Phone: \_\_\_\_\_

Invoice To: CATUN

Sample ID	Date	Time	Matrix	Preservatives			Analyses						Comments: Please specify any special reporting requirements	
				MEL IN VOLS	EPA 602	EPA 625 + TSPs								
018	11-8-99	1115	Gravel WTR	✓	✓	✓								G128-514
S-5		1430		✓	✓	✓								
S-5 Dup		1440		✓	✓	✓								
S-6		1250		✓	✓	✓								
S-11		1530		✓	✓	✓								
Relinquished By				Date	Time	Received By				Date	Time	Temperature	Sampled By	Airbill #
Brian Jones				11/5/99	12100	[Signature]				11/9/99	1250	WTKIN-ONCE		

PARADIGM ANALYTICAL LABORATORIES, INC.  
2627 Northchase Parkway S.E.  
Wilmington, North Carolina 28405  
(910) 350-1903  
Fax (910) 350-1557

RECEIVED  
BY *RS* DATE *11/30/99*

Mr. Keith Bulla  
Richard Catlin & Associates  
P.O. Box 10279  
Wilmington, NC 28404-0279

November 19, 1999

Report Number: G128-511

Client Project ID: 99136-F

Dear Mr. Bulla,

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical services. We look forward to working with you again on any additional analytical needs which you may have.

Sincerely,

Paradigm Analytical Laboratories, Inc.



Laboratory Director  
Mark Randall

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O17  
 Client Project ID: 99136-F  
 Lab Sample ID: 74971  
 Lab Project ID: G128-511

Analyzed By: EKR  
 Date Collected: 10/28/99  
 Date Received: 10/29/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	11/3/99	1	1	BQL
Diisopropyl ether (DIPE)	11/3/99	1	1	BQL
Ethylbenzene	11/3/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	11/3/99	1	2	BQL
Toluene	11/3/99	1	1	BQL
m/p-Xylene	11/3/99	1	2	BQL
o-Xylene	11/3/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	43	106

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O17  
Client Project ID: 99136-F  
Lab Sample ID: 74971  
Lab Project ID: G128-511  
Matrix: Water

Date Collected: 10/28/99  
Date Received: 10/29/99  
Date Analyzed: 11/5/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O17  
Client Project ID: 99136-F  
Lab Sample ID: 74971  
Lab Project ID: G128-511  
Matrix: Water

Date Collected: 10/28/99  
Date Received: 10/29/99  
Date Analyzed: 11/5/99  
Analyzed By: MRC  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

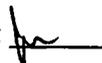
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	6.6	66
2-Fluorobiphenyl	10	8.2	82
2-Fluorophenol	10	7.4	74
4-Terphenyl-d14	10	9.2	92
Nitrobenzene-d5	10	7.6	76
Phenol-d6	10	7.4	74

Comments:

Results are corrected for %solids and dilution where applicable.

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

**Results of Library Search for Semivolatile Compounds**  
by GCMS

Client Sample ID: O17  
Client Project ID: 99136-F  
Lab Sample ID: 74971  
Lab Project ID: G128-511  
Matrix: Water

Date Collected: 10/28/99  
Date Received: 10/29/99  
Date Analyzed: 11/5/99  
Analyzed By: MRC  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			20
2	Unknown			7
3	Unknown			7
4				
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by:  \_\_\_\_\_



RECEIVED  
KS DATE 10/8/99

PARADIGM ANALYTICAL LABORATORIES, INC.  
2627 Northchase Parkway S.E.  
Wilmington, North Carolina 28405  
(910) 350-1903  
Fax (910) 350-1557

Mr. Keith Bulla  
Richard Catlin & Assoc. Inc.  
P.O. BOX 10279  
Wilmington, NC 28405

Date 10-05-99

Report Number: G128-499

Project ID: 99136

Dear Mr. Bulla:

Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from date of this report unless other arrangements are requested.

If there are any questions about the report or the services performed during this project, please call for assistance. We will be happy to answer any questions or concerns which you may have.

Thank you for using Paradigm Analytical Labs for your analytical service projects. We look forward to working with you again on any additional needs which you may have.

Sincerely,

Paradigm Analytical Laboratories



Laboratory Director  
Mark Randall

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Volatiles**

by GC 602

Client Sample ID: O-1  
 Client Project ID: 99136 F  
 Lab Sample ID: 72348  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/20/99	1	1	BQL
Diisopropyl ether (DIPE)	9/20/99	1	1	BQL
Ethylbenzene	9/20/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/20/99	1	2	BQL
Toluene	9/20/99	1	1	BQL
m/p-Xylene	9/20/99	1	2	BQL
o-Xylene	9/20/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	40	100

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Volatiles**

by GC 602

Client Sample ID: O-2  
 Client Project ID: 99136 F  
 Lab Sample ID: 72349  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/20/99	1	1	BQL
Diisopropyl ether (DIPE)	9/20/99	1	1	BQL
Ethylbenzene	9/20/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/20/99	1	2	BQL
Toluene	9/20/99	1	1	BQL
m/p-Xylene	9/20/99	1	2	BQL
o-Xylene	9/20/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	101

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Volatiles**

by GC 602

Client Sample ID: O-3  
 Client Project ID: 99136 F  
 Lab Sample ID: 72350  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/20/99	1	1	BQL
Diisopropyl ether (DIPE)	9/20/99	1	1	BQL
Ethylbenzene	9/20/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/20/99	1	2	BQL
Toluene	9/20/99	1	1	BQL
m/p-Xylene	9/20/99	1	2	BQL
o-Xylene	9/20/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	41	101

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-4  
 Client Project ID: 99136 F  
 Lab Sample ID: 72351  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	95

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results for Volatiles  
by GC 602

Client Sample ID: O-5  
Client Project ID: 99136 F  
Lab Sample ID: 72352  
Lab Project ID: G128-499

Analyzed By: RNP  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	95

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-6  
 Client Project ID: 99136 F  
 Lab Sample ID: 72353  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	94

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-7  
 Client Project ID: 99136 F  
 Lab Sample ID: 72354  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	37	94

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Volatiles**

by GC 602

Client Sample ID: O-8  
 Client Project ID: 99136 F  
 Lab Sample ID: 72355  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

<b>Compound</b>	<b>Date Analyzed</b>	<b>Dilution</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
Trifluorotoluene	40	38	94

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-9  
 Client Project ID: 99136 F  
 Lab Sample ID: 72356  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	1
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	94

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-10  
 Client Project ID: 99136 F  
 Lab Sample ID: 72357  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	95

Comments:

All values corrected for dilution.

Flags:

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results for Volatiles  
by GC 602

Client Sample ID: O-11  
Client Project ID: 99136 F  
Lab Sample ID: 72358  
Lab Project ID: G128-499

Analyzed By: RNP  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	95

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Volatiles

by GC 602

Client Sample ID: O-12  
 Client Project ID: 99136 F  
 Lab Sample ID: 72359  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

Compound	Date Analyzed	Dilution	Quantitation Limit (ug/L)	Result (ug/L)
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
Trifluorotoluene	40	38	94

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Volatiles**

by GC 602

Client Sample ID: O-13  
 Client Project ID: 99136 F  
 Lab Sample ID: 72360  
 Lab Project ID: G128-499

Analyzed By: RNP  
 Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Matrix: Water

<b>Compound</b>	<b>Date Analyzed</b>	<b>Dilution</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
Benzene	9/22/99	1	1	BQL
Diisopropyl ether (DIPE)	9/22/99	1	1	BQL
Ethylbenzene	9/22/99	1	1	BQL
Methyl-tert-butyl ether (MTBE)	9/22/99	1	2	BQL
Toluene	9/22/99	1	1	BQL
m/p-Xylene	9/22/99	1	2	BQL
o-Xylene	9/22/99	1	2	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
Trifluorotoluene	40	38	95

**Comments:**

All values corrected for dilution.

**Flags:**

BQL = Below quantitation limit

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-1  
 Client Project ID: 99136 F  
 Lab Sample ID: 72348  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-1  
Client Project ID: 99136 F  
Lab Sample ID: 72348  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.8	98
2-Fluorobiphenyl	10	9.5	95
2-Fluorophenol	10	8	80
4-Terphenyl-d14	10	10.3	103
Nitrobenzene-d5	10	8.8	88
Phenol-d6	10	8.5	85

Comments:

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-1  
Client Project ID: 99136 F  
Lab Sample ID: 72348  
Lab Project ID: G128-499  
Matrix: Water

Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	.alpha.-pinene	000080-56-8	94	31
2	.alpha.-3-Cyclohexene-1-methanol	000098-55-5	90	26
3	Unknown			15
4	Unknown			10
5	trans-1,2-Dichlorocyclohexane	000822-86-6	90	9
6	Unknown			7
7	Unknown			5
8	Unknown			4
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-2  
 Client Project ID: 99136 F  
 Lab Sample ID: 72349  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-2  
Client Project ID: 99136 F  
Lab Sample ID: 72349  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.3	93
2-Fluorobiphenyl	10	10.5	105
2-Fluorophenol	10	8.8	88
4-Terphenyl-d14	10	12.4	124
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	9.1	91

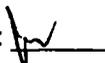
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-2  
Client Project ID: 99136 F  
Lab Sample ID: 72349  
Lab Project ID: G128-499  
Matrix: Water

Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	trans-1,2-Dichlorocyclohexane	000822-86-6	90	10
2	Unknown			10
3	Unknown			5
4	Sulfur, mol. (S8)	010544-50-0	91	5
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-3  
 Client Project ID: 99136 F  
 Lab Sample ID: 72350  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**

by GCMS EPA 625

Client Sample ID: O-3  
 Client Project ID: 99136 F  
 Lab Sample ID: 72350  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.2	92
2-Fluorobiphenyl	10	10.4	104
2-Fluorophenol	10	8.9	89
4-Terphenyl-d14	10	12.7	127
Nitrobenzene-d5	10	9.4	94
Phenol-d6	10	9.1	91

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-3  
Client Project ID: 99136 F  
Lab Sample ID: 72350  
Lab Project ID: G128-499  
Matrix: Water

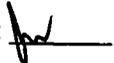
Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	7-Oxabicyclo[4.1.0]heptane	000286-20-4	90	35
2	Unknown			27
3	trans-1,2-Dichlorocyclohexane	000822-86-6	90	11
4	Unknown			10
5	Unknown			7
6	Unknown			5
7				
8				
9				
10				

**Comment:**

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Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-4  
Client Project ID: 99136 F  
Lab Sample ID: 72351  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-4  
Client Project ID: 99136 F  
Lab Sample ID: 72351  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

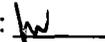
Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.3	93
2-Fluorobiphenyl	10	10.7	107
2-Fluorophenol	10	9.1	91
4-Terphenyl-d14	10	12.5	125
Nitrobenzene-d5	10	10	100
Phenol-d6	10	9.5	95

**Comments:**

Results are corrected for %solids and dilution where applicable.  
Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-4  
Client Project ID: 99136 F  
Lab Sample ID: 72351  
Lab Project ID: G128-499  
Matrix: Water

Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			29
2	Unknown			11
3	Unknown			10
4	Unknown			9
5	trans-1,2-Dichlorocyclohexane	000822-86-6	90	9
6	Unknown			6
7	Unknown			5
8	Unknown			4
9				
10				

**Comment:**

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Reviewed by:

## Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-5  
 Client Project ID: 99136 F  
 Lab Sample ID: 72352  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-5  
Client Project ID: 99136 F  
Lab Sample ID: 72352  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.3	83
2-Fluorobiphenyl	10	8.6	86
2-Fluorophenol	10	6.4	64
4-Terphenyl-d14	10	12.6	126
Nitrobenzene-d5	10	7.5	75
Phenol-d6	10	7.1	71

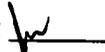
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
**Results of Library Search**  
**for Semivolatile Compounds**  
by GCMS

Client Sample ID: O-5  
Client Project ID: 99136 F  
Lab Sample ID: 72352  
Lab Project ID: G128-499  
Matrix: Water

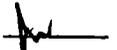
Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			15
2	Unknown			11
3	trans-1,2-Dichlorocyclohexane	000822-86-6	90	8
4	Unknown			9
5	Unknown			8
6				
7				
8				
9				
10				

**Comment:**

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Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-6  
 Client Project ID: 99136 F  
 Lab Sample ID: 72353  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-6  
Client Project ID: 99136 F  
Lab Sample ID: 72353  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.6	96
2-Fluorobiphenyl	10	10.5	105
2-Fluorophenol	10	8.8	88
4-Terphenyl-d14	10	13	130
Nitrobenzene-d5	10	9.5	95
Phenol-d6	10	9.1	91

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
**Results of Library Search**  
**for Semivolatile Compounds**  
by GCMS

Client Sample ID: O-6  
Client Project ID: 99136 F  
Lab Sample ID: 72353  
Lab Project ID: G128-499  
Matrix: Water

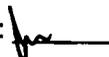
Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			11
2	trans-1,2-Dichlorocyclohexane	000822-86-6	90	10
3	Unknown			8
4	Unknown			8
5	Unknown			5
6	Unknown			5
7				
8				
9				
10				

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Reviewed by: 

## Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-7  
 Client Project ID: 99136 F  
 Lab Sample ID: 72354  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-7  
Client Project ID: 99136 F  
Lab Sample ID: 72354  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.7	87
2-Fluorobiphenyl	10	9.4	94
2-Fluorophenol	10	7.8	78
4-Terphenyl-d14	10	13.6	136
Nitrobenzene-d5	10	8.6	86
Phenol-d6	10	8.3	83

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-7  
Client Project ID: 99136 F  
Lab Sample ID: 72354  
Lab Project ID: G128-499  
Matrix: Water

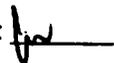
Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			18
2	Unknown			12
3	trans-1,2-Dichlorocyclohexane	000822-86-6	90	8
4	Unknown			6
5	Unknown			6
6	Unknown			6
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-8  
 Client Project ID: 99136 F  
 Lab Sample ID: 72355  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/21/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-8  
Client Project ID: 99136 F  
Lab Sample ID: 72355  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/21/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.2	82
2-Fluorobiphenyl	10	10.7	107
2-Fluorophenol	10	9.2	92
4-Terphenyl-d14	10	12.9	129
Nitrobenzene-d5	10	9.4	94
Phenol-d6	10	9.1	91

Comments:

Results are corrected for %solids and dilution where applicable.  
Analyzed By: MRC

Flags:

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-8  
Client Project ID: 99136 F  
Lab Sample ID: 72355  
Lab Project ID: G128-499  
Matrix: Water

Date Analyzed: 9/21/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			17
2	Unknown			14
3	Unknown			8
4	Unknown			4
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: W

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-9  
Client Project ID: 99136 F  
Lab Sample ID: 72356  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-9  
Client Project ID: 99136 F  
Lab Sample ID: 72356  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	10	100
2-Fluorobiphenyl	10	10.9	109
2-Fluorophenol	10	9.2	92
4-Terphenyl-d14	10	13.4	134
Nitrobenzene-d5	10	10.2	102
Phenol-d6	10	10	100

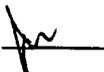
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-9  
Client Project ID: 99136 F  
Lab Sample ID: 72356  
Lab Project ID: G128-499  
Matrix: Water

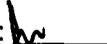
Date Analyzed: 9/22/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			11
2	Unknown			9
3	Unknown			8
4	Unknown			7
5	Unknown			5
6	Unknown			4
7	Unknown			4
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

## Results for Semivolatiles

by GCMS EPA 625

Client Sample ID: O-10  
 Client Project ID: 99136 F  
 Lab Sample ID: 72357  
 Lab Project ID: G128-499  
 Matrix: Water

Date Collected: 9/9/99  
 Date Received: 9/14/99  
 Date Analyzed: 9/22/99  
 Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-10  
Client Project ID: 99136 F  
Lab Sample ID: 72357  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.4	94
2-Fluorobiphenyl	10	11.6	116
2-Fluorophenol	10	9.7	97
4-Terphenyl-d14	10	10.3	103
Nitrobenzene-d5	10	10.5	105
Phenol-d6	10	10.2	102

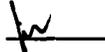
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-10  
Client Project ID: 99136 F  
Lab Sample ID: 72357  
Lab Project ID: G128-499  
Matrix: Water

Date Analyzed: 9/22/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			33
2	Unknown			16
3	Unknown			12
4	Unknown			6
5				
6				
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-11  
Client Project ID: 99136 F  
Lab Sample ID: 72358  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-11  
Client Project ID: 99136 F  
Lab Sample ID: 72358  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.8	88
2-Fluorobiphenyl	10	10.3	103
2-Fluorophenol	10	8.1	81
4-Terphenyl-d14	10	11.7	117
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	8.8	88

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: hw

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-11  
Client Project ID: 99136 F  
Lab Sample ID: 72358  
Lab Project ID: G128-499  
Matrix: Water

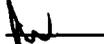
Date Analyzed: 9/22/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			16
2	Unknown			11
3	Unknown			10
4	Unknown			10
5	Unknown			4
6				
7				
8				
9				
10				

**Comment:**

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Quantitation is accomplished by relative peak height of the compound compared to that of the nearest internal standard from the total ion chromatogram. TICs are identified and quantitated only if the peak height is equal to or greater than 10% of that of the nearest internal standard. Quantitation provided is an estimate.

Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-12  
Client Project ID: 99136 F  
Lab Sample ID: 72359  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
1,3-Dichlorobenzene	10	BQL
1,4-Dichlorobenzene	10	BQL
3,3'-Dichlorobenzidine	20	BQL
2,4-Dichlorophenol	10	BQL
Diethylphthalate	10	BQL
2,4-Dimethylphenol	10	BQL
Dimethylphthalate	10	BQL
4,6-Dinitro-2-methylphenol	50	BQL
2,4-Dinitrophenol	50	BQL
2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-12  
Client Project ID: 99136 F  
Lab Sample ID: 72359  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	9.4	94
2-Fluorobiphenyl	10	11.4	114
2-Fluorophenol	10	9.9	99
4-Terphenyl-d14	10	14.2	142
Nitrobenzene-d5	10	10.5	105
Phenol-d6	10	10.2	102

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
**Results of Library Search**  
**for Semivolatile Compounds**  
by GCMS

Client Sample ID: O-12  
Client Project ID: 99136 F  
Lab Sample ID: 72359  
Lab Project ID: G128-499  
Matrix: Water

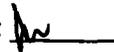
Date Analyzed: 9/22/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			11
2	Unknown			11
3	Unknown			8
4	Unknown			7
5	Unknown			5
6	Unknown			5
7				
8				
9				
10				

**Comment:**

Tentatively Identified Compound (TIC) refers to substances which are not present in the list of target compounds. Therefore, not all TICs are identified and quantitated using individual standards. TIC listings are prepared utilizing a computerized library search of electron impact mass spectral data and evaluation of the relevant data by a mass spectral data specialist.

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Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS EPA 625

Client Sample ID: O-13  
Client Project ID: 99136 F  
Lab Sample ID: 72360  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Acenaphthene	10	BQL
Acenaphthylene	10	BQL
Anthracene	10	BQL
Benzo[a]anthracene	10	BQL
Benzo[a]pyrene	10	BQL
Benzo[b]fluoranthene	10	BQL
Benzo[g,h,i]perylene	10	BQL
Benzo[k]fluoranthene	10	BQL
Bis(2-chloroethoxy)methane	10	BQL
Bis(2-chloroethyl)ether	10	BQL
Bis(2-chloroisopropyl)ether	10	BQL
Bis(2-ethylhexyl)phthalate	10	BQL
4-bromophenyl phenyl ether	10	BQL
Butylbenzylphthalate	10	BQL
4-Chloro-3-methylphenol	10	BQL
2-Chloronaphthalene	10	BQL
2-Chlorophenol	10	BQL
4-Chlorophenyl phenyl ether	10	BQL
Chrysene	10	BQL
Di-n-Butylphthalate	10	BQL
Di-n-octylphthalate	10	BQL
Dibenzo[a,h]anthracene	10	BQL
1,2-Dichlorobenzene	10	BQL
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2,4-Dinitrotoluene	10	BQL
2,6-Dinitrotoluene	10	BQL
Fluoranthene	10	BQL
Fluorene	10	BQL
Hexachlorobenzene	10	BQL
Hexachlorobutadiene	10	BQL
Hexachlorocyclopentadiene	20	BQL
Hexachloroethane	10	BQL

**Results for Semivolatiles**  
by GCMS EPA 625

Client Sample ID: O-13  
Client Project ID: 99136 F  
Lab Sample ID: 72360  
Lab Project ID: G128-499  
Matrix: Water

Date Collected: 9/9/99  
Date Received: 9/14/99  
Date Analyzed: 9/22/99  
Dilution: 1

Compound	Quantitation Limit (ug/L)	Result (ug/L)
Indeno(1,2,3-c,d)pyrene	10	BQL
Isophorone	10	BQL
N-Nitrosodi-n-propylamine	10	BQL
N-Nitrosodiphenylamine	10	BQL
Naphthalene	10	BQL
Nitrobenzene	10	BQL
2-Nitrophenol	10	BQL
4-Nitrophenol	50	BQL
Pentachlorophenol	50	BQL
Phenanthrene	10	BQL
Phenol	10	BQL
Pyrene	10	BQL
1,2,4-Trichlorobenzene	10	BQL
2,4,6-Trichlorophenol	10	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	11.4	114
2-Fluorobiphenyl	10	11.8	118
2-Fluorophenol	10	9.1	91
4-Terphenyl-d14	10	13.4	134
Nitrobenzene-d5	10	10.5	105
Phenol-d6	10	10.4	104

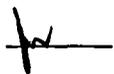
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.  
Results of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: O-13  
Client Project ID: 99136 F  
Lab Sample ID: 72360  
Lab Project ID: G128-499  
Matrix: Water

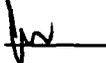
Date Analyzed: 9/22/99  
Analyzed By: MRC  
Date Collected: 9/9/99  
Date Received: 9/14/99  
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			13
2	Unknown			13
3	Unknown			10
4	Unknown			4
5	Unknown			4
6				
7				
8				
9				
10				

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Reviewed by: 

PARADIGM ANALYTICAL LABORATORIES, INC.

2627 Northchase Parkway SE, Wilmington, NC 28405  
 Phone: (910)-350-1903 FAX: (910)-350-1557

Chain-of Custody Record & Analytical Request

COC# 10104

Page 1 of 2

Client: Richard Catlin & Assoc

Project ID: 99136 F

Date: 9/14/99

Report To: Kiern Bulla

Address: PO Box 10879

P.O. Number: 9909 14-9

Turnaround: \_\_\_\_\_

LANTDIV

Address: Wilmington NC 28405

Contact: \_\_\_\_\_

Job Number: \_\_\_\_\_

Quote #: \_\_\_\_\_

Phone: \_\_\_\_\_

Invoice To: \_\_\_\_\_

Sample ID	Date	Time	Matrix	Preservatives			Analyses							Comments: Please specify any special reporting requirements			
				HCL/UAAS			EPA 602 HCL Preserv	EPA 625-7105									
0-1	9/9/99	1618	GW	✓			✓	✓									9128-499 <del>370A with HCL Preservative</del> <del>1 liter NO PRESERVATION</del>
0-2	9/9/99	1603	GW	✓			✓	✓									
0-3	9/9/99	1530	GW	✓			✓	✓									
0-4	9/9/99	1530	GW	✓			✓	✓									
<del>0-5</del>	9/9/99	1515	GW	✓			✓	✓									
0-6	9/9/99	1500	GW	✓			✓	✓									
0-7	9/9/99	1440	GW	✓			✓	✓									
0-8	9/9/99	1410	GW	✓			✓	✓									
0-9	9/13/99	1500	GW	✓			✓	✓									
0-10	9/13/99	1550	GW	✓			✓	✓									
Relinquished By		Date	Time	Received By			Date	Time	Temperature	Sampled By			Airbill #				
Yord Young		9-14-99	3:27	Emily Reilus			9/14/99	3:27	10°								