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MCAS CHERRY POINT  
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FINAL RELEASE INVESTIGATION OF FORMER POWER GENERATION PLANT  
ABOVEGROUND STORAGE TANK WITH TRANSMITTAL MCAS CHERRY POINT NC  
1/17/2000  
CATLIN ENGINEERS AND SCIENTISTS

**CATLIN**

**ENVIRONMENTAL AND  
ENGINEERING CONSULTANTS**

**LAW**

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

**RELEASE INVESTIGATION OF  
FORMER POWER GENERATION PLANT  
ABOVEGROUND STORAGE TANK**

**FINAL**

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

**January 17, 2000**

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

**DELIVERY ORDER No. 0064**

**CATLIN Engineers and Scientists Project No. 99138**



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

CATLIN

LAW

ENVIRONMENTAL AND  
ENGINEERING CONSULTANTS

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

January 17, 2000

LANTNAVFACENGCOM

Attn: Charles R. Hilton, Code 18211  
1510 Gilbert Street  
Norfolk, Virginia 23511-6287

Re: **REVISED FINAL RELEASE INVESTIGATION  
FORMER POWER GENERATION PLANT ABOVEGROUND STORAGE TANK  
MCAS CHERRY POINT, NORTH CAROLINA  
CONTRACT NO. N62470-95-D-6009  
DELIVERY ORDER NO. 0064  
CATLIN Project No. 99138**

Dear Mr. Hilton:

CATLIN Engineers and Scientists is pleased to present one copy of the Revised Final Release Investigation prepared for the Former Power Generation Plant Aboveground Storage Tank. The Final was revised to include the results of EPA Method 9071 (Oil and Grease) analysis at two sample locations.

CATLIN appreciates the opportunity to continue to provide services to LANTDIV and the Air Station on your environmental projects. We look forward to hearing from you soon.

Sincerely,

  
Gary D. McSmith  
Project Manager

  
Michael E. Mason, P.E.  
Program Manager

GDM/MEM/dbc  
Enclosure

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

9138dadd.ltr.2

RICHARD CATLIN & ASSOC.  
220 OLD DAIRY ROAD  
P.O. BOX 10279  
WILMINGTON, NC 28405-3755  
(910) 452-5861

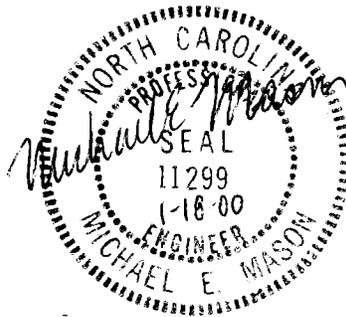
LAW ENVIRONMENTAL  
3301 ATLANTIC AVENUE  
P.O. BOX 18288  
RALEIGH, NC 27619  
(919) 876-0416

**RELEASE INVESTIGATION OF  
FORMER POWER GENERATION PLANT  
ABOVEGROUND STORAGE TANK**

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

**JANUARY 17, 2000**

**Contract No. N62470-95-D-6009  
Delivery Order No. 0064  
CATLIN Engineers and Scientists Project No. 99138**



**Prepared by:**

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

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**RELEASE INVESTIGATION OF  
FORMER POWER GENERATION PLANT ABOVEGROUND STORAGE TANK  
MARINE CORPS AIR STATION  
CHERRY POINT, NORTH CAROLINA**

**CATLIN PROJECT NO. 99138**

**JANUARY 17, 2000**

**1.0 PURPOSE**

The purpose of this report is to investigate possible soil and ground water contamination associated with an aboveground storage tank (AST) at the power generation plant on Slocum Boulevard at AST No. 1129 (see Figure 1). The tank stored #6 fuel oil prior to its demolition. Limited subsurface soil and surficial ground water assessment revealed possible subsurface contamination at the site. CATLIN Engineers and Scientists was retained by the Commander of Atlantic Division (LANTDIV) Naval Facilities Engineering Command (NAVFACENGCOM) in accordance with the Order for Supplies Contract No. N62470-95-D-6009, Delivery Order No. 0064 to provide additional subsurface soil and ground water quality information at the site of the former AST located at this facility.

**2.0 METHODS**

(Refer to Figure 1 and Figure 2)

The MCAS Environmental Affairs Department (EAD) and CATLIN personnel conducted a pre-drill site meeting on July 1, 1999 in order to perform site reconnaissance and mark the borehole locations. An Arts Manufacturing, Inc. (AMS) PowerProbe 9600DC was used to obtain the subsurface soil and ground water samples at five locations (AST-01 through AST-05). The PowerProbe, utilizing a dual tube, power-assisted direct push sampling system, obtained continuous (1½-inch diameter by 4-foot long sections) soil profiles. Retrieved soils were described in accordance with the Unified Soil Classification System (ASTM D-2488) and inspected for any odors indicative of fuel oil. Soil samples were obtained from near the surface, then at 5-foot intervals, down to 10 feet below land surface (BLS). Soil samples were immediately placed into clean containers and refrigerated (<4°C) during transportation to the analytical laboratory. All soil samples were analyzed at Paradigm Analytical Laboratories, Inc. of Wilmington, North Carolina by the following methods:

- Environmental Protection Agency (EPA) Method 8270
- Massachusetts Department of Environmental Protection (MADEP) Extractable Petroleum Hydrocarbon (EPH) Aliphatics/Aromatics

Once the target borehole depth (+2 feet below the apparent soil saturation zone) was achieved, the PowerProbe double tubes were extracted and a 1-inch diameter PVC temporary well (5 feet of screen) was installed in order to obtain surficial ground water samples and measure depth to the ground water table. Utilizing a GeoPump™ (peristaltic pump), two to

three gallons of ground water were pumped from each temporary well prior to obtaining a representative ground water sample. Ground water samples were placed in the appropriate preserved and unpreserved clean glassware, then refrigerated (<4°C) during transportation to the analytical laboratory. All ground water samples were analyzed at Paradigm Analytical Laboratory per the following methods:

- EPA Method 625 Plus 10 Largest Non-Target Peaks
- MADEP EPH Aliphatics/Aromatics

After ground water sampling was completed, each temporary well was allowed to equilibrate approximately one hour before the depth to surficial water table was gauged. The PVC wells were then removed and each borehole was backfilled with Benseal. The site was surveyed utilizing a Global Positioning System (GPS) receiver in order to determine the NCSP NAD83 coordinates for each borehole.

For regulatory compliance, soil quality data has been compared to cleanup levels applicable to incidents reported to the North Carolina Department of Environment and Natural Resources (NCDENR) on or after June 1, 1998. Current cleanup levels are either the Residential or Soil-to-Groundwater Maximum Soil Contaminant Concentrations (MSCCs), whichever are lower in accordance with the *Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Volume I, Sources Other Than Petroleum Underground Storage Tanks*, May 1998.

For regulatory compliance, surficial ground water quality has been compared to applicable interim standards and the Groundwater Quality Standards established in 15A North Carolina Administrative Code (NCAC) 2L .0202 (2L).

Subsequently, on October 4, 1999, the NCDENR Division of Water Quality, Groundwater Section issued a memorandum that revised the policy for soil analytical methods. This new policy established EPA Method 9071 for Oil and Grease as the Analytical Method for Heavy Fuels, including No. 6 Fuel Oil. Prior to finalization of this release investigation report, CATLIN sampled soils at the two locations where petroleum constituents were detected: AST02-8-9 and AST05-1-2. These samples were taken by hand auger on November 15, 1999. The blade of the hand auger was placed within one foot of the previous PowerProbe sampling boreholes. Soil samples were removed from the approximate locations where petroleum constituents in excess of the Former MADEP EPH Action Levels were found after the first round of sampling. These soil samples were immediately placed into clean containers and refrigerated (< 4° C) during transportation to the analytical laboratory. Both soil samples were analyzed at Paradigm Analytical Laboratories, Inc. of Wilmington, North Carolina by EPA Method 9071 for Oil and Grease.

### 3.0 SUBSURFACE SOILS (Refer to Appendix A)

During the July 1, 1999 sampling event, all site boreholes were advanced to 12 feet BLS. During the November 15, 1999 sampling event, a hand auger was used to grab samples from

specified depths. Soils encountered during this exercise were fairly consistent across the site. The predominant soil type encountered was mottled (orange/tan/olive) fine to medium grained clean sands. Interspersed among the clean sands were lenses of olive/tan silty sands ranging in thickness from 0.3 to 1.0 feet. Refer to Appendix A for boring logs. Soil samples obtained for laboratory analysis can be summarized as follows:

<b>JULY 1, 1999 SAMPLING EVENT            EPA METHOD 8270 AND MADEP EPH FOR SOILS            WITH EPA METHOD 625 AND            MADEP EPH FOR GROUND WATER</b>			
<b>Borehole I.D.</b>	<b>Water Table Depth (Feet BLS)</b>	<b>Soil Sample Depth (Feet BLS)</b>	<b>Sample I.D.</b>
AST01	9.49	0.5 - 1.0 4.5 - 5.0 8.5 - 9.0	AST01-0-1 AST01-4-5 AST01-8-9
AST02	9.64	0.0 - 0.5 4.5 - 5.0 8.5 - 9.0	AST02-0-1 AST02-4-5 AST02-8-9
AST03	10.66	0.0 - 0.5 4.5 - 5.0 9.5-10.0	AST03-0-1 AST03-4-5 AST03-9-10
AST04	10.15	0.0 - 0.5 4.5 - 5.0 9.0 - 9.5	AST04-0-1 AST04-4-5 AST04-8-9
AST05	9.44	0.0 - 0.5 4.5 - 5.0 8.5 - 9.0	AST05-0-1 AST05-4-5 AST05-8-9

<b>NOVEMBER 15, 1999 SOIL SAMPLING EVENT            EPA METHOD 9071            OIL AND GREASE ONLY</b>		
<b>Adjacent to Borehole I.D.</b>	<b>Soil Sample Depth (Feet BLS)</b>	<b>Sample I.D.</b>
AST 02	8.0 - 9.0	AST02-8-9
AST 05	1.0 - 2.0	AST05-1-2

### **3.1 EPA Method 8270 (Base/Neutral and Acid Extractables) - Soil**

*(Refer to Table 1, Figure 3, and Appendix B)*

The results of the soil sample analyses revealed all 8270 analytes to be below quantitation limits (BQL) in all samples except for AST02-8-9 (reference Table 1). Refer to Appendix B for copies of the laboratory report. Sample AST02-8-9 revealed concentrations of dibenzofuran [370 micrograms per kilogram (ug/kg)], fluorene (390 ug/kg), 2-methyl-naphthalene (3,000 ug/kg), naphthalene (920 ug/kg), and phenanthrene (640 ug/kg). The remaining 8270 parameters tested BQL. All of the AST02-8-9 concentrations are below the Maximum Soil Contaminant Concentrations (MSCC) limitations established for Residential and Soil-to-Groundwater except for naphthalene. The AST02-8-9 naphthalene concentration (920 ug/kg) exceeds the soil-to-ground water MSCC standard of 580 ug/kg. Figure 3 illustrates the sample locations and the naphthalene concentrations.

### **3.2 MADEP EPH (Aliphatics/Aromatics) - Soil**

*(Refer to Table 2)*

Laboratory analysis of the soil samples revealed that only samples from AST02-8-9 and AST05-0-1 had detectable levels of aliphatic and aromatic fractions (see Table 2). However, during the development of this report, the Ground Water Section superseded the MADEP EPH MSCCs for Heavy Fuels with an Action Level of 250 mg/kg for Oil and Grease as determined by EPA Method 9071. Therefore, the soils in close proximity to AST02-8-9 and AST 05-0-1 were re-sampled on November 15, 1999 and analyzed for EPA Method 9071, Oil and Grease

### **3.3 EPA Method 9071 (Oil and Grease) - Soil**

*(Refer to Table 6)*

The two soil samples taken November 15, 1999 at AST02-8-9 and AST05-1-2 were analyzed for EPA Method 9071 (Oil and Grease). Neither sample exceeded the Action Level of 250 ppm. Sample AST02-8-9 contained 83 mg/kg with a quantitation limit of 34 mg/kg. Sample AST05-1-2 contained 49 mg/kg with a quantitation limit of 33 mg/kg.

## **4.0 SURFICIAL GROUND WATER QUALITY**

*(Refer to Table 3 and Figure 4)*

Surficial ground water table was encountered approximately 10 feet below the ground surface (see Table 3). Site surficial ground water flow direction, based on July 1, 1999 data, is to the north-northeast toward Slocum Creek (see Figure 4).

According to Eimers, et al (1987-1990), the Yorktown confining unit [20 to 45 feet

below mean sea level (MSL)], Pungo River confining unit (63 to 96 feet below MSL), and the Upper Castle Hayne confining unit (152 to 170 feet below MSL) are present at Supply Well #7. This well is located approximately 1,300 feet east of the subject site.

**4.1 EPA Method 625 (Base/Neutral and Acid Extractables) - Ground Water**  
*(Refer to Table 4 and Figure 5)*

Results of the ground water analyses revealed all samples to be BQL per the 625 parameters. Figure 5 illustrates the results of the naphthalene samples. Results of the 10 largest unknown peaks revealed trace levels of 1-methyl naphthalene (8 to 9 ppb), 2,3-dimethyl naphthalene (7 ppb), and unknown semi-volatiles (7 to 21 ppb). EPA Method 625 laboratory analysis results have been summarized in Table 4.

**4.2 MADEP EPH (Extractable Petroleum Hydrocarbons) - Ground Water**  
*(Refer to Table 5 and Figure 6)*

Laboratory analyses of all ground water samples revealed BQL for all aliphatic and aromatic fractions. Table 5 summarizes the laboratory report findings and Figure 6 illustrates the sample locations and the laboratory results.

**5.0 CONCLUSIONS**

The findings of this site assessment addendum can be summarized as follows:

- All site surficial ground water samples tested compliant for all currently listed 625 compounds, 2L interim and current Standards.
- All site soil samples tested compliant per current MADEP EPH MSCCs with the exception of AST05-0-1 which is in excess of the Soil-to-Groundwater MSCC for the C<sub>11</sub>-C<sub>22</sub> fractions.
- Except for naphthalene encountered at AST-02 (8.5 to 9.0 feet BLS), all site soil samples tested compliant for all currently listed EPA Method 8270 compound MSCCs for Residential and Soil-to-Groundwater.
- A Groundwater Section Memorandum, dated October 4, 1999 supercedes previous policy and guidance on analytical methods and action levels for petroleum contaminated soil at sites under the Groundwater Section. This letter requires EPA Method 9071 (Oil and Grease) for heavy fuels. The two locations where naphthalene (AST02-8-9) and MADEP C<sub>11</sub> - C<sub>22</sub> (AST 05-0-1) were detected above former MSCCs were re-sampled and analyzed for EPA Method 9071 (Oil and Grease). The results at both locations were below the 250 mg/kg Action Level for Oil and Grease.

- The 920 ug/l naphthalene in soils at AST02-8-9 exceeds the Soil-to-Groundwater MSCC value of 580 ug/l. However, the absence of dissolved naphthalene (see AST02 data in Table 4) indicates that soil naphthalene contamination is either not reaching into the site surficial aquifer or is being addressed by factors such as natural attenuation and degradation.

## 6.0 REFERENCES

Eimers, J.L., Daniel, III C.C., Coble, R.W., Hydrogeology and Simulation of Groundwater Flow at U.S. Marine Corps Air Station, Cherry Point, North Carolina, 1987-1990; U.S. Geological Survey, Water-Resources Investigation Report 94-4186, U.S. Geological Survey, Raleigh, North Carolina.

North Carolina Department of Environment and Natural Resources, *Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Volume I, Sources Other Than Petroleum Underground Storage Tanks*, May 1998.

North Carolina Department of Environment and Natural Resources, Division of Water Quality, *Groundwater Section Memorandum: Revised Policy for Soil Analytical Methods*, October 4, 1999.

## **TABLES**

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

**SUMMARY OF LABORATORY RESULTS - SOIL\*  
BASE/NEUTRAL AND ACID EXTRACTABLES - EPA METHOD 8270**

**POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

<b>Sample I.D.</b>	<b>Depth BLS (feet)</b>	<b>Dibenzofuran</b>	<b>Fluorene</b>	<b>2-Me naphthalene</b>	<b>Naphthalene</b>	<b>Phenanthrene</b>	<b>Remaining 8270 Constituents</b>
AST01-0-1	0.5 - 1.0	BQL	BQL	BQL	BQL	BQL	BQL
AST01-4-5	4.5 - 5.0	BQL	BQL	BQL	BQL	BQL	BQL
AST01-8-9	8.5 - 9.0	BQL	BQL	BQL	BQL	BQL	BQL
AST02-0-1	0.5 - 1.0	BQL	BQL	BQL	BQL	BQL	BQL
AST2-4-5	4.5 - 5.0	BQL	BQL	BQL	BQL	BQL	BQL
AST02-8-9	8.5 - 9.0	370	390	3,000	920	640	BQL
AST03-0-1	0.5 - 1.0	BQL	BQL	BQL	BQL	BQL	BQL
AST03-4-5	4.5 - 5.0	BQL	BQL	BQL	BQL	BQL	BQL
AST03-9-10	9.5 - 10.0	BQL	BQL	BQL	BQL	BQL	BQL
AST04-0-1	0.5 - 1.0	BQL	BQL	BQL	BQL	BQL	BQL
AST04-4-5	4.5 - 5.0	BQL	BQL	BQL	BQL	BQL	BQL
AST04-8-9	9.0 - 9.5	BQL	BQL	BQL	BQL	BQL	BQL
AST05-0-1	0.5 - 1.0	BQL	BQL	BQL	BQL	BQL	BQL
AST05-4-5	4.5 - 5.0	BQL	BQL	BQL	BQL	BQL	BQL

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

**SUMMARY OF LABORATORY RESULTS - SOIL\*  
BASE/NEUTRAL AND ACID EXTRACTABLES - EPA METHOD 8270**

**POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

<b>Sample I.D.</b>	<b>Depth BLS (feet)</b>	<b>Dibenzofuran</b>	<b>Fluorene</b>	<b>2-Me naphthalene</b>	<b>Naphthalene</b>	<b>Phenanthrene</b>	<b>Remaining 8270 Constituents</b>
AST05-8-9	8.5 - 9.0	BQL	BQL	BQL	BQL	BQL	BQL
CAS Number	--	132-64-9	86-73-7	91-57-6	91-20-3	85-01-8	--
MSCC Residential	--	62,000	620,000	63,000	63,000	469,000	Varies
MSCC Soil- to- Groundwater	--	4,700	44,000	3,000	580	60,000	Varies

\* All results in micrograms per kilogram (ug/kg)

BLS Below Land Surface

BQL Below Quantitation Limit

MSCC Maximum Soil Contaminant Concentration (per May 1998 Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater.)

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

-Quantitation Limits for all results indicated as BQL are also below the published MSCCs for Residential and Soil to Groundwater.

-Shaded results exceed lower of the MSCCs for Residential or Soil-to-Groundwater.

**TABLE 2  
SUMMARY OF LABORATORY RESULTS - SOIL\*  
MADEP EPH**

**POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

<b>SAMPLE I.D.</b>	<b>C<sub>9</sub> - C<sub>18</sub> ALIPHATICS (mg/kg)</b>	<b>C<sub>19</sub> - C<sub>36</sub> ALIPHATICS (mg/kg)</b>	<b>C<sub>11</sub> - C<sub>22</sub> AROMATICS (mg/kg)</b>
AST01-0-1	<10	<10	<10
AST01-4-5	<10	<10	<10
AST01-8-9	<10	<10	<10
AST02-0-1	<10	<10	<10
AST02-4-5	<10	<10	<10
AST02-8-9	34	83	87
AST03-0-1	<10	<10	<10
AST03-4-5	<10	<10	<10
AST03-9-10	<10	<10	<10
AST04-0-1	<10	<10	<10
AST04-4-5	<10	<10	<10
AST04-8-9	<10	<10	<10
AST05-1-2	33	49	200
AST05-4-5	<10	<10	<10
AST05-8-9	<10	<10	<10
Residential MSCC	9,386	93,860	469
Soil-to-Groundwater MSCC	3,255	Considered Immobile	34

\* All results micrograms per kilogram (mg/kg) (ppb)

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

**TABLE 3**

**SUMMARY OF LABORATORY RESULTS - SOIL\*  
OIL AND GREASE - EPA METHOD 9071**

**POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

<b>SAMPLE I.D.</b>	<b>ACTION LEVEL</b>	<b>QUANTITATION LIMIT</b>	<b>OIL &amp; GREASE RESULTS</b>
AST02-8-9	250	34	83
AST05-1-2	250	33	49

\* All results in milligrams per kilogram (mg/kg)

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

<p style="text-align: center;"><b>TABLE 4</b></p> <p style="text-align: center;"><b>SUMMARY OF GROUND WATER TABLE DATA</b></p> <p style="text-align: center;"><b>POWER GENERATION PLANT FORMER AST</b> <b>MCAS CHERRY POINT, NORTH CAROLINA</b></p>				
<b>Temporary Well I.D.</b>	<b>Date</b>	<b>Top of Casing Elevation*</b>	<b>Depth to Water Table (ft)</b>	<b>Water Table Elevation</b>
AST01	6/30/99	16.73	12.71	4.02
AST02	6/30/99	16.76	12.89	3.87
AST03	6/30/99	17.44	13.86	3.58
AST04	6/30/99	16.94	13.43	3.51
AST05	6/30/99	14.06	10.35	3.71

\* Based on 79GW01 top of casing elevation (16.66 feet above mean sea level) per NAVD 88.  
No Free-Phase Product was detected.

**TABLE 5**

**SUMMARY OF LABORATORY RESULTS - GROUND WATER\*  
BASE/NEUTRAL AND ACID EXTRACTABLES - EPA METHOD 625**

**POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

Sample I.D.	Anthracene	Fluorene	Naphthalene	Remaining 625 Constituents	Library Search		
					1-Methyl naphthalene	2,3-Dimethyl naphthalene	Highest Unknown
AST01	<10	<10	<10	BQL	--	--	17
AST02	<10	<10	<10	BQL	8	7	21
AST03	<10	<10	<10	BQL	9	--	7
AST04	<10	<10	<10	BQL	9	--	21
AST05	<10	<10	<10	BQL	--	--	13
CAS Number	120-12-7	86-73-7	91-20-3	Varies	--	--	--
2L Groundwater Quality Standards	2,100	280	21	Varies	--	--	--

• All results in micrograms per liter (ug/l)

BQL Below Quantitation Limit

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

Quantitation limits for all results indicated as BQL are also below the published MSCCs for Residential and Soil to Groundwater.

**TABLE 6****SUMMARY OF LABORATORY RESULTS - GROUND WATER\*  
MADEP EPH****POWER GENERATION PLANT FORMER AST  
MCAS CHERRY POINT, NORTH CAROLINA**

<b>SAMPLE I.D.</b>	<b>C<sub>9</sub> - C<sub>18</sub> ALIPHATICS</b>	<b>C<sub>19</sub> - C<sub>36</sub> ALIPHATICS</b>	<b>C<sub>11</sub> - C<sub>22</sub> AROMATICS</b>
AST01	<1	<1	<1
AST02	<1	<1	<1
AST03	<1	<1	<1
AST04	<1	<1	<1
AST05	<1	<1	<1
Interim Groundwater Standards	**	Considered Immobile 42	**

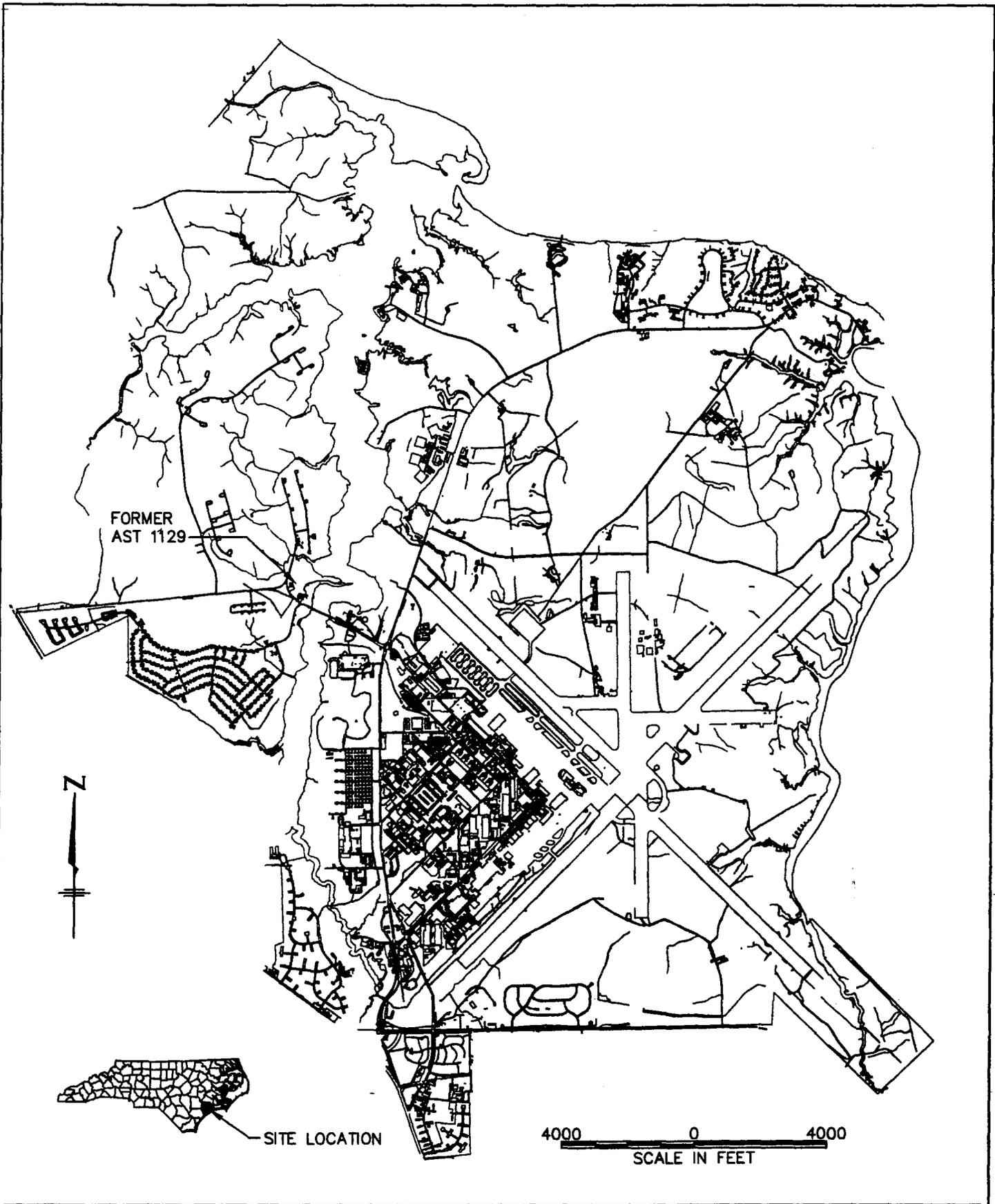
\* All results in milligrams per liter (mg/l)

\*\* For data comparison MADEP VPH data is necessary.

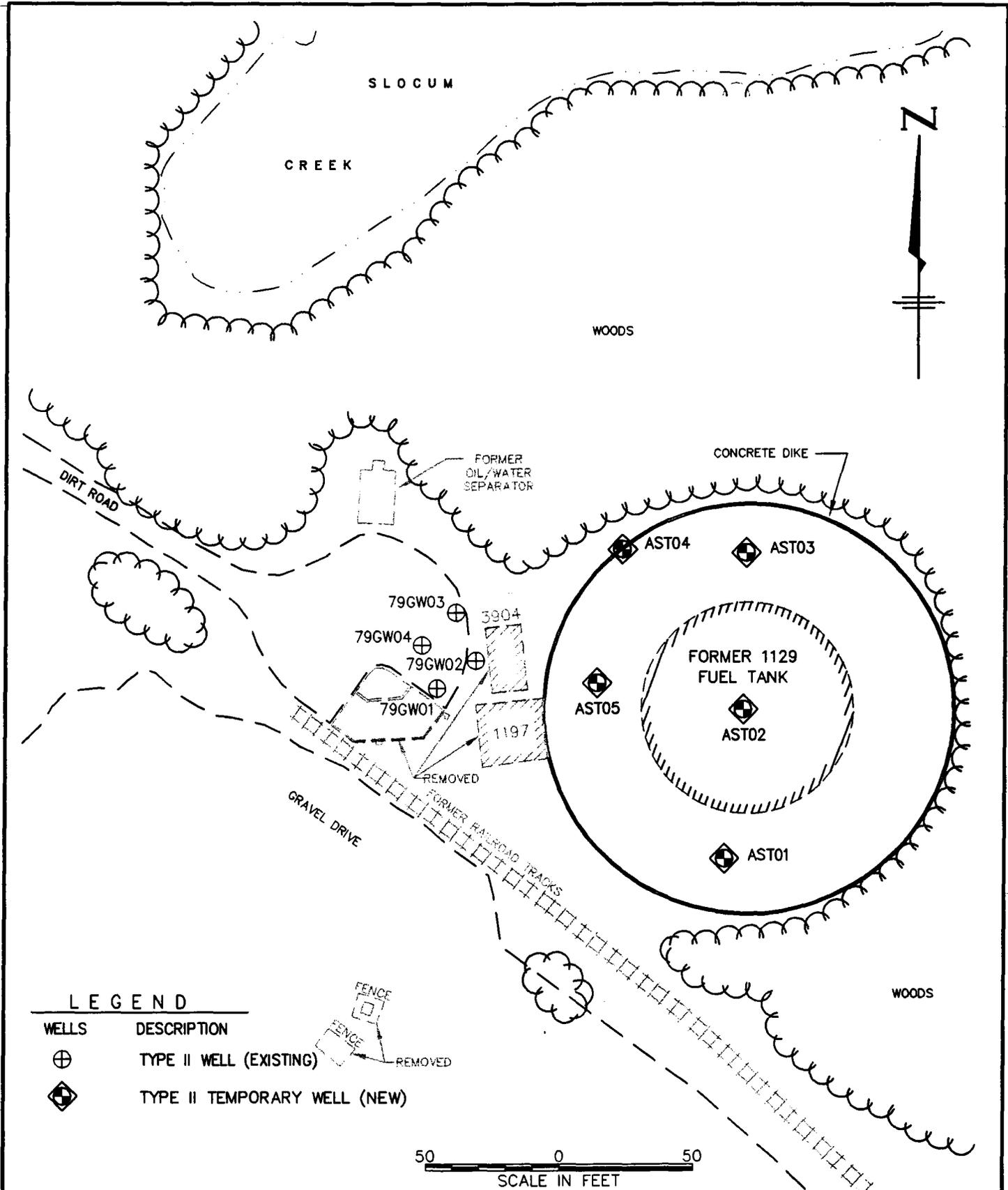
MDL Method Detection Limit

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

## FIGURES



 WILMINGTON, NORTH CAROLINA	PROJECT MCAS PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.	TITLE GENERAL LOCATION MAP	FIGURE I
	JOB NO: 98138    DATE: JAN 2000	SCALE: 1"=4000'    DRAWN BY: WHW    CHECKED BY: GM	



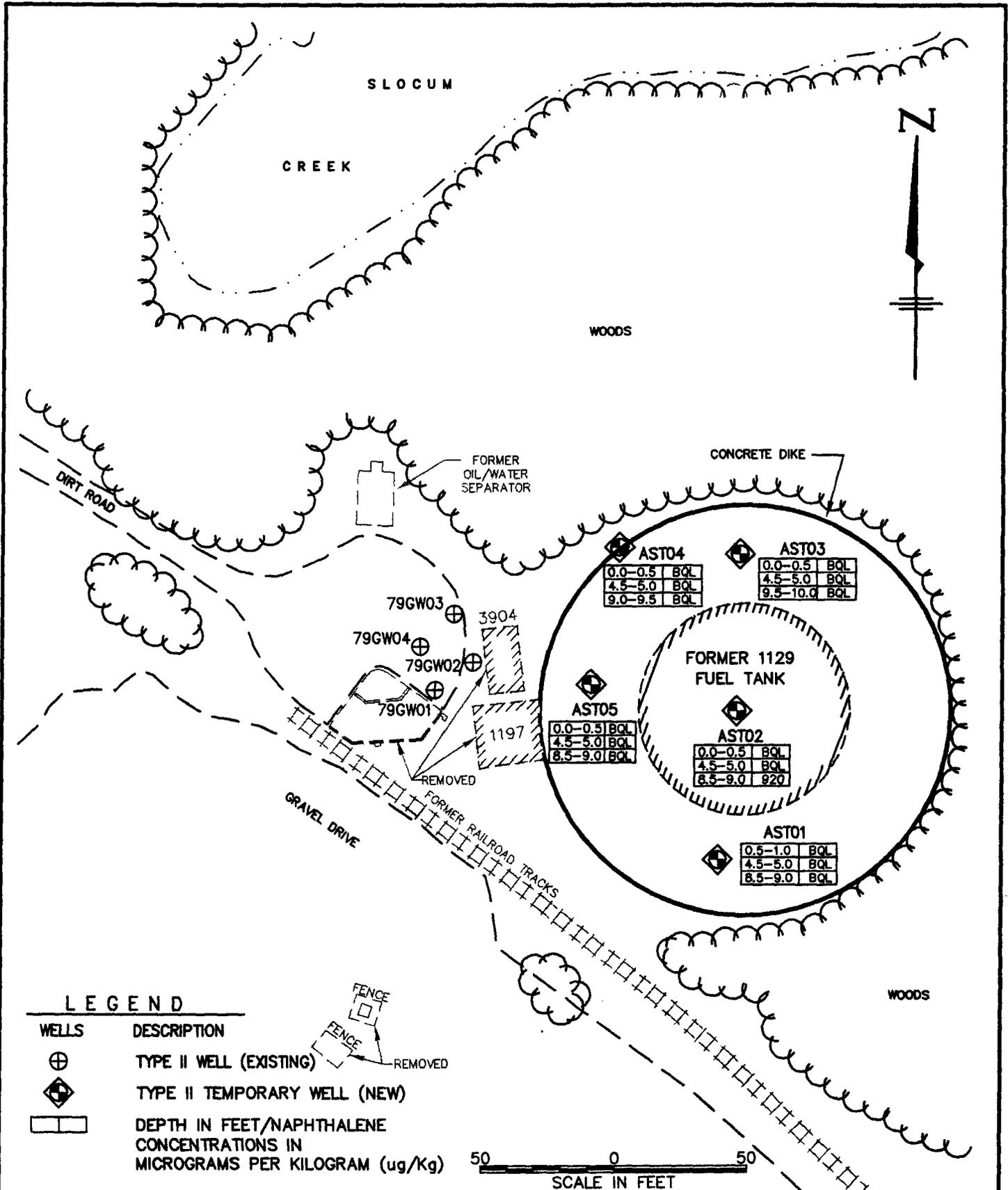
**LEGEND**

WELLS	DESCRIPTION
⊕	TYPE II WELL (EXISTING)
◆	TYPE II TEMPORARY WELL (NEW)

50 0 50  
SCALE IN FEET

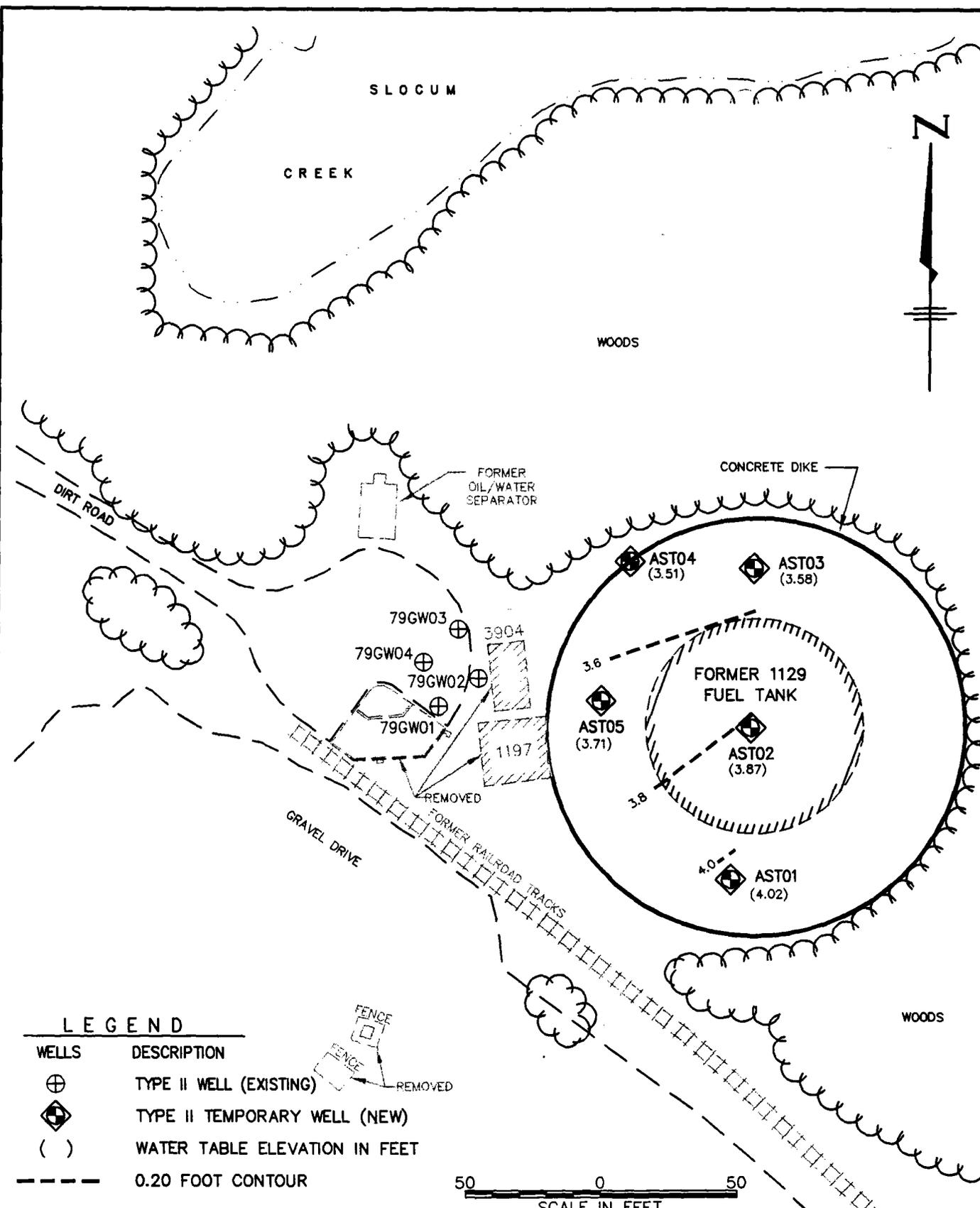
NOTE: SITE FACILITY MAP FURNISHED BY CHERRY POINT FACILITIES ENGINEERING OFFICE.

 WILMINGTON, NORTH CAROLINA	PROJECT <b>MCAS</b> PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.	TITLE <b>FORMER AST 1129 SITE PLAN</b>	FIGURE <b>2</b>
	JOB NO: 99138    DATE: JAN 2000	SCALE: 1"=50'	DRAWN BY: JCR    CHECKED BY: GM



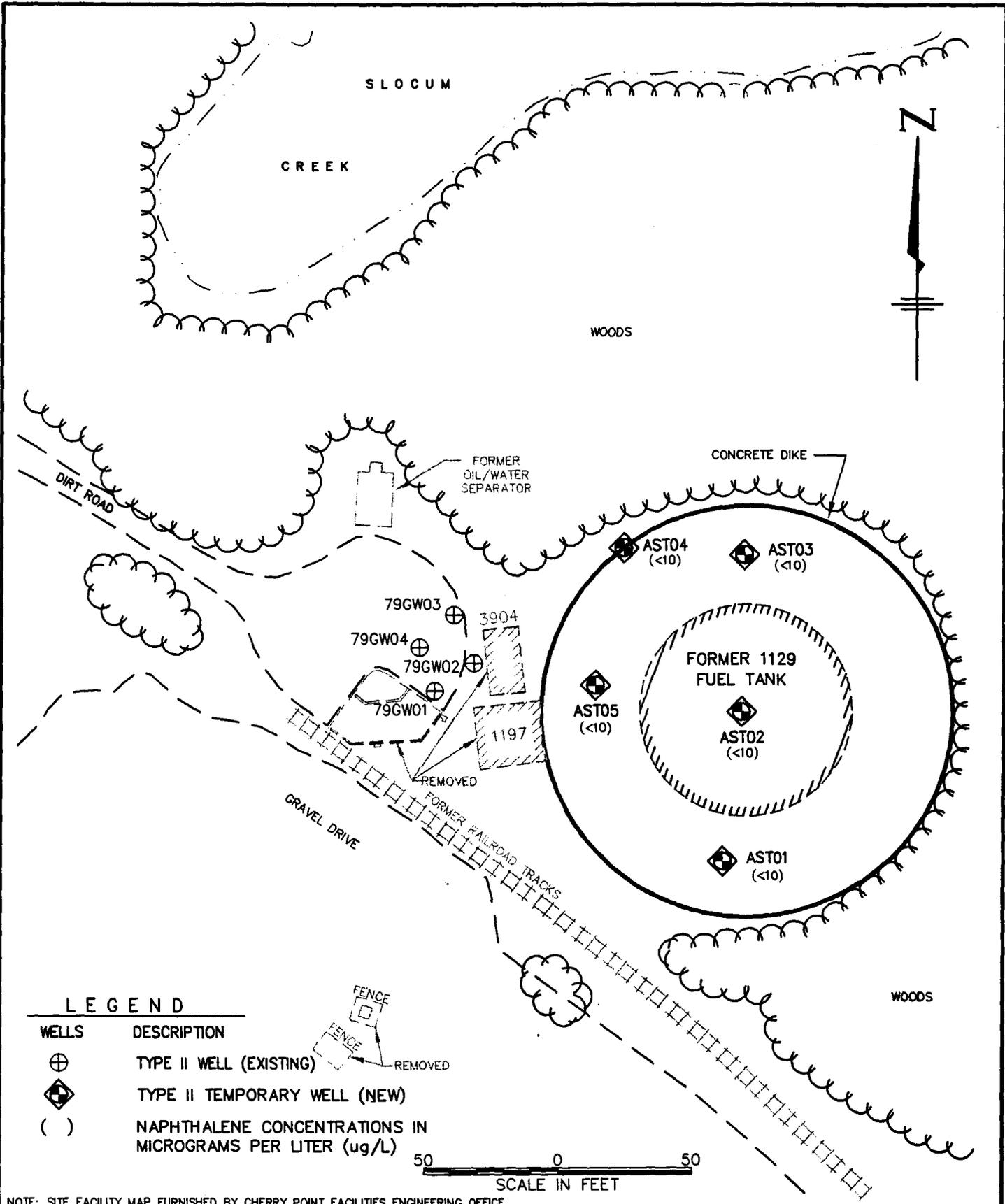
NOTE: SITE FACILITY MAP FURNISHED BY CHERRY POINT FACILITIES ENGINEERING OFFICE.

<p>WILMINGTON, NORTH CAROLINA</p>	PROJECT MCAS PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.	TITLE SOIL - NAPHTHALENE CONCENTRATIONS AS OF 7/01/99	FIGURE 3
	JOB NO: 99138    DATE: JAN 2000	SCALE: 1"=50'	DRAWN BY: JCR    CHECKED BY: GM



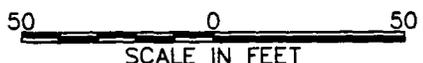
NOTE: SITE FACILITY MAP FURNISHED BY CHERRY POINT FACILITIES ENGINEERING OFFICE.

<p><b>CAELIN</b> ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA</p>	<p>PROJECT: MCAS PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.</p>	<p>TITLE: SURFICIAL GROUND WATER TABLE CONTOURS AS OF 7/01/99</p>	<p>FIGURE <b>4</b></p>
	<p>JOB NO: 99138    DATE: JAN 2000</p>	<p>SCALE: 1"=50'</p>	<p>DRAWN BY: JCR    CHECKED BY: GM</p>



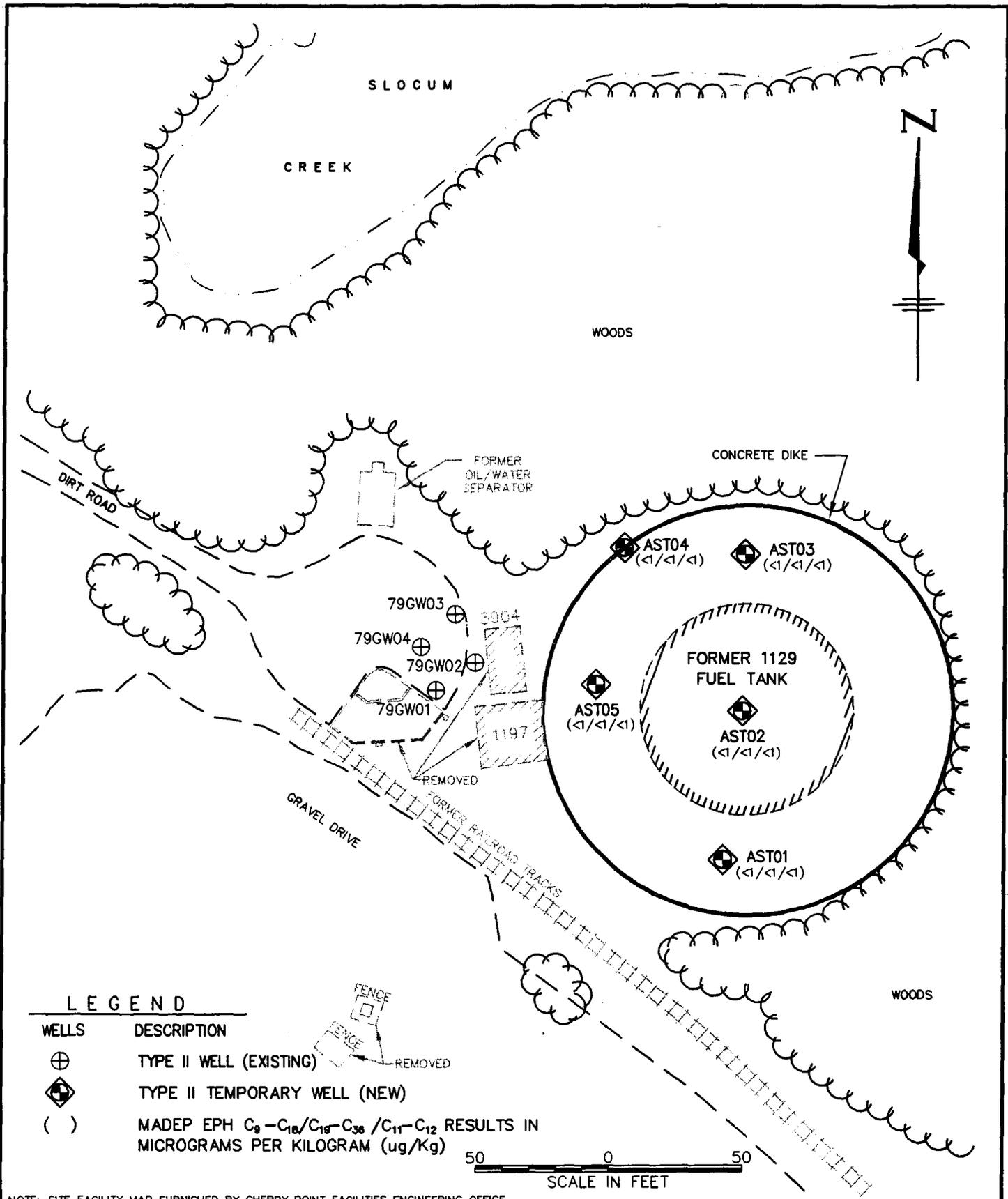
**LEGEND**

WELLS	DESCRIPTION
⊕	TYPE II WELL (EXISTING)
⊕	TYPE II TEMPORARY WELL (NEW)
( )	NAPHTHALENE CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L)



NOTE: SITE FACILITY MAP FURNISHED BY CHERRY POINT FACILITIES ENGINEERING OFFICE.

<p><b>CAELIN</b> ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA</p>	<p>PROJECT MCAS PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.</p>	<p>TITLE GROUND WATER - NAPHTHALENE CONCENTRATIONS AS OF 7/01/99</p>	<p>FIGURE <b>5</b></p>
	<p>JOB NO: 99138 DATE: JAN 2000</p>	<p>SCALE: 1"=50'</p>	<p>DRAWN BY: JCR CHECKED BY: GM</p>



NOTE: SITE FACILITY MAP FURNISHED BY CHERRY POINT FACILITIES ENGINEERING OFFICE.

<p><b>CAELIN</b> ENGINEERS and SCIENTISTS WILMINGTON, NORTH CAROLINA</p>	<p>PROJECT: MCAS PETROLEUM INVESTIGATIONS POWER GENERATION PLANT FORMER AST CHERRY POINT, N.C.</p>	<p>TITLE: GROUND WATER - MADEP EPH AS OF 7/01/99</p>	<p>FIGURE: 6</p>
	<p>JOB NO: 99138    DATE: JAN 2000</p>	<p>SCALE: 1"=50'</p>	<p>DRAWN BY: JCR    CHECKED BY: GM</p>

## APPENDICES

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











**APPENDIX B**  
**LABORATORY ANALYTICAL RESULTS**

RECEIVED  
BY KS DATE 7/22/99

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

Gary McSmith  
Richard Catlin & Associates  
P.O. Box 10279  
Wilmington, NC 28404-0279

Date 07-16-99

Report Number: G128-473  
Client Project ID : MCAS Power Gen Plant AST 99138-F

Dear Mr. McSmith:

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 Semivolatiles  
by GCMS 8270

Client Sample ID: AST01-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67266

Lab Project ID: G128-473

Matrix: Soil

%Solids: 90.5

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	340	BQL
Acenaphthylene	340	BQL
Anthracene	340	BQL
Benzo[a]anthracene	340	BQL
Benzo[a]pyrene	340	BQL
Benzo[b]fluoranthene	340	BQL
Benzo[g,h,i]perylene	340	BQL
Benzo[k]fluoranthene	340	BQL
Benzoic Acid	680	BQL
Bis(2-chloroethoxy)methane	340	BQL
Bis(2-chloroethyl)ether	340	BQL
Bis(2-chloroisopropyl)ether	340	BQL
Bis(2-ethylhexyl)phthalate	340	BQL
4-bromophenyl phenyl ether	340	BQL
Butylbenzylphthalate	340	BQL
4-Chloroaniline	340	BQL
4-Chloro-3-methylphenol	340	BQL
2-Chloronaphthalene	340	BQL
2-Chlorophenol	340	BQL
4-Chlorophenyl phenyl ether	340	BQL
Chrysene	340	BQL
Di-n-Butylphthalate	340	BQL
Di-n-octylphthalate	340	BQL
Dibenzo[a,h]anthracene	340	BQL
Dibenzofuran	340	BQL
1,2-Dichlorobenzene	340	BQL
1,3-Dichlorobenzene	340	BQL
1,4-Dichlorobenzene	340	BQL
3,3'-Dichlorobenzidine	680	BQL
2,4-Dichlorophenol	340	BQL
Diethylphthalate	340	BQL
2,4-Dimethylphenol	340	BQL
Dimethylphthalate	340	BQL
4,6-Dinitro-2-methylphenol	1700	BQL
2,4-Dinitrophenol	1700	BQL
2,4-Dinitrotoluene	340	BQL
2,6-Dinitrotoluene	340	BQL
Fluoranthene	340	BQL
Fluorene	340	BQL
Hexachlorobenzene	340	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST01-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67266

Lab Project ID: G128-473

Matrix: Soil

%Solids: 90.5

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	340	BQL
Hexachlorocyclopentadiene	680	BQL
Hexachloroethane	340	BQL
Indeno(1,2,3-c,d)pyrene	340	BQL
Isophorone	340	BQL
2-Methylnaphthalene	340	BQL
2-Methylphenol	340	BQL
4-Methylphenol	340	BQL
N-Nitrosodi-n-propylamine	340	BQL
N-Nitrosodiphenylamine	340	BQL
Naphthalene	340	BQL
2-Nitroaniline	340	BQL
3-Nitroaniline	340	BQL
4-Nitroaniline	340	BQL
Nitrobenzene	340	BQL
2-Nitrophenol	340	BQL
4-Nitrophenol	1700	BQL
Pentachlorophenol	1700	BQL
Phenanthrene	340	BQL
Phenol	340	BQL
Pyrene	340	BQL
1,2,4-Trichlorobenzene	340	BQL
2,4,5-Trichlorophenol	340	BQL
2,4,6-Trichlorophenol	340	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	7.5	75
2-Fluorobiphenyl	10	9.4	94
2-Fluorophenol	10	8.4	84
4-Terphenyl-d14	10	9.6	96
Nitrobenzene-d5	10	8.3	83
Phenol-d6	10	7.9	79

**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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST01-4-5

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67267

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 95.9

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	310	BQL
Acenaphthylene	310	BQL
Anthracene	310	BQL
Benzo[a]anthracene	310	BQL
Benzo[a]pyrene	310	BQL
Benzo[b]fluoranthene	310	BQL
Benzo[g,h,i]perylene	310	BQL
Benzo[k]fluoranthene	310	BQL
Benzoic Acid	630	BQL
Bis(2-chloroethoxy)methane	310	BQL
Bis(2-chloroethyl)ether	310	BQL
Bis(2-chloroisopropyl)ether	310	BQL
Bis(2-ethylhexyl)phthalate	310	BQL
4-bromophenyl phenyl ether	310	BQL
Butylbenzylphthalate	310	BQL
4-Chloroaniline	310	BQL
4-Chloro-3-methylphenol	310	BQL
2-Chloronaphthalene	310	BQL
2-Chlorophenol	310	BQL
4-Chlorophenyl phenyl ether	310	BQL
Chrysene	310	BQL
Di-n-Butylphthalate	310	BQL
Di-n-octylphthalate	310	BQL
Dibenzo[a,h]anthracene	310	BQL
Dibenzofuran	310	BQL
1,2-Dichlorobenzene	310	BQL
1,3-Dichlorobenzene	310	BQL
1,4-Dichlorobenzene	310	BQL
3,3'-Dichlorobenzidine	630	BQL
2,4-Dichlorophenol	310	BQL
Diethylphthalate	310	BQL
2,4-Dimethylphenol	310	BQL
Dimethylphthalate	310	BQL
4,6-Dinitro-2-methylphenol	1600	BQL
2,4-Dinitrophenol	1600	BQL
2,4-Dinitrotoluene	310	BQL
2,6-Dinitrotoluene	310	BQL
Fluoranthene	310	BQL
Fluorene	310	BQL
Hexachlorobenzene	310	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST01-4-5

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67267

Lab Project ID: G128-473

Matrix: Soil

%Solids: 95.9

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	310	BQL
Hexachlorocyclopentadiene	630	BQL
Hexachloroethane	310	BQL
Indeno(1,2,3-c,d)pyrene	310	BQL
Isophorone	310	BQL
2-Methylnaphthalene	310	BQL
2-Methylphenol	310	BQL
4-Methylphenol	310	BQL
N-Nitrosodi-n-propylamine	310	BQL
N-Nitrosodiphenylamine	310	BQL
Naphthalene	310	BQL
2-Nitroaniline	310	BQL
3-Nitroaniline	310	BQL
4-Nitroaniline	310	BQL
Nitrobenzene	310	BQL
2-Nitrophenol	310	BQL
4-Nitrophenol	1600	BQL
Pentachlorophenol	1600	BQL
Phenanthrene	310	BQL
Phenol	310	BQL
Pyrene	310	BQL
1,2,4-Trichlorobenzene	310	BQL
2,4,5-Trichlorophenol	310	BQL
2,4,6-Trichlorophenol	310	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	7.4	74
2-Fluorobiphenyl	10	9.4	94
2-Fluorophenol	10	8.5	85
4-Terphenyl-d14	10	10	100
Nitrobenzene-d5	10	8.2	82
Phenol-d6	10	8.1	81

**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: fw

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 8270

Client Sample ID: AST01-8-9

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67268

Lab Project ID: G128-473

Matrix: Soil

%Solids: 81.1

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	340	BQL
Acenaphthylene	340	BQL
Anthracene	340	BQL
Benzo[a]anthracene	340	BQL
Benzo[a]pyrene	340	BQL
Benzo[b]fluoranthene	340	BQL
Benzo[g,h,i]perylene	340	BQL
Benzo[k]fluoranthene	340	BQL
Benzoic Acid	680	BQL
Bis(2-chloroethoxy)methane	340	BQL
Bis(2-chloroethyl)ether	340	BQL
Bis(2-chloroisopropyl)ether	340	BQL
Bis(2-ethylhexyl)phthalate	340	BQL
4-bromophenyl phenyl ether	340	BQL
Butylbenzylphthalate	340	BQL
4-Chloroaniline	340	BQL
4-Chloro-3-methylphenol	340	BQL
2-Chloronaphthalene	340	BQL
2-Chlorophenol	340	BQL
4-Chlorophenyl phenyl ether	340	BQL
Chrysene	340	BQL
Di-n-Butylphthalate	340	BQL
Di-n-octylphthalate	340	BQL
Dibenzo[a,h]anthracene	340	BQL
Dibenzofuran	340	BQL
1,2-Dichlorobenzene	340	BQL
1,3-Dichlorobenzene	340	BQL
1,4-Dichlorobenzene	340	BQL
3,3'-Dichlorobenzidine	680	BQL
2,4-Dichlorophenol	340	BQL
Diethylphthalate	340	BQL
2,4-Dimethylphenol	340	BQL
Dimethylphthalate	340	BQL
4,6-Dinitro-2-methylphenol	1700	BQL
2,4-Dinitrophenol	1700	BQL
2,4-Dinitrotoluene	340	BQL
2,6-Dinitrotoluene	340	BQL
Fluoranthene	340	BQL
Fluorene	340	BQL
Hexachlorobenzene	340	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST01-8-9

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67268

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 81.1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	340	BQL
Hexachlorocyclopentadiene	680	BQL
Hexachloroethane	340	BQL
Indeno(1,2,3-c,d)pyrene	340	BQL
Isophorone	340	BQL
2-Methylnaphthalene	340	BQL
2-Methylphenol	340	BQL
4-Methylphenol	340	BQL
N-Nitrosodi-n-propylamine	340	BQL
N-Nitrosodiphenylamine	340	BQL
Naphthalene	340	BQL
2-Nitroaniline	340	BQL
3-Nitroaniline	340	BQL
4-Nitroaniline	340	BQL
Nitrobenzene	340	BQL
2-Nitrophenol	340	BQL
4-Nitrophenol	1700	BQL
Pentachlorophenol	1700	BQL
Phenanthrene	340	BQL
Phenol	340	BQL
Pyrene	340	BQL
1,2,4-Trichlorobenzene	340	BQL
2,4,5-Trichlorophenol	340	BQL
2,4,6-Trichlorophenol	340	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	5.9	59
2-Fluorobiphenyl	10	9	90
2-Fluorophenol	10	7.9	79
4-Terphenyl-d14	10	9.7	97
Nitrobenzene-d5	10	7.8	78
Phenol-d6	10	7.2	72

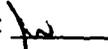
**Comments:**

Results are corrected for %solids and dilution where applicable.

Analyzed By: MRC

**Flags:**

BQL = Below Quantitation Limit.

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 8270

Client Sample ID: AST02-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67269

Lab Project ID: G128-473

Matrix: Soil

%Solids: 96.1

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	290	BQL
Acenaphthylene	290	BQL
Anthracene	290	BQL
Benzo[a]anthracene	290	BQL
Benzo[a]pyrene	290	BQL
Benzo[b]fluoranthene	290	BQL
Benzo[g,h,i]perylene	290	BQL
Benzo[k]fluoranthene	290	BQL
Benzoic Acid	580	BQL
Bis(2-chloroethoxy)methane	290	BQL
Bis(2-chloroethyl)ether	290	BQL
Bis(2-chloroisopropyl)ether	290	BQL
Bis(2-ethylhexyl)phthalate	290	BQL
4-bromophenyl phenyl ether	290	BQL
Butylbenzylphthalate	290	BQL
4-Chloroaniline	290	BQL
4-Chloro-3-methylphenol	290	BQL
2-Chloronaphthalene	290	BQL
2-Chlorophenol	290	BQL
4-Chlorophenyl phenyl ether	290	BQL
Chrysene	290	BQL
Di-n-Butylphthalate	290	BQL
Di-n-octylphthalate	290	BQL
Dibenzo[a,h]anthracene	290	BQL
Dibenzofuran	290	BQL
1,2-Dichlorobenzene	290	BQL
1,3-Dichlorobenzene	290	BQL
1,4-Dichlorobenzene	290	BQL
3,3'-Dichlorobenzidine	580	BQL
2,4-Dichlorophenol	290	BQL
Diethylphthalate	290	BQL
2,4-Dimethylphenol	290	BQL
Dimethylphthalate	290	BQL
4,6-Dinitro-2-methylphenol	1500	BQL
2,4-Dinitrophenol	1500	BQL
2,4-Dinitrotoluene	290	BQL
2,6-Dinitrotoluene	290	BQL
Fluoranthene	290	BQL
Fluorene	290	BQL
Hexachlorobenzene	290	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST02-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67269

Lab Project ID: G128-473

Matrix: Soil

%Solids: 96.1

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	290	BQL
Hexachlorocyclopentadiene	580	BQL
Hexachloroethane	290	BQL
Indeno(1,2,3-c,d)pyrene	290	BQL
Isophorone	290	BQL
2-Methylnaphthalene	290	BQL
2-Methylphenol	290	BQL
4-Methylphenol	290	BQL
N-Nitrosodi-n-propylamine	290	BQL
N-Nitrosodiphenylamine	290	BQL
Naphthalene	290	BQL
2-Nitroaniline	290	BQL
3-Nitroaniline	290	BQL
4-Nitroaniline	290	BQL
Nitrobenzene	290	BQL
2-Nitrophenol	290	BQL
4-Nitrophenol	1500	BQL
Pentachlorophenol	1500	BQL
Phenanthrene	290	BQL
Phenol	290	BQL
Pyrene	290	BQL
1,2,4-Trichlorobenzene	290	BQL
2,4,5-Trichlorophenol	290	BQL
2,4,6-Trichlorophenol	290	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	6.5	65
2-Fluorobiphenyl	10	8.6	86
2-Fluorophenol	10	7.5	75
4-Terphenyl-d14	10	9.2	92
Nitrobenzene-d5	10	7.8	78
Phenol-d6	10	7.5	75

**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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST02-4-5

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67270

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 87.1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	350	BQL
Acenaphthylene	350	BQL
Anthracene	350	BQL
Benzo[a]anthracene	350	BQL
Benzo[a]pyrene	350	BQL
Benzo[b]fluoranthene	350	BQL
Benzo[g,h,i]perylene	350	BQL
Benzo[k]fluoranthene	350	BQL
Benzoic Acid	700	BQL
Bis(2-chloroethoxy)methane	350	BQL
Bis(2-chloroethyl)ether	350	BQL
Bis(2-chloroisopropyl)ether	350	BQL
Bis(2-ethylhexyl)phthalate	350	BQL
4-bromophenyl phenyl ether	350	BQL
Butylbenzylphthalate	350	BQL
4-Chloroaniline	350	BQL
4-Chloro-3-methylphenol	350	BQL
2-Chloronaphthalene	350	BQL
2-Chlorophenol	350	BQL
4-Chlorophenyl phenyl ether	350	BQL
Chrysene	350	BQL
Di-n-Butylphthalate	350	BQL
Di-n-octylphthalate	350	BQL
Dibenzo[a,h]anthracene	350	BQL
Dibenzofuran	350	BQL
1,2-Dichlorobenzene	350	BQL
1,3-Dichlorobenzene	350	BQL
1,4-Dichlorobenzene	350	BQL
3,3'-Dichlorobenzidine	700	BQL
2,4-Dichlorophenol	350	BQL
Diethylphthalate	350	BQL
2,4-Dimethylphenol	350	BQL
Dimethylphthalate	350	BQL
4,6-Dinitro-2-methylphenol	1800	BQL
2,4-Dinitrophenol	1800	BQL
2,4-Dinitrotoluene	350	BQL
2,6-Dinitrotoluene	350	BQL
Fluoranthene	350	BQL
Fluorene	350	BQL
Hexachlorobenzene	350	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST02-4-5

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67270

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 87.1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Hexachlorobutadiene	350	BQL
Hexachlorocyclopentadiene	700	BQL
Hexachloroethane	350	BQL
Indeno(1,2,3-c,d)pyrene	350	BQL
Isophorone	350	BQL
2-Methylnaphthalene	350	BQL
2-Methylphenol	350	BQL
4-Methylphenol	350	BQL
N-Nitrosodi-n-propylamine	350	BQL
N-Nitrosodiphenylamine	350	BQL
Naphthalene	350	BQL
2-Nitroaniline	350	BQL
3-Nitroaniline	350	BQL
4-Nitroaniline	350	BQL
Nitrobenzene	350	BQL
2-Nitrophenol	350	BQL
4-Nitrophenol	1800	BQL
Pentachlorophenol	1800	BQL
Phenanthrene	350	BQL
Phenol	350	BQL
Pyrene	350	BQL
1,2,4-Trichlorobenzene	350	BQL
2,4,5-Trichlorophenol	350	BQL
2,4,6-Trichlorophenol	350	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.3	83
2-Fluorobiphenyl	10	9.2	92
2-Fluorophenol	10	9.7	97
4-Terphenyl-d14	10	9.9	99
Nitrobenzene-d5	10	9.2	92
Phenol-d6	10	8.7	87

**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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST02-8-9

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67271

Lab Project ID: G128-473

Matrix: Soil

%Solids: 83.5

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	340	BQL
Acenaphthylene	340	BQL
Anthracene	340	BQL
Benzo[a]anthracene	340	BQL
Benzo[a]pyrene	340	BQL
Benzo[b]fluoranthene	340	BQL
Benzo[g,h,i]perylene	340	BQL
Benzo[k]fluoranthene	340	BQL
Benzoic Acid	680	BQL
Bis(2-chloroethoxy)methane	340	BQL
Bis(2-chloroethyl)ether	340	BQL
Bis(2-chloroisopropyl)ether	340	BQL
Bis(2-ethylhexyl)phthalate	340	BQL
4-bromophenyl phenyl ether	340	BQL
Butylbenzylphthalate	340	BQL
4-Chloroaniline	340	BQL
4-Chloro-3-methylphenol	340	BQL
2-Chloronaphthalene	340	BQL
2-Chlorophenol	340	BQL
4-Chlorophenyl phenyl ether	340	BQL
Chrysene	340	BQL
Di-n-Butylphthalate	340	BQL
Di-n-octylphthalate	340	BQL
Dibenzo[a,h]anthracene	340	BQL
Dibenzofuran	340	<b>370</b>
1,2-Dichlorobenzene	340	BQL
1,3-Dichlorobenzene	340	BQL
1,4-Dichlorobenzene	340	BQL
3,3'-Dichlorobenzidine	680	BQL
2,4-Dichlorophenol	340	BQL
Diethylphthalate	340	BQL
2,4-Dimethylphenol	340	BQL
Dimethylphthalate	340	BQL
4,6-Dinitro-2-methylphenol	1700	BQL
2,4-Dinitrophenol	1700	BQL
2,4-Dinitrotoluene	340	BQL
2,6-Dinitrotoluene	340	BQL
Fluoranthene	340	BQL
Fluorene	340	<b>390</b>
Hexachlorobenzene	340	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST02-8-9

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67271

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 83.5

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	340	BQL
Hexachlorocyclopentadiene	680	BQL
Hexachloroethane	340	BQL
Indeno(1,2,3-c,d)pyrene	340	BQL
Isophorone	340	BQL
2-Methylnaphthalene	340	3000
2-Methylphenol	340	BQL
4-Methylphenol	340	BQL
N-Nitrosodi-n-propylamine	340	BQL
N-Nitrosodiphenylamine	340	BQL
Naphthalene	340	920
2-Nitroaniline	340	BQL
3-Nitroaniline	340	BQL
4-Nitroaniline	340	BQL
Nitrobenzene	340	BQL
2-Nitrophenol	340	BQL
4-Nitrophenol	1700	BQL
Pentachlorophenol	1700	BQL
Phenanthrene	340	640
Phenol	340	BQL
Pyrene	340	BQL
1,2,4-Trichlorobenzene	340	BQL
2,4,5-Trichlorophenol	340	BQL
2,4,6-Trichlorophenol	340	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	8.9	89
2-Fluorobiphenyl	10	11.3	113
2-Fluorophenol	10	8.7	87
4-Terphenyl-d14	10	11.2	112
Nitrobenzene-d5	10	9	90
Phenol-d6	10	9.2	92

**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 for Semivolatiles  
by GCMS 8270

Client Sample ID: AST03-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67272

Lab Project ID: G128-473

Matrix: Soil

%Solids: 95.7

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	320	BQL
Acenaphthylene	320	BQL
Anthracene	320	BQL
Benzo[a]anthracene	320	BQL
Benzo[a]pyrene	320	BQL
Benzo[b]fluoranthene	320	BQL
Benzo[g,h,i]perylene	320	BQL
Benzo[k]fluoranthene	320	BQL
Benzoic Acid	640	BQL
Bis(2-chloroethoxy)methane	320	BQL
Bis(2-chloroethyl)ether	320	BQL
Bis(2-chloroisopropyl)ether	320	BQL
Bis(2-ethylhexyl)phthalate	320	BQL
4-bromophenyl phenyl ether	320	BQL
Butylbenzylphthalate	320	BQL
4-Chloroaniline	320	BQL
4-Chloro-3-methylphenol	320	BQL
2-Chloronaphthalene	320	BQL
2-Chlorophenol	320	BQL
4-Chlorophenyl phenyl ether	320	BQL
Chrysene	320	BQL
Di-n-Butylphthalate	320	BQL
Di-n-octylphthalate	320	BQL
Dibenzo[a,h]anthracene	320	BQL
Dibenzofuran	320	BQL
1,2-Dichlorobenzene	320	BQL
1,3-Dichlorobenzene	320	BQL
1,4-Dichlorobenzene	320	BQL
3,3'-Dichlorobenzidine	640	BQL
2,4-Dichlorophenol	320	BQL
Diethylphthalate	320	BQL
2,4-Dimethylphenol	320	BQL
Dimethylphthalate	320	BQL
4,6-Dinitro-2-methylphenol	1600	BQL
2,4-Dinitrophenol	1600	BQL
2,4-Dinitrotoluene	320	BQL
2,6-Dinitrotoluene	320	BQL
Fluoranthene	320	BQL
Fluorene	320	BQL
Hexachlorobenzene	320	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST03-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67272

Lab Project ID: G128-473

Matrix: Soil

%Solids: 95.7

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	320	BQL
Hexachlorocyclopentadiene	640	BQL
Hexachloroethane	320	BQL
Indeno(1,2,3-c,d)pyrene	320	BQL
Isophorone	320	BQL
2-Methylnaphthalene	320	BQL
2-Methylphenol	320	BQL
4-Methylphenol	320	BQL
N-Nitrosodi-n-propylamine	320	BQL
N-Nitrosodiphenylamine	320	BQL
Naphthalene	320	BQL
2-Nitroaniline	320	BQL
3-Nitroaniline	320	BQL
4-Nitroaniline	320	BQL
Nitrobenzene	320	BQL
2-Nitrophenol	320	BQL
4-Nitrophenol	1600	BQL
Pentachlorophenol	1600	BQL
Phenanthrene	320	BQL
Phenol	320	BQL
Pyrene	320	BQL
1,2,4-Trichlorobenzene	320	BQL
2,4,5-Trichlorophenol	320	BQL
2,4,6-Trichlorophenol	320	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	7.5	75
2-Fluorobiphenyl	10	10.2	102
2-Fluorophenol	10	9	90
4-Terphenyl-d14	10	10.1	101
Nitrobenzene-d5	10	9	90
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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST03-4-5

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67273

Lab Project ID: G128-473

Matrix: Soil

%Solids: 88.0

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	340	BQL
Acenaphthylene	340	BQL
Anthracene	340	BQL
Benzo[a]anthracene	340	BQL
Benzo[a]pyrene	340	BQL
Benzo[b]fluoranthene	340	BQL
Benzo[g,h,i]perylene	340	BQL
Benzo[k]fluoranthene	340	BQL
Benzoic Acid	680	BQL
Bis(2-chloroethoxy)methane	340	BQL
Bis(2-chloroethyl)ether	340	BQL
Bis(2-chloroisopropyl)ether	340	BQL
Bis(2-ethylhexyl)phthalate	340	BQL
4-bromophenyl phenyl ether	340	BQL
Butylbenzylphthalate	340	BQL
4-Chloroaniline	340	BQL
4-Chloro-3-methylphenol	340	BQL
2-Chloronaphthalene	340	BQL
2-Chlorophenol	340	BQL
4-Chlorophenyl phenyl ether	340	BQL
Chrysene	340	BQL
Di-n-Butylphthalate	340	BQL
Di-n-octylphthalate	340	BQL
Dibenzo[a,h]anthracene	340	BQL
Dibenzofuran	340	BQL
1,2-Dichlorobenzene	340	BQL
1,3-Dichlorobenzene	340	BQL
1,4-Dichlorobenzene	340	BQL
3,3'-Dichlorobenzidine	680	BQL
2,4-Dichlorophenol	340	BQL
Diethylphthalate	340	BQL
2,4-Dimethylphenol	340	BQL
Dimethylphthalate	340	BQL
4,6-Dinitro-2-methylphenol	1700	BQL
2,4-Dinitrophenol	1700	BQL
2,4-Dinitrotoluene	340	BQL
2,6-Dinitrotoluene	340	BQL
Fluoranthene	340	BQL
Fluorene	340	BQL
Hexachlorobenzene	340	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles

by GCMS 8270

Client Sample ID: AST03-4-5

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67273

Lab Project ID: G128-473

Matrix: Soil

%Solids: 88.0

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Hexachlorobutadiene	340	BQL
Hexachlorocyclopentadiene	680	BQL
Hexachloroethane	340	BQL
Indeno(1,2,3-c,d)pyrene	340	BQL
Isophorone	340	BQL
2-Methylnaphthalene	340	BQL
2-Methylphenol	340	BQL
4-Methylphenol	340	BQL
N-Nitrosodi-n-propylamine	340	BQL
N-Nitrosodiphenylamine	340	BQL
Naphthalene	340	BQL
2-Nitroaniline	340	BQL
3-Nitroaniline	340	BQL
4-Nitroaniline	340	BQL
Nitrobenzene	340	BQL
2-Nitrophenol	340	BQL
4-Nitrophenol	1700	BQL
Pentachlorophenol	1700	BQL
Phenanthrene	340	BQL
Phenol	340	BQL
Pyrene	340	BQL
1,2,4-Trichlorobenzene	340	BQL
2,4,5-Trichlorophenol	340	BQL
2,4,6-Trichlorophenol	340	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.2	82
2-Fluorobiphenyl	10	9.8	98
2-Fluorophenol	10	9.1	91
4-Terphenyl-d14	10	10.8	108
Nitrobenzene-d5	10	8.3	83
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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST03-9-10

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67274

Lab Project ID: G128-473

Matrix: Soil

%Solids: 84.3

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	360	BQL
Acenaphthylene	360	BQL
Anthracene	360	BQL
Benzo[a]anthracene	360	BQL
Benzo[a]pyrene	360	BQL
Benzo[b]fluoranthene	360	BQL
Benzo[g,h,i]perylene	360	BQL
Benzo[k]fluoranthene	360	BQL
Benzoic Acid	730	BQL
Bis(2-chloroethoxy)methane	360	BQL
Bis(2-chloroethyl)ether	360	BQL
Bis(2-chloroisopropyl)ether	360	BQL
Bis(2-ethylhexyl)phthalate	360	BQL
4-bromophenyl phenyl ether	360	BQL
Bis(2-ethylhexyl)phthalate	360	BQL
4-Chloroaniline	360	BQL
4-Chloro-3-methylphenol	360	BQL
2-Chloronaphthalene	360	BQL
2-Chlorophenol	360	BQL
4-Chlorophenyl phenyl ether	360	BQL
Chrysene	360	BQL
Di-n-Butylphthalate	360	BQL
Di-n-octylphthalate	360	BQL
Dibenzo[a,h]anthracene	360	BQL
Dibenzofuran	360	BQL
1,2-Dichlorobenzene	360	BQL
1,3-Dichlorobenzene	360	BQL
1,4-Dichlorobenzene	360	BQL
3,3'-Dichlorobenzidine	730	BQL
2,4-Dichlorophenol	360	BQL
Diethylphthalate	360	BQL
2,4-Dimethylphenol	360	BQL
Dimethylphthalate	360	BQL
4,6-Dinitro-2-methylphenol	1800	BQL
2,4-Dinitrophenol	1800	BQL
2,4-Dinitrotoluene	360	BQL
2,6-Dinitrotoluene	360	BQL
Fluoranthene	360	BQL
Fluorene	360	BQL
Hexachlorobenzene	360	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles**

by GCMS 8270

Client Sample ID: AST03-9-10

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67274

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 84.3

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Hexachlorobutadiene	360	BQL
Hexachlorocyclopentadiene	730	BQL
Hexachloroethane	360	BQL
Indeno(1,2,3-c,d)pyrene	360	BQL
Isophorone	360	BQL
2-Methylnaphthalene	360	BQL
2-Methylphenol	360	BQL
4-Methylphenol	360	BQL
N-Nitrosodi-n-propylamine	360	BQL
N-Nitrosodiphenylamine	360	BQL
Naphthalene	360	BQL
2-Nitroaniline	360	BQL
3-Nitroaniline	360	BQL
4-Nitroaniline	360	BQL
Nitrobenzene	360	BQL
2-Nitrophenol	360	BQL
4-Nitrophenol	1800	BQL
Pentachlorophenol	1800	BQL
Phenanthrene	360	BQL
Phenol	360	BQL
Pyrene	360	BQL
1,2,4-Trichlorobenzene	360	BQL
2,4,5-Trichlorophenol	360	BQL
2,4,6-Trichlorophenol	360	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	8.8	88
2-Fluorobiphenyl	10	9.6	96
2-Fluorophenol	10	9	90
4-Terphenyl-d14	10	10.3	103
Nitrobenzene-d5	10	8.5	85
Phenol-d6	10	8.4	84

**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 for Semivolatiles  
by GCMS 8270

Client Sample ID: AST04-0-1

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67275

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 92.1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	310	BQL
Acenaphthylene	310	BQL
Anthracene	310	BQL
Benzo[a]anthracene	310	BQL
Benzo[a]pyrene	310	BQL
Benzo[b]fluoranthene	310	BQL
Benzo[g,h,i]perylene	310	BQL
Benzo[k]fluoranthene	310	BQL
Benzoic Acid	620	BQL
Bis(2-chloroethoxy)methane	310	BQL
Bis(2-chloroethyl)ether	310	BQL
Bis(2-chloroisopropyl)ether	310	BQL
Bis(2-ethylhexyl)phthalate	310	BQL
4-bromophenyl phenyl ether	310	BQL
Butylbenzylphthalate	310	BQL
4-Chloroaniline	310	BQL
4-Chloro-3-methylphenol	310	BQL
2-Chloronaphthalene	310	BQL
2-Chlorophenol	310	BQL
4-Chlorophenyl phenyl ether	310	BQL
Chrysene	310	BQL
Di-n-Butylphthalate	310	BQL
Di-n-octylphthalate	310	BQL
Dibenzo[a,h]anthracene	310	BQL
Dibenzofuran	310	BQL
1,2-Dichlorobenzene	310	BQL
1,3-Dichlorobenzene	310	BQL
1,4-Dichlorobenzene	310	BQL
3,3'-Dichlorobenzidine	620	BQL
2,4-Dichlorophenol	310	BQL
Diethylphthalate	310	BQL
2,4-Dimethylphenol	310	BQL
Dimethylphthalate	310	BQL
4,6-Dinitro-2-methylphenol	1600	BQL
2,4-Dinitrophenol	1600	BQL
2,4-Dinitrotoluene	310	BQL
2,6-Dinitrotoluene	310	BQL
Fluoranthene	310	BQL
Fluorene	310	BQL
Hexachlorobenzene	310	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST04-0-1

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67275

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 92.1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	310	BQL
Hexachlorocyclopentadiene	620	BQL
Hexachloroethane	310	BQL
Indeno(1,2,3-c,d)pyrene	310	BQL
Isophorone	310	BQL
2-Methylnaphthalene	310	BQL
2-Methylphenol	310	BQL
4-Methylphenol	310	BQL
N-Nitrosodi-n-propylamine	310	BQL
N-Nitrosodiphenylamine	310	BQL
Naphthalene	310	BQL
2-Nitroaniline	310	BQL
3-Nitroaniline	310	BQL
4-Nitroaniline	310	BQL
Nitrobenzene	310	BQL
2-Nitrophenol	310	BQL
4-Nitrophenol	1600	BQL
Pentachlorophenol	1600	BQL
Phenanthrene	310	BQL
Phenol	310	BQL
Pyrene	310	BQL
1,2,4-Trichlorobenzene	310	BQL
2,4,5-Trichlorophenol	310	BQL
2,4,6-Trichlorophenol	310	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	7.5	75
2-Fluorobiphenyl	10	9.9	99
2-Fluorophenol	10	8.7	87
4-Terphenyl-d14	10	11.8	118
Nitrobenzene-d5	10	8.6	86
Phenol-d6	10	8.2	82

**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 for Semivolatiles**

by GCMS 8270

Client Sample ID: AST04-4-5

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67276

Date Analyzed: 7/13/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 91.3

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	340	BQL
Acenaphthylene	340	BQL
Anthracene	340	BQL
Benzo[a]anthracene	340	BQL
Benzo[a]pyrene	340	BQL
Benzo[b]fluoranthene	340	BQL
Benzo[g,h,i]perylene	340	BQL
Benzo[k]fluoranthene	340	BQL
Benzoic Acid	670	BQL
Bis(2-chloroethoxy)methane	340	BQL
Bis(2-chloroethyl)ether	340	BQL
Bis(2-chloroisopropyl)ether	340	BQL
Bis(2-ethylhexyl)phthalate	340	BQL
4-bromophenyl phenyl ether	340	BQL
Butylbenzylphthalate	340	BQL
4-Chloroaniline	340	BQL
4-Chloro-3-methylphenol	340	BQL
2-Chloronaphthalene	340	BQL
2-Chlorophenol	340	BQL
4-Chlorophenyl phenyl ether	340	BQL
Chrysene	340	BQL
Di-n-Butylphthalate	340	BQL
Di-n-octylphthalate	340	BQL
Dibenzo[a,h]anthracene	340	BQL
Dibenzofuran	340	BQL
1,2-Dichlorobenzene	340	BQL
1,3-Dichlorobenzene	340	BQL
1,4-Dichlorobenzene	340	BQL
3,3'-Dichlorobenzidine	670	BQL
2,4-Dichlorophenol	340	BQL
Diethylphthalate	340	BQL
2,4-Dimethylphenol	340	BQL
Dimethylphthalate	340	BQL
4,6-Dinitro-2-methylphenol	1700	BQL
2,4-Dinitrophenol	1700	BQL
2,4-Dinitrotoluene	340	BQL
2,6-Dinitrotoluene	340	BQL
Fluoranthene	340	BQL
Fluorene	340	BQL
Hexachlorobenzene	340	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST04-4-5

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67276

Lab Project ID: G128-473

Matrix: Soil

%Solids: 91.3

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Hexachlorobutadiene	340	BQL
Hexachlorocyclopentadiene	670	BQL
Hexachloroethane	340	BQL
Indeno(1,2,3-c,d)pyrene	340	BQL
Isophorone	340	BQL
2-Methylnaphthalene	340	BQL
2-Methylphenol	340	BQL
4-Methylphenol	340	BQL
N-Nitrosodi-n-propylamine	340	BQL
N-Nitrosodiphenylamine	340	BQL
Naphthalene	340	BQL
2-Nitroaniline	340	BQL
3-Nitroaniline	340	BQL
4-Nitroaniline	340	BQL
Nitrobenzene	340	BQL
2-Nitrophenol	340	BQL
4-Nitrophenol	1700	BQL
Pentachlorophenol	1700	BQL
Phenanthrene	340	BQL
Phenol	340	BQL
Pyrene	340	BQL
1,2,4-Trichlorobenzene	340	BQL
2,4,5-Trichlorophenol	340	BQL
2,4,6-Trichlorophenol	340	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	7.2	72
2-Fluorobiphenyl	10	9.8	98
2-Fluorophenol	10	9.1	91
4-Terphenyl-d14	10	10.5	105
Nitrobenzene-d5	10	8.4	84
Phenol-d6	10	8.4	84

**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 for Semivolatiles  
by GCMS 8270

Client Sample ID: AST04-8-9

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67277

Date Analyzed: 7/14/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 83.2

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	370	BQL
Acenaphthylene	370	BQL
Anthracene	370	BQL
Benzo[a]anthracene	370	BQL
Benzo[a]pyrene	370	BQL
Benzo[b]fluoranthene	370	BQL
Benzo[g,h,i]perylene	370	BQL
Benzo[k]fluoranthene	370	BQL
Benzoic Acid	740	BQL
Bis(2-chloroethoxy)methane	370	BQL
Bis(2-chloroethyl)ether	370	BQL
Bis(2-chloroisopropyl)ether	370	BQL
Bis(2-ethylhexyl)phthalate	370	BQL
4-bromophenyl phenyl ether	370	BQL
Butylbenzylphthalate	370	BQL
4-Chloroaniline	370	BQL
4-Chloro-3-methylphenol	370	BQL
2-Chloronaphthalene	370	BQL
2-Chlorophenol	370	BQL
4-Chlorophenyl phenyl ether	370	BQL
Chrysene	370	BQL
Di-n-Butylphthalate	370	BQL
Di-n-octylphthalate	370	BQL
Dibenzo[a,h]anthracene	370	BQL
Dibenzofuran	370	BQL
1,2-Dichlorobenzene	370	BQL
1,3-Dichlorobenzene	370	BQL
1,4-Dichlorobenzene	370	BQL
3,3'-Dichlorobenzidine	740	BQL
2,4-Dichlorophenol	370	BQL
Diethylphthalate	370	BQL
2,4-Dimethylphenol	370	BQL
Dimethylphthalate	370	BQL
4,6-Dinitro-2-methylphenol	1800	BQL
2,4-Dinitrophenol	1800	BQL
2,4-Dinitrotoluene	370	BQL
2,6-Dinitrotoluene	370	BQL
Fluoranthene	370	BQL
Fluorene	370	BQL
Hexachlorobenzene	370	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST04-8-9

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67277

Lab Project ID: G128-473

Matrix: Soil

%Solids: 83.2

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/14/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	370	BQL
Hexachlorocyclopentadiene	740	BQL
Hexachloroethane	370	BQL
Indeno(1,2,3-c,d)pyrene	370	BQL
Isophorone	370	BQL
2-Methylnaphthalene	370	BQL
2-Methylphenol	370	BQL
4-Methylphenol	370	BQL
N-Nitrosodi-n-propylamine	370	BQL
N-Nitrosodiphenylamine	370	BQL
Naphthalene	370	BQL
2-Nitroaniline	370	BQL
3-Nitroaniline	370	BQL
4-Nitroaniline	370	BQL
Nitrobenzene	370	BQL
2-Nitrophenol	370	BQL
4-Nitrophenol	1800	BQL
Pentachlorophenol	1800	BQL
Phenanthrene	370	BQL
Phenol	370	BQL
Pyrene	370	BQL
1,2,4-Trichlorobenzene	370	BQL
2,4,5-Trichlorophenol	370	BQL
2,4,6-Trichlorophenol	370	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	8	80
2-Fluorobiphenyl	10	9.3	93
2-Fluorophenol	10	8.3	83
4-Terphenyl-d14	10	11.1	111
Nitrobenzene-d5	10	7.9	79
Phenol-d6	10	7.5	75

**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 for Semivolatiles  
by GCMS 8270

Client Sample ID: AST05-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67278

Lab Project ID: G128-473

Matrix: Soil

%Solids: 93.9

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/14/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Acenaphthene	320	BQL
Acenaphthylene	320	BQL
Anthracene	320	BQL
Benzo[a]anthracene	320	BQL
Benzo[a]pyrene	320	BQL
Benzo[b]fluoranthene	320	BQL
Benzo[g,h,i]perylene	320	BQL
Benzo[k]fluoranthene	320	BQL
Benzoic Acid	650	BQL
Bis(2-chloroethoxy)methane	320	BQL
Bis(2-chloroethyl)ether	320	BQL
Bis(2-chloroisopropyl)ether	320	BQL
Bis(2-ethylhexyl)phthalate	320	BQL
4-bromophenyl phenyl ether	320	BQL
Butylbenzylphthalate	320	BQL
4-Chloroaniline	320	BQL
4-Chloro-3-methylphenol	320	BQL
2-Chloronaphthalene	320	BQL
2-Chlorophenol	320	BQL
4-Chlorophenyl phenyl ether	320	BQL
Chrysene	320	BQL
Di-n-Butylphthalate	320	BQL
Di-n-octylphthalate	320	BQL
Dibenzo[a,h]anthracene	320	BQL
Dibenzofuran	320	BQL
1,2-Dichlorobenzene	320	BQL
1,3-Dichlorobenzene	320	BQL
1,4-Dichlorobenzene	320	BQL
3,3'-Dichlorobenzidine	650	BQL
2,4-Dichlorophenol	320	BQL
Diethylphthalate	320	BQL
2,4-Dimethylphenol	320	BQL
Dimethylphthalate	320	BQL
4,6-Dinitro-2-methylphenol	1600	BQL
2,4-Dinitrophenol	1600	BQL
2,4-Dinitrotoluene	320	BQL
2,6-Dinitrotoluene	320	BQL
Fluoranthene	320	BQL
Fluorene	320	BQL
Hexachlorobenzene	320	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST05-0-1

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67278

Lab Project ID: G128-473

Matrix: Soil

%Solids: 93.9

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/14/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	320	BQL
Hexachlorocyclopentadiene	650	BQL
Hexachloroethane	320	BQL
Indeno(1,2,3-c,d)pyrene	320	BQL
Isophorone	320	BQL
2-Methylnaphthalene	320	BQL
2-Methylphenol	320	BQL
4-Methylphenol	320	BQL
N-Nitrosodi-n-propylamine	320	BQL
N-Nitrosodiphenylamine	320	BQL
Naphthalene	320	BQL
2-Nitroaniline	320	BQL
3-Nitroaniline	320	BQL
4-Nitroaniline	320	BQL
Nitrobenzene	320	BQL
2-Nitrophenol	320	BQL
4-Nitrophenol	1600	BQL
Pentachlorophenol	1600	BQL
Phenanthrene	320	BQL
Phenol	320	BQL
Pyrene	320	BQL
1,2,4-Trichlorobenzene	320	BQL
2,4,5-Trichlorophenol	320	BQL
2,4,6-Trichlorophenol	320	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	8.4	84
2-Fluorobiphenyl	10	10.2	102
2-Fluorophenol	10	9.1	91
4-Terphenyl-d14	10	11.1	111
Nitrobenzene-d5	10	8.7	87
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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST05-4-5

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67279

Date Analyzed: 7/14/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 85.4

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	350	BQL
Acenaphthylene	350	BQL
Anthracene	350	BQL
Benzo[a]anthracene	350	BQL
Benzo[a]pyrene	350	BQL
Benzo[b]fluoranthene	350	BQL
Benzo[g,h,i]perylene	350	BQL
Benzo[k]fluoranthene	350	BQL
Benzoic Acid	700	BQL
Bis(2-chloroethoxy)methane	350	BQL
Bis(2-chloroethyl)ether	350	BQL
Bis(2-chloroisopropyl)ether	350	BQL
Bis(2-ethylhexyl)phthalate	350	BQL
4-bromophenyl phenyl ether	350	BQL
Butylbenzylphthalate	350	BQL
4-Chloroaniline	350	BQL
4-Chloro-3-methylphenol	350	BQL
2-Chloronaphthalene	350	BQL
2-Chlorophenol	350	BQL
4-Chlorophenyl phenyl ether	350	BQL
Chrysene	350	BQL
Di-n-Butylphthalate	350	BQL
Di-n-octylphthalate	350	BQL
Dibenzo[a,h]anthracene	350	BQL
Dibenzofuran	350	BQL
1,2-Dichlorobenzene	350	BQL
1,3-Dichlorobenzene	350	BQL
1,4-Dichlorobenzene	350	BQL
3,3'-Dichlorobenzidine	700	BQL
2,4-Dichlorophenol	350	BQL
Diethylphthalate	350	BQL
2,4-Dimethylphenol	350	BQL
Dimethylphthalate	350	BQL
4,6-Dinitro-2-methylphenol	1800	BQL
2,4-Dinitrophenol	1800	BQL
2,4-Dinitrotoluene	350	BQL
2,6-Dinitrotoluene	350	BQL
Fluoranthene	350	BQL
Fluorene	350	BQL
Hexachlorobenzene	350	BQL

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Semivolatiles  
by GCMS 8270

Client Sample ID: AST05-4-5

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67279

Lab Project ID: G128-473

Matrix: Soil

%Solids: 85.4

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/14/99

Dilution: 1

Compound	Quantitation Limit (ug/KG)	Result (ug/KG)
Hexachlorobutadiene	350	BQL
Hexachlorocyclopentadiene	700	BQL
Hexachloroethane	350	BQL
Indeno(1,2,3-c,d)pyrene	350	BQL
Isophorone	350	BQL
2-Methylnaphthalene	350	BQL
2-Methylphenol	350	BQL
4-Methylphenol	350	BQL
N-Nitrosodi-n-propylamine	350	BQL
N-Nitrosodiphenylamine	350	BQL
Naphthalene	350	BQL
2-Nitroaniline	350	BQL
3-Nitroaniline	350	BQL
4-Nitroaniline	350	BQL
Nitrobenzene	350	BQL
2-Nitrophenol	350	BQL
4-Nitrophenol	1800	BQL
Pentachlorophenol	1800	BQL
Phenanthrene	350	BQL
Phenol	350	BQL
Pyrene	350	BQL
1,2,4-Trichlorobenzene	350	BQL
2,4,5-Trichlorophenol	350	BQL
2,4,6-Trichlorophenol	350	BQL

Surrogate Spike Recoveries	Spike Added	Spike Result	Percent Recovered
2,4,6-Tribromophenol	10	6	60
2-Fluorobiphenyl	10	9.7	97
2-Fluorophenol	10	8.2	82
4-Terphenyl-d14	10	10.6	106
Nitrobenzene-d5	10	7.8	78
Phenol-d6	10	7.3	73

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 for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST05-8-9

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67280

Date Analyzed: 7/14/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 81.3

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Acenaphthene	330	BQL
Acenaphthylene	330	BQL
Anthracene	330	BQL
Benzo[a]anthracene	330	BQL
Benzo[a]pyrene	330	BQL
Benzo[b]fluoranthene	330	BQL
Benzo[g,h,i]perylene	330	BQL
Benzo[k]fluoranthene	330	BQL
Benzoic Acid	660	BQL
Bis(2-chloroethoxy)methane	330	BQL
Bis(2-chloroethyl)ether	330	BQL
Bis(2-chloroisopropyl)ether	330	BQL
Bis(2-ethylhexyl)phthalate	330	BQL
4-bromophenyl phenyl ether	330	BQL
Butylbenzylphthalate	330	BQL
4-Chloroaniline	330	BQL
4-Chloro-3-methylphenol	330	BQL
2-Chloronaphthalene	330	BQL
2-Chlorophenol	330	BQL
4-Chlorophenyl phenyl ether	330	BQL
Chrysene	330	BQL
Di-n-Butylphthalate	330	BQL
Di-n-octylphthalate	330	BQL
Dibenzo[a,h]anthracene	330	BQL
Dibenzofuran	330	BQL
1,2-Dichlorobenzene	330	BQL
1,3-Dichlorobenzene	330	BQL
1,4-Dichlorobenzene	330	BQL
3,3'-Dichlorobenzidine	660	BQL
2,4-Dichlorophenol	330	BQL
Diethylphthalate	330	BQL
2,4-Dimethylphenol	330	BQL
Dimethylphthalate	330	BQL
4,6-Dinitro-2-methylphenol	1600	BQL
2,4-Dinitrophenol	1600	BQL
2,4-Dinitrotoluene	330	BQL
2,6-Dinitrotoluene	330	BQL
Fluoranthene	330	BQL
Fluorene	330	BQL
Hexachlorobenzene	330	BQL

**PARADIGM ANALYTICAL LABORATORIES, INC.**

**Results for Semivolatiles  
by GCMS 8270**

Client Sample ID: AST05-8-9

Date Collected: 7/1/99

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Date Received: 7/1/99

Lab Sample ID: 67280

Date Analyzed: 7/14/99

Lab Project ID: G128-473

Dilution: 1

Matrix: Soil

%Solids: 81.3

<b>Compound</b>	<b>Quantitation Limit (ug/KG)</b>	<b>Result (ug/KG)</b>
Hexachlorobutadiene	330	BQL
Hexachlorocyclopentadiene	660	BQL
Hexachloroethane	330	BQL
Indeno(1,2,3-c,d)pyrene	330	BQL
Isophorone	330	BQL
2-Methylnaphthalene	330	BQL
2-Methylphenol	330	BQL
4-Methylphenol	330	BQL
N-Nitrosodi-n-propylamine	330	BQL
N-Nitrosodiphenylamine	330	BQL
Naphthalene	330	BQL
2-Nitroaniline	330	BQL
3-Nitroaniline	330	BQL
4-Nitroaniline	330	BQL
Nitrobenzene	330	BQL
2-Nitrophenol	330	BQL
4-Nitrophenol	1600	BQL
Pentachlorophenol	1600	BQL
Phenanthrene	330	BQL
Phenol	330	BQL
Pyrene	330	BQL
1,2,4-Trichlorobenzene	330	BQL
2,4,5-Trichlorophenol	330	BQL
2,4,6-Trichlorophenol	330	BQL

<b>Surrogate Spike Recoveries</b>	<b>Spike Added</b>	<b>Spike Result</b>	<b>Percent Recovered</b>
2,4,6-Tribromophenol	10	6.2	62
2-Fluorobiphenyl	10	9	90
2-Fluorophenol	10	7.7	77
4-Terphenyl-d14	10	10.5	105
Nitrobenzene-d5	10	7.4	74
Phenol-d6	10	7	70

**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 for Semivolatiles

by GCMS EPA 625

Client Sample ID: AST01

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67281

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/12/99

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: AST01	Date Collected: 7/1/99
Client Project ID: MCAS Power Gen. Plant AST 99138-F	Date Received: 7/1/99
Lab Sample ID: 67281	Date Analyzed: 7/12/99
Lab Project ID: G128-473	Dilution: 1
Matrix: Water	

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	8.2	82
2-Fluorophenol	10	6.5	65
4-Terphenyl-d14	10	10.5	105
Nitrobenzene-d5	10	7.2	72
Phenol-d6	10	6.7	67

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: AST01

Date Analyzed: 7/12/99

Client Project ID: MCAS Power Gen. Plant AST 99138

Analyzed By: mrc

Lab Sample ID: 67281

Date Collected: 7/1/99

Lab Project ID: G128-473

Date Received: 7/1/99

Matrix: Water

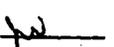
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Unknown			17
2	Unknown			16
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 EPA 625**

Client Sample ID: AST02

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67282

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

Dilution: 1

<b>Compound</b>	<b>Quantitation Limit (ug/L)</b>	<b>Result (ug/L)</b>
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: AST03

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67283

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

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 of Library Search  
for Semivolatile Compounds  
by GCMS

Client Sample ID: AST03

Date Analyzed: 7/13/99

Client Project ID: MCAS Power Gen. Plant AST 99138

Analyzed By: mrc

Lab Sample ID: 67283

Date Collected: 7/1/99

Lab Project ID: G128-473

Date Received: 7/1/99

Matrix: Water

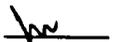
Dilution: 1.0

Num.	Compound	CAS#	Match Probability	Result (ug/L)
1	Naphthalene, 1-methyl	00090-12-0	90	9
2	Unknown			7
3	Unknown			6
4	Unknown Aromatic			6
5	Unknown			5
6	Unknown			4
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: AST04

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67284

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

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: AST04  
 Client Project ID: MCAS Power Gen. Plant AST 99138-F  
 Lab Sample ID: 67284  
 Lab Project ID: G128-473  
 Matrix: Water

Date Collected: 7/1/99  
 Date Received: 7/1/99  
 Date Analyzed: 7/13/99  
 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>
2,4,6-Tribromophenol	10	10.2	102
2-Fluorobiphenyl	10	9.8	98
2-Fluorophenol	10	9.3	93
4-Terphenyl-d14	10	10.8	108
Nitrobenzene-d5	10	9.3	93
Phenol-d6	10	8.9	89

**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 for Semivolatiles  
by GCMS EPA 625

Client Sample ID: AST05

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67285

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

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: AST05

Client Project ID: MCAS Power Gen. Plant AST 99138-F

Lab Sample ID: 67285

Lab Project ID: G128-473

Matrix: Water

Date Collected: 7/1/99

Date Received: 7/1/99

Date Analyzed: 7/13/99

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>
2,4,6-Tribromophenol	10	9.7	97
2-Fluorobiphenyl	10	10.3	103
2-Fluorophenol	10	9.3	93
4-Terphenyl-d14	10	11.5	115
Nitrobenzene-d5	10	9.9	99
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.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST01-0-1
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	90.5
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	92
Aromatic Surrogate % Recovery	76

Comments:

\* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67266

Reviewed By: JW

PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST01-4-5
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	95.9
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>38</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	96
Aromatic Surrogate % Recovery	81

Comments:

- \* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67267

Reviewed By:



PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST02-0-1
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	96.1
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	96
Aromatic Surrogate % Recovery	82

Comments:

- \* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67269

Reviewed By:



PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST02-8-9
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/06/99
Date Analyzed	07/13/99
Dry Weight	83.5
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	1700 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	100 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	87 (mg/Kg)
Aliphatic Surrogate % Recovery	140
Aromatic Surrogate % Recovery	98
Fractionation Surrogate 1 % Recovery	73

Comments:

\* = Excludes any surrogates or internal standards.

Lab info: G128-473-67271

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST03-0-1
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	95.7
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>38</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	100
Aromatic Surrogate % Recovery	15

Comments:

\* = Excludes any surrogates or internal standards.

Sample did not require fractionation.

Lab info: G128-473-67272

Reviewed By: fw

PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST03-4-5
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	88
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	92
Aromatic Surrogate % Recovery	77

Comments:

- \* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67273

Reviewed By: 



PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST04-0-1
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	92.1
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	99
Aromatic Surrogate % Recovery	83

Comments:

\* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67275

Reviewed By: AW

PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST04-4-5
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/11/99
Dry Weight	91.3
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	110
Aromatic Surrogate % Recovery	95

Comments:

\* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67276

Reviewed By:

**EPH (Aliphatics/Aromatics) Results**

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST04-8-9
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	83.2
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	99
Aromatic Surrogate % Recovery	79

**Comments:**

- \* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67277

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

EPH (Aliphatics/Aromatics) Results

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample information and Analytical Results	
Sample Identification	AST05-0-1
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/06/99
Date Analyzed	07/12/99
Dry Weight	93.9
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	87 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	800 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	200 (mg/Kg)
Aliphatic Surrogate % Recovery	100
Aromatic Surrogate % Recovery	77
Fractionation Surrogate 1 % Recovery	67

Comments:

\* = Excludes any surrogates or internal standards.

Lab info: G128-473-67278

Reviewed By:

**EPH (Aliphatics/Aromatics) Results**

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST05-4-5
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/10/99
Dry Weight	85.4
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	110
Aromatic Surrogate % Recovery	92

**Comments:**

\* = Excludes any surrogates or internal standards.  
 Sample did not require fractionation.

Lab info: G128-473-67279

Reviewed By:

PARADIGM ANALYTICAL LABORATORIES, INC.

**EPH (Aliphatics/Aromatics) Results**

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST05-8-9
Sample Matrix	Soil
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/09/99
Date Analyzed	07/11/99
Dry Weight	81.3
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 10 (mg/Kg)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 10 (mg/Kg)
Aliphatic Surrogate % Recovery	100
Aromatic Surrogate % Recovery	78

**Comments:**

\* = Excludes any surrogates or internal standards.  
Sample did not require fractionation.

Lab info: G128-473-67280

Reviewed By: 

PARADIGM ANALYTICAL LABORATORIES, INC.

**EPH (Aliphatics/Aromatics) Results**

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST01
Sample Matrix	Water
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/07/99
Date Analyzed	07/08/99
Dry Weight	
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 1 (µg/mL)
C <sub>19</sub> -C <sub>36</sub> Aliphatics*	< 1 (µg/mL)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 1 (µg/mL)
Aliphatic Surrogate % Recovery	100
Aromatic Surrogate % Recovery	85

**Comments:**

\* = Excludes any surrogates or internal standards.  
 Sample did not require fractionation.

Lab info: G128-473-67281

Reviewed By:



**EPH (Aliphatics/Aromatics) Results**

by MDEP-EPH

Client Name: Richard Catlin & Associates

Project Name: MCAS Power Gen. Plant AST 99138-F

Sample Information and Analytical Results	
Sample Identification	AST03
Sample Matrix	Water
Date Collected	07/01/99
Date Received	07/01/99
Date Extracted	07/07/99
Date Analyzed	07/08/99
Dry Weight	
Dilution Factor	1
C <sub>9</sub> -C <sub>18</sub> Aliphatics*	< 1 (µg/mL)
C <sub>19</sub> -C <sub>38</sub> Aliphatics*	< 1 (µg/mL)
C <sub>11</sub> -C <sub>22</sub> Aromatics*	< 1 (µg/mL)
Aliphatic Surrogate % Recovery	100
Aromatic Surrogate % Recovery	86

**Comments:**

\* = Excludes any surrogates or internal standards.

Sample did not require fractionation.

Lab info: G128-473-67283

Reviewed By: fw





PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 05/13/99

Calibration Ranges and Limits

Range	MDL		ML		RL	
	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.1	2	0.3	6.5	1	10
C <sub>19</sub> -C <sub>36</sub> Aliphatics	0.1	1	0.3	3.1	1	10
C <sub>11</sub> -C <sub>22</sub> Aromatics	0.2	2.5	0.6	8	1	10

Calibration Concentration Levels

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/mL)	(mg/Kg)		
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.6	10	5.60	Calibration Factor
	1.5	25		
	3	50		
	6	100		
	12	200		
C <sub>19</sub> -C <sub>36</sub> Aliphatics	0.8	13.3	9.0	Calibration Factor
	2	33.3		
	4	66.7		
	8	133		
	16	267		
C <sub>11</sub> -C <sub>22</sub> Aromatics	1.2	20	10.5	Calibration Factor
	3	50		
	6	100		
	12	200		
	24	400		

Calibration Check Date: 07/08/99

Calibration Check

Range	Levels		RPD
	(µg/mL)	(mg/Kg)	
C <sub>9</sub> -C <sub>18</sub> Aliphatics	6	100	-12.7
C <sub>19</sub> -C <sub>36</sub> Aliphatics	8	133	-3.4
C <sub>11</sub> -C <sub>22</sub> Aromatics	12	200	-6.7

MDL = Method Detection Limit  
ML = Minimum Limit  
RL = Reportable Limit

RPD = Relative Percent Difference  
%RSD = Percent Relative Standard Deviation  
CCC = Correlation Coefficient of Curve

PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 3

EPH Laboratory Reporting Form

Calibration and QA/QC Information

Initial Calibration Date: 05/13/99

**Calibration Ranges and Limits**

Range	MDL		ML		RL	
	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.1	2	0.3	6.5	1	10
C <sub>19</sub> -C <sub>36</sub> Aliphatics	0.1	1	0.3	3.1	1	10
C <sub>11</sub> -C <sub>22</sub> Aromatics	0.2	2.5	0.6	8	1	10

**Calibration Concentration Levels**

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/mL)	(mg/Kg)		
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.6	10	5.60	Calibration Factor
	1.5	25		
	3	50		
	6	100		
	12	200		
C <sub>19</sub> -C <sub>36</sub> Aliphatics	0.8	13.3	9.0	Calibration Factor
	2	33.3		
	4	66.7		
	8	133		
	16	267		
C <sub>11</sub> -C <sub>22</sub> Aromatics	1.2	20	10.5	Calibration Factor
	3	50		
	6	100		
	12	200		
	24	400		

Calibration Check Date: 07/10/99

**Calibration Check**

Range	Levels		RPD
	(µg/mL)	(mg/Kg)	
C <sub>9</sub> -C <sub>18</sub> Aliphatics	6	100	-14.9
C <sub>19</sub> -C <sub>36</sub> Aliphatics	8	133	-2.4
C <sub>11</sub> -C <sub>22</sub> Aromatics	12	200	-18.1

MDL = Method Detection Limit  
 ML = Minimum Limit  
 RL = Reportable Limit

RPD = Relative Percent Difference  
 %RSD = Percent Relative Standard Deviation  
 CCC = Correlation Coefficient of Curve

**PARADIGM ANALYTICAL LABORATORIES, INC.**

Attachment 3

**EPH Laboratory Reporting Form**

**Calibration and QA/QC Information**

Initial Calibration Date: 05/13/99

**Calibration Ranges and Limits**

Range	MDL		ML		RL	
	( $\mu\text{g/mL}$ )	(mg/Kg)	( $\mu\text{g/mL}$ )	(mg/Kg)	( $\mu\text{g/mL}$ )	(mg/Kg)
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.1	2	0.3	6.5	1	10
C <sub>19</sub> -C <sub>38</sub> Aliphatics	0.1	1	0.3	3.1	1	10
C <sub>11</sub> -C <sub>22</sub> Aromatics	0.2	2.5	0.6	8	1	10

**Calibration Concentration Levels**

Range	Levels		%RSD or CCC	Method of Quantitation
	( $\mu\text{g/mL}$ )	(mg/Kg)		
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.6	10	5.60	Calibration Factor
	1.5	25		
	3	50		
	6	100		
	12	200		
C <sub>19</sub> -C <sub>38</sub> Aliphatics	0.8	13.3	9.0	Calibration Factor
	2	33.3		
	4	66.7		
	8	133		
	16	267		
C <sub>11</sub> -C <sub>22</sub> Aromatics	1.2	20	10.5	Calibration Factor
	3	50		
	6	100		
	12	200		
	24	400		

Calibration Check Date: 07/11/99

**Calibration Check**

Range	Levels		RPD
	( $\mu\text{g/mL}$ )	(mg/Kg)	
C <sub>9</sub> -C <sub>18</sub> Aliphatics	6	100	-11.3
C <sub>19</sub> -C <sub>38</sub> Aliphatics	8	133	-0.9
C <sub>11</sub> -C <sub>22</sub> Aromatics	12	200	-14.0

MDL = Method Detection Limit  
ML = Minimum Limit  
RL = Reportable Limit

RPD = Relative Percent Difference  
%RSD = Percent Relative Standard Deviation  
CCC = Correlation Coefficient of Curve

PARADIGM ANALYTICAL LABORATORIES, INC.

Attachment 3

EPH Laboratory Reporting Form

**Calibration and QA/QC Information**

Initial Calibration Date: 05/13/99

**Calibration Ranges and Limits**

Range	MDL		ML		RL	
	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)	(µg/mL)	(mg/Kg)
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.1	2	0.3	6.5	1	10
C <sub>19</sub> -C <sub>38</sub> Aliphatics	0.1	1	0.3	3.1	1	10
C <sub>11</sub> -C <sub>22</sub> Aromatics	0.2	2.5	0.6	8	1	10

**Calibration Concentration Levels**

Range	Levels		%RSD or CCC	Method of Quantitation
	(µg/mL)	(mg/Kg)		
C <sub>9</sub> -C <sub>18</sub> Aliphatics	0.6	10	5.60	Calibration Factor
	1.5	25		
	3	50		
	6	100		
	12	200		
C <sub>19</sub> -C <sub>38</sub> Aliphatics	0.8	13.3	9.0	Calibration Factor
	2	33.3		
	4	66.7		
	8	133		
	16	267		
C <sub>11</sub> -C <sub>22</sub> Aromatics	1.2	20	10.5	Calibration Factor
	3	50		
	6	100		
	12	200		
	24	400		

Calibration Check Date: 07/12/99

**Calibration Check**

Range	Levels		RPD
	(µg/mL)	(mg/Kg)	
C <sub>9</sub> -C <sub>18</sub> Aliphatics	6	100	-12.4
C <sub>19</sub> -C <sub>38</sub> Aliphatics	8	133	5.5
C <sub>11</sub> -C <sub>22</sub> Aromatics	12	200	-14.6

MDL = Method Detection Limit  
 ML = Minimum Limit  
 RL = Reportable Limit

RPD = Relative Percent Difference  
 %RSD = Percent Relative Standard Deviation  
 CCC = Correlation Coefficient of Curve

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# 12531

Page 1 of 2

MCAJ POWER GEN. PLANT AST

Client: CATUM

Project ID: 99133-F

Date: 7-1-99

Report To: CATUM

Address: \_\_\_\_\_

P.O. Number: 990701-10

Turnaround: STANDARD

ATTN GARY McSMITH

Address: \_\_\_\_\_

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

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

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

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

Invoice To: CATUM

Sample ID	Date	Time	Matrix	Preservatives				Analyses				Comments: Please specify any special reporting requirements		
				N/A				EPA METALS						G128-473
AST01-0-1	7/1/99	0740	SOIL					BLTD						
AST01-4-5		0755												
AST01-8-9		0810												
AST02-0-1		0815												
AST02-4-5		0825												
AST02-8-9		0830												
AST03-0-1		0850												
AST03-4-5		0900												
AST03-9-10		0920												
AST04-0-1		0925												
Relinquished By		Date	Time	Received By		Date	Time	Temperature	Sampled By		Airbill #			
<u>SFA JL</u>		7-1-99	1552	<u>Emily Ralins</u>		7/1/99	353p	10						

**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# 12030

Page 2 of 2

**MCAS POWER GEN, PLANT AST**

Client: CATLIN

Project ID: 99138-F

Date: 7-1-99

Report To: CATLIN

Address: \_\_\_\_\_

P.O. Number: 990701-10

Turnaround: STANDARD

ATTN: GARY McSMITH

Address: \_\_\_\_\_

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

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

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

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

Invoice To: CATLIN

Sample ID	Date	Time	Matrix	Preservatives				Analyses				Comments: Please specify any special reporting requirements	
				N/A	HCL (LT/OC) EPH	EPA METH. BTO	MADEP EPH	EPA G25 + TOM LING, ANALYST	PARAS	MADEP EPH			
AST04-4-5	7-1-99	0935	SOIL			✓	✓						E128-473
AST04-8-9		0945				✓	✓						
AST05-0-1		1000				✓	✓						
AST05-4-5		1010				✓	✓						
AST05-8-9		1020				✓	✓						
AST01		0850	GRND WATR	✓	✓			✓		✓			
AST02		0945		✓	✓			✓		✓			
AST03		1040		✓	✓			✓		✓			
AST04		1030		✓	✓			✓		✓			
AST05		1055		✓	✓			✓		✓			
Relinquished By		Date	Time	Received By		Date	Time	Temperature	Sampled By		Airbill #		
Sgt A. J.		7-1-99	1552	Emily Ralwa		7/1/99	3:52p	14					

RECEIVED  
DATE 12/6/99

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

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

December 1, 1999

Report Number: G128-517

Client Project ID: MCAS Petro Invest

Dear Mr. McSmith,

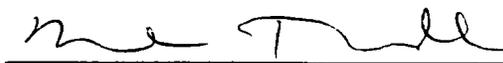
Enclosed are the results of the analytical services performed under the referenced project. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. Any samples submitted to our laboratory will be retained 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

cc: Gary

PARADIGM ANALYTICAL LABORATORIES, INC.

Results for Oil and Grease

Client Sample ID: AST 02 8'-9'	Date Analyzed: 11/22/99
Client Project ID: MCAS Petro Invest	Analyzed By: CLP
Lab Sample ID: 76024	Date Collected: 11/15/99
Lab Project ID: G128-517	Date Received: 11/15/99
Matrix: Soil	Solids: 82.0

Parameter	Method	Quantitation Limit (MG/KG)	Result (MG/KG)
Oil & Grease	9071	34	83

**Comments:**

BQL = Below Quantitation Limit  
All soils are corrected for percent solids.

Reviewed By: PNP