

BIOSLURPER STATUS REPORT  
FOR SEPTEMBER 2002 THROUGH NOVEMBER 2002  
NAVAL WEAPONS STATION - EARLE  
COLTS NECK, NEW JERSEY

*Issued:*

March 11, 2003

*Prepared for:*

Engineering Field Activity Northeast  
10 Industrial Highway  
Lester, PA 19113

*Prepared by:*

Foster Wheeler Environmental Corporation  
2300 Lincoln Highway  
One Oxford Valley - Suite 200  
Langhorne, PA 19047 - 1829

REMEDIAL ACTION CONTRACT N62472-99-D-0032  
CONTRACT TASK ORDER NO. 0049

180 pg

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## **1.0 INTRODUCTION**

Foster Wheeler Environmental Corporation (Foster Wheeler Environmental) was contracted by Engineering Field Activity Northeast to design, construct and operate bioslurper units for Site 16F at Naval Weapons Station (NWS) Earle located in Colts Neck, New Jersey. This System Operational Report is being submitted to satisfy the post-construction submittal requirements in paragraph 1.2.1, Pre-Post Construction Documentation of the Statement of Services for Contract Task Order No. 0049 under Remedial Action Contract No. N62472-99-D-0032.

This report summarizes the ongoing bioslurper operations at Site 16F at the Naval Weapons Station-Earle facility. The report summarizes the product recovered, groundwater treated, and the analytical results of the air and effluent discharges from the bioslurper systems. The operation period was from September 1, 2002 through November 30, 2002; however, the recovery numbers for the entire operational time (February 1998 through November 2002) are summarized in this report.

Bioslurper Unit No. 1 (located adjacent to Building C-16) normally recovers product from the following product extraction wells: 16MW-13, 16MW-14, 16MW-15, 16MW-04, 16MW-25, 16MW-26, 16MW-27 and vapor extraction wells: 16MW-22 and 16MW-23. Bioslurper Unit No. 2 (located north of Building C-50) normally extracts from 16MW-20, 16MW-16, C17/20MW-07, 16MW-17 and 16MW-19.

## **2.0 PROJECT LOCATION AND DESCRIPTION**

NWS-Earle is located in east-central Monmouth County in the town of Colts Neck, New Jersey as depicted in Figure 2-1. Site 16F is located in the north-central portion of NWS-Earle. The areas addressed with the bioslurper remediation system at Site 16F are the light non-aqueous phase liquid (LNAPL) plume southeast of Building C-16, the small LNAPL plume northwest of Building C-50, and a former gas station west of Building C-18.

An underground fuel line located in the area north of Building C-19 was used to transport diesel fuel from an underground storage tank (UST) located at the northeast corner of Building C-18 to a dispensing station north of Building C-50. A leak in the fuel line was discovered in 1977. All of the former USTs were removed from the former gas station in 1998. Part of the former underground diesel transfer line is still in place.

### **2.1 PREVIOUS INVESTIGATIONS**

Between June and October of 1995, Brown and Root Environmental conducted a Remedial Investigation (RI) at Site 16F. The RI Report concluded that hydrocarbons detected in the subsurface impacted the groundwater. The groundwater contamination (primarily volatile organics and fuel constituents) is associated with a free-phase LNAPL layer. This floating product is the source of organics in the groundwater.

In 1995, the Navy conducted an investigation at Site 16F using a Site Characterization and Analysis Penetrometer System (SCAPS). SCAPS is a field screening technique, which detects

polynuclear aromatic hydrocarbon (PAH) compounds using a Laser Induced Fluorescence (LIF) system. The LIF is quantitative to a known matrix with a known contaminant. A soil sample collected at the site was used to calibrate the LIF using diesel fuel marine. The fluorescent mapping, obtained from the push samples, was used to gain a better understanding of the contaminant distribution. Twenty nine (29) SCAPS borings were completed in the area between Building C-16 and C-50.

The free-phase plume to the south and east of Building C-16 is suspected to have been the result of the leaking former underground diesel fuel line. As evidenced by laboratory analytical results of groundwater samples, there is also some residual gasoline contamination associated with the plume near Building C-16.

The free-phase plume north of Building C-50 is suspected to have been the result of minor spills at a former diesel dispensing station located between the railroad tracks, north of Building C-50.

## **2.2 GEOLOGY**

Site 16F is located within the Outer Coastal Plain of the Atlantic Coastal Plain Physiographic Province, approximately nine miles inland from the Atlantic Ocean. The site is relatively flat with most of the topographic relief being the drainage swales located between the railroad tracks. According to regional mapping, the site is located on an outcropping of the Vincentown Formation and upper colluvium. The upper colluvium, where present, is shallow and consists of massive sand and silty sand, which may contain quartz or ironstone pebbles. The Vincentown Formation consists of grey and green glauconitic, fine to coarse-grained sand with silt.

According to the information obtained from the well installation logs and the SCAPS Investigation, the soil underlying the site is composed of fine to medium grained sand and silty sand.

## **3.0 BIOSLURPER OBJECTIVES AND PLUME CHARACTERISTICS**

The objectives of the bioslurper systems operations are to conduct remedial operations in three separate areas: 1) the main free-phase plume located south and southeast of Building C-16; 2) a smaller free-phase plume northwest of Building C-50; and 3) the residual soil contamination associated with the former gas station site west of Building C-18.

The diesel fuel spills would have started out as free product or free phase oil. This phase is initially very mobile, and migrates downward through the unsaturated (vadose) zone due to gravitational forces until either the water table or a stratigraphic barrier is encountered. The viscosity of the light non-aqueous phase liquid (LNAPL), the groundwater gradient, and the permeability of the aquifer media control the rate of free product migration. A “smear zone” develops when the mobile LNAPL is smeared vertically through seasonal fluctuations in the water table. Once the smear zone develops, a portion of the LNAPL exists as a discontinuous non-wetting liquid phase (residual) that is relatively immobile except at seasonal low water table. An increased smear zone reduces the volume of the remaining mobile free-phase oil.

Based on previous data gathered from water level measurements obtained in the recovery wells, the elevations in the wells vary as much as 3.9 to 7.29-feet below grade, with the average groundwater fluctuation of 5.79-feet in a well. That means that the free-phase product is being smeared vertically across a smear zone of almost 6-feet. The main free product plume is located to the east and south of Building C-16. The free-phase plume area is overlain by drainage ditches and railroad tracks. Due to the topographic depressions of the drainage ditches, and the permeability of the ballast associated with the railroad tracks, the localized groundwater table is subject to excessive water table fluctuations from rain events, which cause an increase in the vertical distribution of the oil across the smear zone. According to Peargin, Ireland, and Stephenson (1997), the larger percentages of LNAPL occur within the smear zone versus the vadose zone.

As depicted in the latest product thickness maps (Figures 5-1 through 5-3) the majority of remaining oil is located in the southwest portion of the free-phase plume near former Building C-16. The concentration of the free-phase LNAPL appears to be underlying the parking lot area south of former Building C-16. Free-phase LNAPL is also concentrated east of former Building C-16, in the area between the railroad tracks. Based on the present location of the wells, the western extent of the free-phase plume cannot be completely defined. The estimated boundaries of the free-phase plume generated from the SCAPS Investigation (dashed line in figures) have been used to define the original free-phase plume boundary. Current data shows that the extent of the LNAPL plume has decreased significantly with treatment overtime.

The extent of the free-phase plume located north of Building C-50 has not been verified with additional wells. The free-phase boundary depicted is based on the SCAPS Investigation. One extraction well (16MW-20) is being used to extract product from the central portion of the suspected plume. While extraction well 16MW-20 has consistently recovered free-phase oil, the oil thickness in the well is minimal. Measurements from an extraction well located at the hydraulically downgradient edge of the suspected free-phase plume north of Building C-50 have not detected any free-phase oil.

The soil contamination associated with the former gas station site was from previously removed USTs. There is no free-phase oil present in the former gas station area. Two bioventing wells are situated in this area to aid in remediating the vadose zone soils.

#### **4.0 BIOSLURPER SYSTEM OPERATION**

The bioslurper systems are designed to de-water the smear zone and remove LNAPL through drainage, volatilization, and biodegradation. The high vacuum of the bioslurper system extracts LNAPL from the pore spaces where it was formerly held by capillary tension. Typically, a vacuum pressure of 2.1 to 4.6 inches of Hg is applied to each well. The velocity in the drop tube must be sufficient to lift water as an entrained fluid.

Unit No. 1, located adjacent to Building C-16, was operated utilizing seven product recovery wells (16MW-13, 16MW-04, 16MW-14, 16MW-15, 16MW-25, 16MW-26 and 16MW-27), and two bioventing wells (16MW-22 and 16MW-23). The product recovery wells were operated at a vacuum of approximately 5 to 8 inches of mercury, with the one-inch diameter drop tube set

immediately above the product level in the well. The bioventing wells were operated at a vacuum of 2 to 3 inches of mercury, and the one-inch diameter drop tube was placed several feet above the water table to minimize any water withdraw.

Unit No. 2, located north of Building C-50, was operated utilizing five product recovery wells (16MW-16, 16MW-17, 16MW-19, C17/20MW-07, and 16MW-20). The product recovery wells were operated at a vacuum of approximately 5 to 8 inches of mercury, with the one-inch diameter drop tube set right above the product level in the well. The pipe connections to Unit No. 2 were configured in order to allow extraction from the wells on the outer edge of the free-phase plume east of Building C-16, and the one recovery well north of Building C-50. The product thickness and product recovery rates of the wells were significantly less than the recovery wells connected to Unit No. 1; therefore Unit No. 2 was operated for a lesser amount of time.

## **5.0 OPERATIONS AND DIFFICULTIES ENCOUNTERED**

The bioslurper units consist of two self-contained 8 ft. by 40 ft. by 8 ft high refurbished cargo boxes that house the bioslurper pumps, process equipment, and groundwater treatment units. The turnkey units are connected to the recovery wells via underground piping. Bioslurper Unit No. 1 is equipped with a vapor-phase knock out tank and vapor-phase activated carbon drums to treat the air discharge to comply with the NJDEP Air Discharge Permit. Unit No. 1 requires air treatment because of the suspected gasoline component of the LNAPL plume in the area around Building C-16. The air discharge from Bioslurper No. 2 does not require treatment prior to discharge because of the lower concentrations of volatile organics.

This section discusses the monthly operation of the units during this reporting period and any problems that were encountered. Appendix A contains graphs depicting the operational times and groundwater and oil extracted on a monthly basis.

### **SEPTEMBER 2002**

Operations and maintenance during September 2002 were fairly normal for Bioslurper No. 1; however, some difficulties were encountered with Bioslurper Unit No. 2. Bioslurper Unit No. 2 experienced significant down time due to operational difficulties. Inspection of the units determined that significant maintenance was required to correct the operational difficulties. Bioslurper Unit No. 1 was operated for a total of 39 hours in September 2002. The total amount of groundwater extracted in September was approximately 10,390 gallons, with approximately 16 gallons of free-phase oil removed. Bioslurper Unit No. 2 operated for a total of 27 hours, extracted approximately 289 gallons of groundwater. Bioslurper Unit No. 2 produced a negligible amount of free-phase oil. Appendix A provides a graphical representation of the amount of oil/groundwater extracted, and the operations hours for each unit.

On September 18, 2002, Foster Wheeler received a call from the NWS-Earle police concerning a spill at Bioslurper Unit No. 1. Foster Wheeler personnel responded to the site within one hour. Water was spilled inside the containment area around Bioslurper Unit No. 1. The spilled water was from a broken 3-inch diameter PVC line that went

from the bioslurper unit to the adjacent shed containing a vapor phase knock-out tank and activated carbon drums. The spilled water was cleaned up inside the containment area and the water processed through the groundwater treatment media.

After an investigation of the incident at Unit No. 1, it was determined that the spill was caused by a faulty fresh water control valve on the seal water tank. There is a mechanical float assembly inside the seal water tank that shuts off the fresh water supply to that tank when it reaches a particular level. The fresh water in the seal water tank is used to create a vacuum with the liquid ring pump. When the float assembly failed, it allowed the tank to fill up with water and the water to exit the top of the tank through a 3-inch diameter PVC line (air discharge line) that connects into the vapor-phase drop out tank inside the adjacent shed. The weight of the water inside the 3-inch diameter PVC line caused that line to break and the water to spill out into the containment area. The float assembly was removed, repaired, cleaned and re-installed. The iron sediment in the bottom of the seal water tank was also cleaned out to limit iron fouling. New float assemblies will be purchased and kept on hand for any potential problems in the future.

There were problems with vacuums on wells connected to Bioslurper Unit No. 2. The vacuum at the Bioslurper Unit No. 2 was within operating limits and after investigating the problem it was determined that there must be underground lines blocked somewhere between Bioslurper Unit No. 2 and the extraction wells. The wells originally connected to Unit No. 2 were re-configured to operate from Bioslurper Unit No. 1 while the problem was resolved. It was later determined that the vacuum to the wells was restricted by iron build-up of several screens on the influent lines from the wells. These screens were removed and cleaned and the problem was resolved.

## **OCTOBER 2002**

Operations and maintenance during October 2002 were fairly normal for Bioslurper Unit No. 1; however, some difficulties were encountered with Bioslurper Unit No. 2. Bioslurper Unit No. 1 was operated for a total of 49.5 hours in October 2002. The total amount of groundwater extracted in October was approximately 19,562 gallons, with approximately 10 gallons of free-phase oil removed. Bioslurper Unit No. 2 was operated only during maintenance to repair and replace system components during October. Amounts of groundwater treated through the system were negligible. Appendix A provides a graphical representation of the amount of oil/groundwater extracted, and the operations hours for each unit.

On October 1, 2002 and then again on October 25, 2002, the floor sump alarms on Bioslurper Unit No. 1 were activated due to a spill inside the unit. The floor sump alarm is to ensure the system shuts down in the event of a spill, and worked within its design limits. Partially treated groundwater spilled from the top of one of the groundwater treatment vessels. The spilled water was contained within the unit and in the bermed area outside the unit. Foster Wheeler was immediately notified via fax alarms and responded to the site within one hour.

The threads on the top of the fiberglass groundwater treatment vessels for Unit No. 1 and No. 2 have become worn over the years and were not able to maintain the pressure for which they were designed. These vessels hold modified clay to remove the heavier hydrocarbons in the effluent. There are only 4-inch diameter openings on the top of the vessels to vacuum out and re-bed the units. The treads atop the units have become worn from vacuuming out the units. New vessels were ordered to replace the worn vessels.

## **NOVEMBER 2002**

Operations and maintenance during November 2002 were fairly normal for Bioslurper Unit No. 2, and only minor difficulties were encountered with Bioslurper Unit No. 1. Bioslurper Unit No. 1 was operated for a total of 16.5 hours in November 2002. The total amount of groundwater extracted in November was approximately 4,854 gallons, with approximately 17 gallons of free-phase oil removed. Bioslurper Unit No. 2 operated for a total of 47.5 hours, extracted approximately 4,771 gallons of groundwater and approximately 4 gallons of free-phase oil. Appendix A provides a graphical representation of the amount of oil/groundwater extracted, and the operations hours for each unit.

Installation of the new vessels did not occur due to a manufacturer delay in delivery. Bioslurper Unit No. 1 was operated only intermittently when a Foster Wheeler Representative was on site to observe operations. It is anticipated that installation of the vessels will occur in the next quarter.

### **5.1 EVALUATION OF SITE CONDITIONS**

Water level and product thickness measurements are obtained periodically to establish product thickness isopleths. Appendix B contains graphs and tables depicting the depth to product and depth to water in individual extraction wells. As demonstrated by Figures 5-1 through 5-3, there has been a continued reduction in the product thickness and the size of the plume at the site. The product thickness isopleths are based on the corrected thickness, adjusted for exaggeration measured in the well. Appendix B provides a tabular and graphical representation of the adjusted water levels and product thickness in the extraction wells. As demonstrated by the graphs in Appendix B, the water table elevations have begun to increase as groundwater rebounds from the effects of the drought like conditions which occurred during the early part of 2002. It should be noted that the most effective product recovery occurs when the water table elevations are lower than normal, thus exposing any trapped product below the water table (smear zone). The current product thickness data confirms that the main portion of the product plume is underlying the southeastern corner of Building C-16.

### **5.2 PRODUCT RECOVERY DATA**

Table 1 summarizes the amount of free-phase oil recovered from the Bioslurper Extraction Units. Appendix A provides a graphical representation of the amount of oil/groundwater extracted and the operational hours for each Unit. Table 2 summarizes the groundwater extracted/treated to date. Table 3 summarizes the volume of total petroleum hydrocarbons (TPH) removed via the groundwater treatment component of bioslurper systems. The TPH removal rate for the

groundwater discharges was calculated using laboratory analytical data and the volume of water processed.

The product recovery operations from September 2002 through November 2002 have been somewhat inconsistent due to operational and maintenance difficulties. Both units recovered a lesser volume of oil because of considerable amounts of down-time during this reporting period.

## **6.0 EFFLUENT AND AIR ANALYSIS**

### **6.1 AIR ANALYSIS**

The air discharges from the bioslurper units are routinely sampled to ensure discharges are in compliance with the NJDEP air discharge permit. The air discharge is sampled for total VOCs (including benzene). Appendix C summarizes the analytical results of the air discharge samples and the permit limits. Appendix C also contains the laboratory analytical results of the air samples. As indicated by the analytical results, both bioslurper units are operating within the permit requirements established for air discharge.

It should be noted that vinyl chloride was detected at concentrations ranging from of 0.007 to 0.37 ppm(v) in the Bioslurper Unit No. 2 air discharge samples collected in September, October, and November 2002. Vinyl chloride was first detected at a concentration of 0.5 ppm(v) in the August 2002 Bioslurper Unit No. 2 air discharge sample. Vinyl chloride was not detected in Bioslurper Unit No. 1 air discharge samples. Vinyl chloride, when found in groundwater, may be a result of either a release of the actual compound, or the chemical break-down of polyvinylchloride (PVC) or other chlorinated solvents (trichloroethene, trichloroethane, tetrachloroethene, etc).

Based on past historical and analytical data, contamination from vinyl chloride or other chlorinated solvents was not anticipated in this area of the site. However, historical use of chlorinated solvents is documented in site records. Only one sample (Unit No. 2, September 2002) had a detection of another chlorinated solvent. Cis-1,2 dichloroethene was detected at a concentration of 0.007 ppm(v). It is not known if these two compounds are related or if they are the result of historical site activities. After the first unanticipated detection of vinyl chloride, it was surmised that the vinyl chloride may have been an anomaly due to field or analytical contamination or error. However, data from the three subsequent sampling events indicate that the presence of vinyl chloride may be attributed to site contamination.

Vinyl chloride and cis-1,2-dichloroethene were included in the monthly air emission calculations in order to determine that the total VOCs emissions were below the permitted emission of 0.035 lbs/hour. The total VOC emissions, including vinyl chloride, for each month were below the permit emission limit.

## **6.2 EFFLUENT ANALYSIS**

The effluent from Bioslurper Unit No.1 is processed through one bag filter (equipped with a 75-micron filter), three modified bentonite clay vessels (operating in series), and two liquid-phase granular activated carbon vessels (operating in series). The bag filter removes particulates (mainly precipitated iron), the clay units remove the higher molecular weight volatile organic compounds (VOCs) and TPH, and the activated carbon removes the remaining VOC and TPH compounds. The effluent from Bioslurper Unit No. 2 is processed in the same manner, except that only two bentonite vessels in series are used instead of three. Unit No. 2 is configured in this manner because of the lower TPH concentrations of the effluent.

The groundwater effluent from the bioslurper units is routinely sampled to ensure the discharges are in compliance with the requirements set forth by the Naval Weapons Station-Earle Sewer Treatment Plant (< 10 ppm TPH).

Table 4 summarizes the TPH results of the effluent samples. Appendix D contains the laboratory analytical results of the effluent samples. As demonstrated by the laboratory analytical results, all effluent discharged (after treatment) to the NWS-Earle Sewer Treatment Plant contained TPH concentrations less than 10 ppm.

## **7.0 CONCLUSIONS**

The bioslurper units continued to operate within the design limits with some operational and maintenance problems. The bioslurper units were operated at a vacuum of approximately 25 inches of mercury. A vacuum of between 3 to 5 inches of mercury was applied to each extraction well. As demonstrated by the analytical results of air and effluent discharge samples, the system was adequately treating the air and effluent to the limits established by the NJDEP Air Discharge Permit and the restrictions of the NWS-Earle Sewer Treatment Plant.

The source(s) of the vinyl chloride and cis-1,2-dichloroethene (DCE) in the air discharge of Bioslurper Unit No. 2 is not presently known. Future air discharge samples will be evaluated to determine if the vinyl chloride and DCE exhibit a trend of increase, decrease, or stability. No groundwater samples have been collected to determine if the source of the chlorinated solvents in the air vapor is from the groundwater. Analysis of groundwater may help to identify a source of the contaminants.

It is recommended that groundwater samples be collected from representative upgradient monitoring wells to determine if the vinyl chloride and DCE are migrating from an upgradient source. An upgradient source is currently suspected because the compounds have not been detected previously; they may have migrated into the plume area following the flow path of the groundwater. A groundwater sample will be collected from well 16MW-20 and well 16MW-25 using the low-flow sampling method. These two wells have been selected because they are the two most upgradient wells that contribute water and product to Bioslurper Unit No. 2. The samples will be analyzed for vinyl chloride and DCE. Analytical results will be compared against the New Jersey Groundwater Quality Standards. All groundwater generated during the

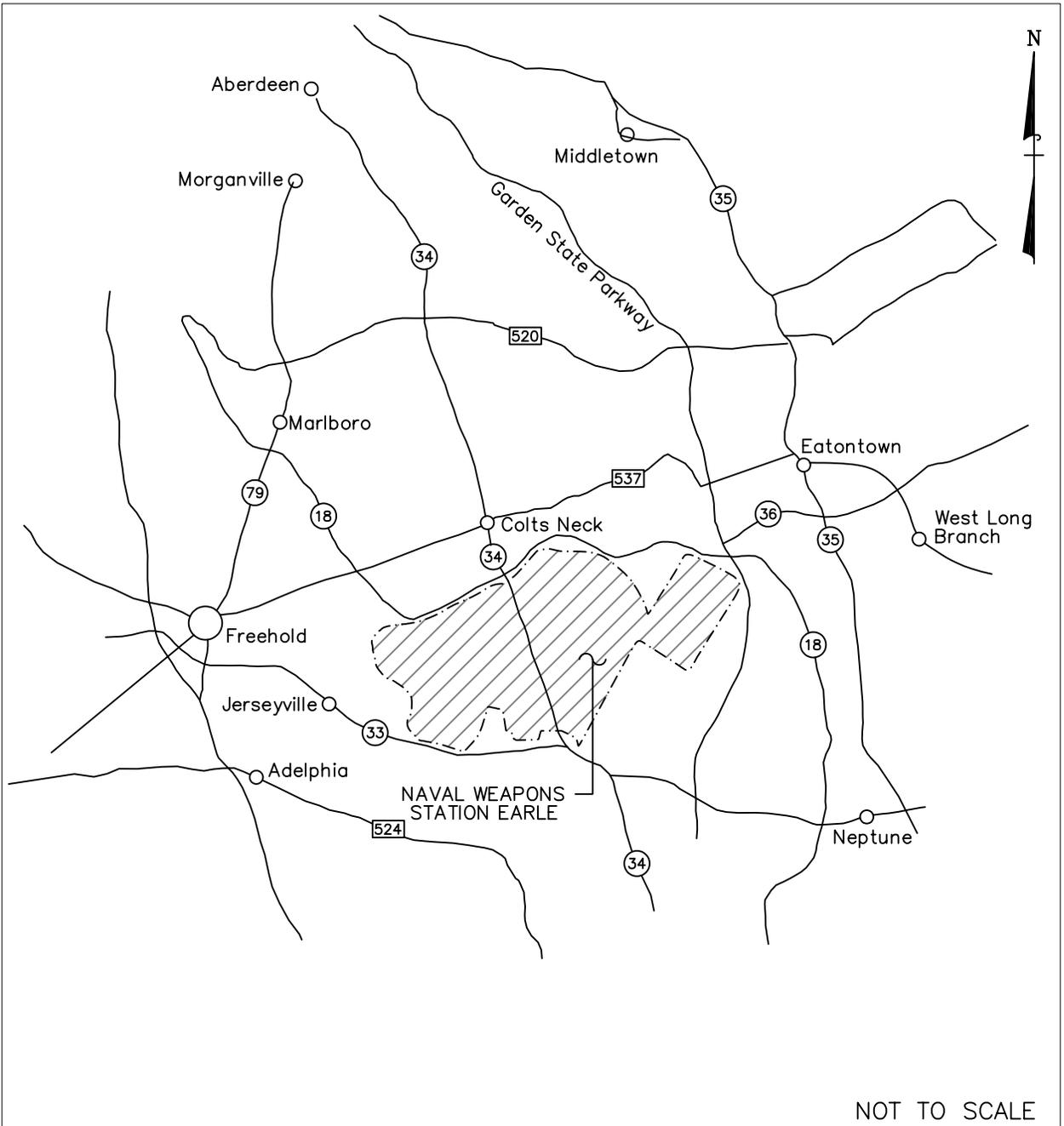
sample collection (decontamination and purge water) will be treated through the bioslurper system.

The effluent of both bioslurper systems is discharged to the NWS-Earle Sewer Treatment Plant. Based on agreements with NWS-Earle prior to the start-up of the systems, the effluent discharge from the systems was to meet the NJPDES Discharge Permit criteria for their discharge. The effluent discharge has met the applicable discharge criteria of 10 ppm total petroleum hydrocarbons (TPH).

As demonstrated by the historical product thickness isopleths generated with site data, there is a continuing decline in the product thickness and a decrease in the LNAPL plume boundary south and east of former Building C-16. Product thickness is negligible in wells north of Building C-50. Data shows that product recoveries increased significantly during the drought period (last reporting period). Recently, groundwater elevations have begun to rebound due to increased precipitation. It may appear that product recovery rates have decreased significantly since the last reporting period. However the volume of oil recovered during this reporting period was notable because the systems operated for significantly less hours than the previous reporting period. Currently, the systems are still recovering substantial amounts of product.

It is anticipated that product recovery rates will decrease as the systems continue to remove product from the groundwater. This is due to the decrease in the amount of free product that is in the wells and therefore recoverable by the treatment systems. The decreased product recoveries over the history of treatment are demonstrated by the existing historical recovery data. The decreased product recoveries over time is not a result of the system becoming less effective, but a function of diminished returns based upon the lessening availability of free product.

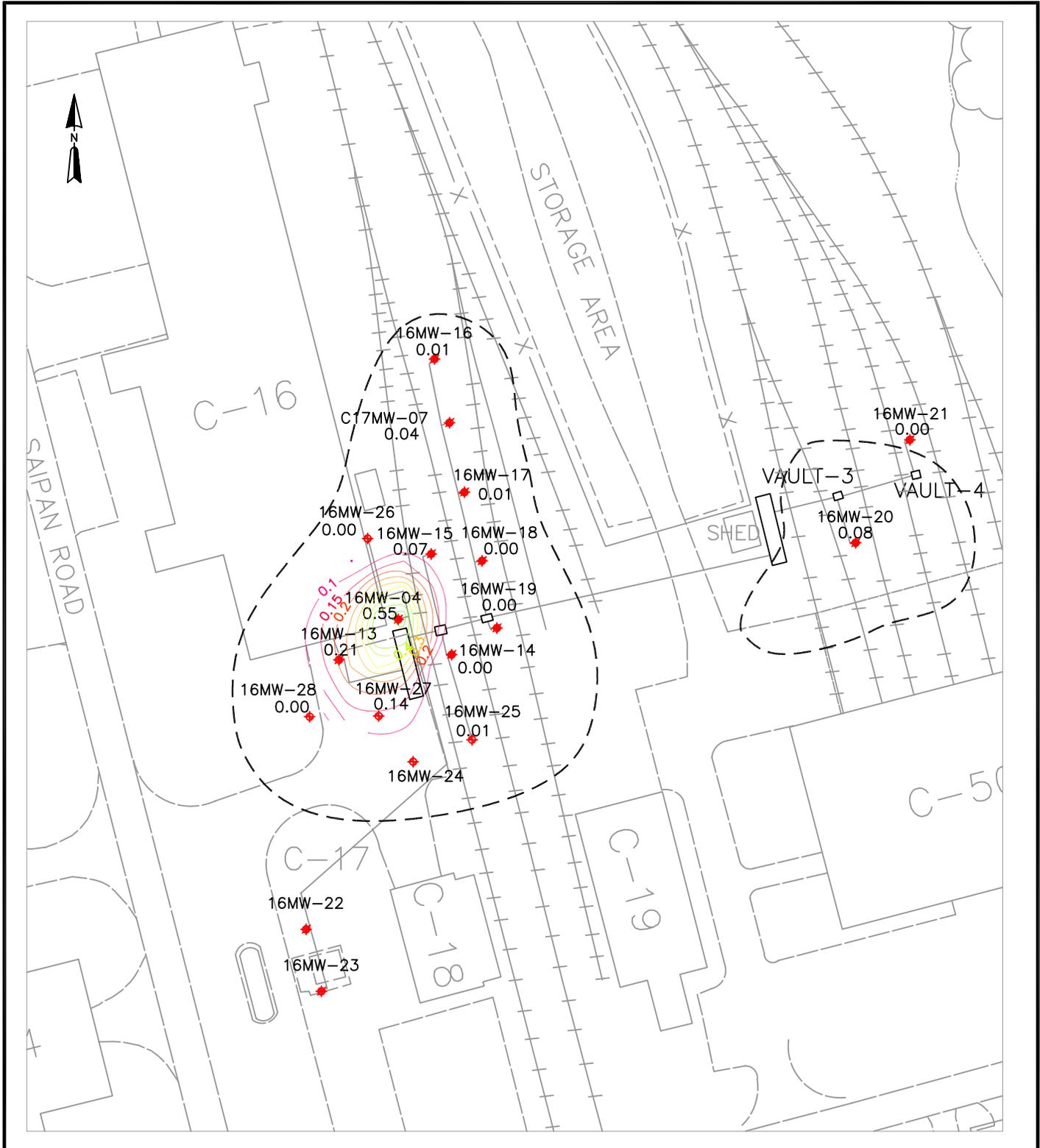
## FIGURES



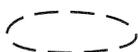
**U.S. Navy RAC  
NWS- Earle, Colts Neck, NJ**

Figure 2-1  
Vicinity Map

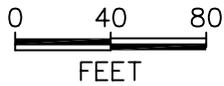
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**Legend**



Product plume boundary based on former SCAPs Study



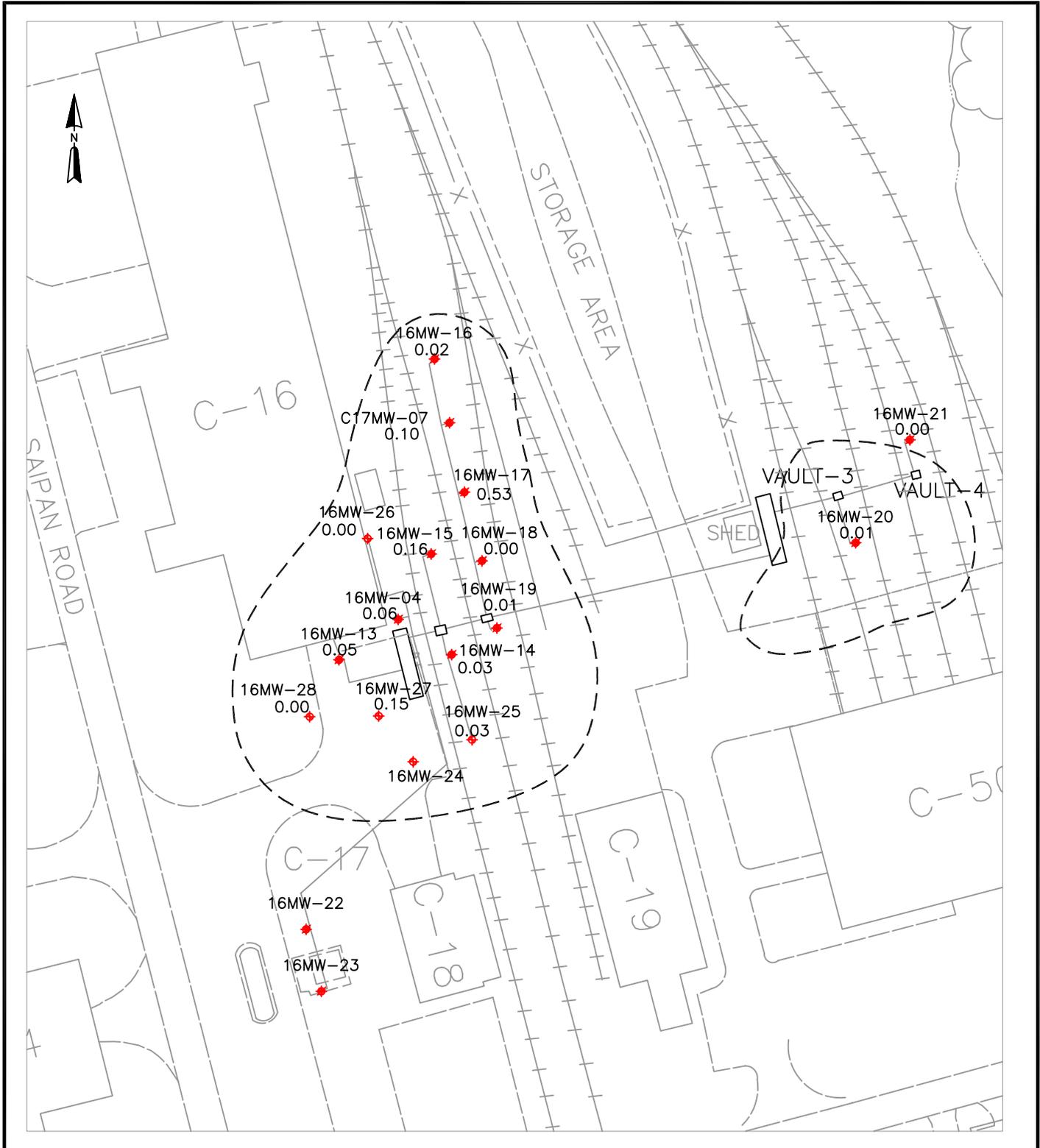
**U.S. Navy RAC  
NWS - Earle, Colts Neck, NJ**

Figure 5-1  
Product Thickness (ft.) Isopleth  
10/18/2002



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Legend



Product plume boundary based on former SCAPs Study



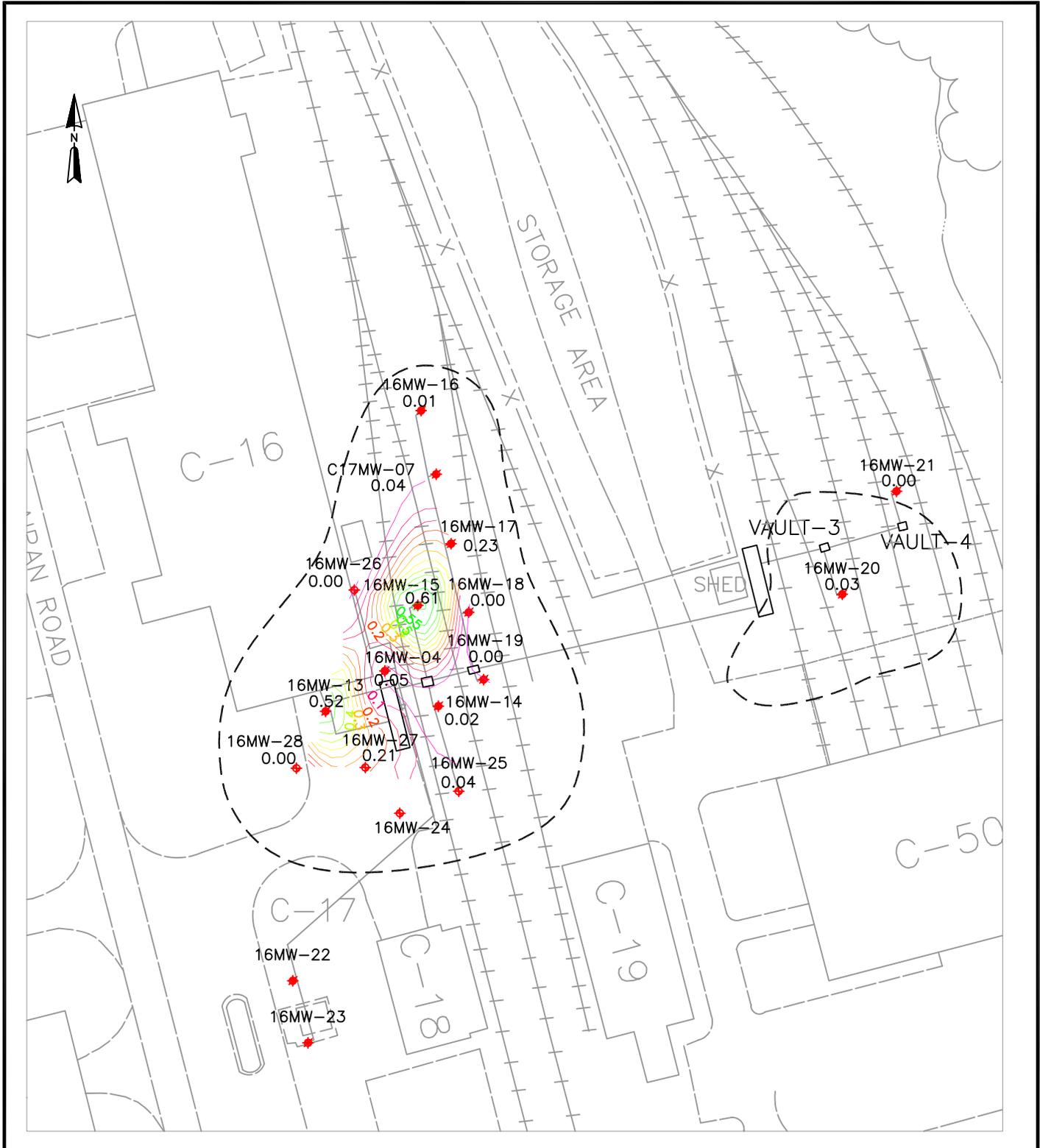
U.S. Navy RAC  
NWS - Earle, Colts Neck, NJ

Figure 5-2  
Product Thickness (ft.) Isopleth  
11/14/2002

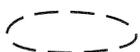


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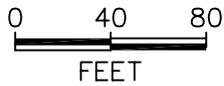
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**Legend**



Product plume boundary based on former SCAPs Study



**U.S. Navy RAC  
NWS - Earle, Colts Neck, NJ**

Figure 5-3  
Product Thickness (ft.) Isopleth  
11/26/2002



FOSTER WHEELER ENVIRONMENTAL CORPORATION

## TABLES

**TABLE 1**  
**NAVAL WEAPONS STATION-EARLE**  
**BIOSLURPER UNITS**  
**FREE-PHASE OIL EXTRACTION TO DATE**

	1998 Free-Phase Oil Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1		400	375	275	300	ND	ND	225	250	250	140	225	2440.0
Bioslurper System #2		25	50	50	20	ND	ND	55	30	40	20	30	320.0
Total		425	425	325	320			280	280	290	160	255	2760.0
	1999 Free-Phase Oil Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	220	50	125	65	ND	ND	ND	34	ND	ND	66	ND	560.0
Bioslurper System #2	20	15	15	10	ND	ND	ND	14	ND	ND	14	ND	88.0
Total	240	65	140	75				48			80		648.0
	2000 Free-Phase Oil Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	30	60	78	57	10	15	32	43	57	55	33	32	502.0
Bioslurper System #2	ND	ND	ND	ND	ND	24	1	5	4	0	ND	0	34.0
Total	30	60	78	57	10	39	33	48	61	55	33	32	536.0
	2001 Free-Phase Oil Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	31	45	35	ND	ND	ND	14	48	30	15	30	10	258.0
Bioslurper System #2	ND	4.5	4.5	ND	ND	ND			2	4	0.5	0	15.5
Total	31	49.5	39.5	0	0	0	14	48	32	19	30.5	10	273.5
	2002 Free-Phase Oil Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	52	21	11	16	34	62	53	87	16	10	17		379.0
Bioslurper System #2	6	0.5	0.5	5	2	6	2	5	0	0	4		31.0
Total	58	21.5	11.5	21	36	68	55	92	16	10	21		410.0

Notes:

ND - no data due to system not in operation

Total Oil extracted to date (g): 4627.5

**TABLE 2**  
**NAVAL WEAPONS STATION-EARLE**  
**BIOSLURPER UNITS**  
**GROUNDWATER EXTRACTION TO DATE**

	1998 Groundwater Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1		2675	26,169	23898	12799	ND	ND	16498	34612	29974	20503	40611	207739
Bioslurper System #2		5282	20,586	22607	6584	ND	ND	13537	14451	27850	16196	9141	136234
Total		7957	46755	46505	19383			30035	49063	57824	36699	49752	343973
	1999 Groundwater Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	35078	6536	49834	40889	ND	ND	ND	7321	ND	ND	ND	ND	139658
Bioslurper System #2	8843	536	12956		ND	ND	ND		ND	ND	ND	ND	22335
Total	43921	7072	62790	40889	ND	ND	ND	7321	ND	ND	ND	ND	161993
	2000 Groundwater Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	3393	4618	9842	10945	2764	14112	19758	23298	36900	31669	27785	30231	215315
Bioslurper System #2	ND	ND	ND	ND	ND	2976	5549	17704	21156	21588	ND	20848	89821
Total	3393	4618	9842	10945	2764	17088	25307	41002	58056	53257	27785	51079	305136
	2001 Groundwater Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	25897	30981	33832	ND	ND	ND	2812	12136	7669	1665	4635	3080	122707
Bioslurper System #2	ND	15852	19914	ND	ND	ND			2967	6814	1277	345	47169
Total	25897	46833	53746	ND	ND	ND	2812	12136	10636	8479	5912	3425	169876
	2002 Groundwater Extracted (gallons)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	13137	9292	16151	12749	24926	19641	24875	31129	10390	19562	4854		186706
Bioslurper System #2	1095	1224	5726	7639	7727	6464	5362	5977	289	0	4771		46274
Total	14232	10516	21877	20388	32653	26105	30237	37106	10679	19562	9625		232980

Total Groundwater Extracted to Date = 1,213,958

**TABLE 3**  
**NAVAL WEAPONS STATION-EARLE**  
**BIOSLURPER UNITS**  
**TOTAL PETROLEUM HYDROCARBON (TPH)**  
**REMOVED VIA GROUNDWATER TREATMENT**

	1998 TPH Removed via Groundwater Treatment (pounds)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1		60.75	125.14	306.42	135.56	ND	ND	47.30	ND	175.99	179.16	192.96	1223.28
Bioslurper System #2		4.25	14.17	32.40	9.61	ND	ND	ND	13.99	2.37	4.26	11.48	92.53
Total		65.00	139.31	338.82	145.17	ND	ND	47.30	13.99	178.36	183.42	204.44	1315.81
	1999 TPH Removed via Groundwater Treatment (pounds)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	60.48	56.18	394.28	285.29	ND	ND	ND	ND	ND	ND	0.29	ND	796.52
Bioslurper System #2	3.84	0.21	29.30	15.20	ND	ND	ND	ND	ND	ND	0.01	ND	48.56
Total	64.32	56.39	423.58	300.49	ND	ND	ND	ND	ND	ND	0.30	ND	845.08
	2000 TPH Removed via Groundwater Treatment (pounds)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	8.58	ND	17.20	30.99	ND	31.80	18.14	ND	95.47	160.86	92.04	327.49	782.56
Bioslurper System #2	0.01	ND	ND	ND	ND	0.11	0.40	ND	2.63	37.55	ND	21.71	62.40
Total	8.59	ND	17.20	30.99	ND	31.91	18.53	ND	98.10	198.40	92.04	349.20	844.96
	2001 TPH Removed via Groundwater Treatment (pounds)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	34.31	45.04	50.54	ND	ND	ND	0.07	52.80	2.61	2.25	2.97	10.82	201.42
Bioslurper System #2	ND	8.59	59.43	ND	ND	ND	ND	ND	1.12	3.73	0.13	0.01	73.01
Total	34.31	53.63	109.97				0.07	52.80	3.73	5.98	3.10	10.83	274.42
	2002 TPH Removed via Groundwater Treatment (pounds)												Year Total
	Jan.	Feb.	March	April	May	June	July	August	Sep.	Oct.	Nov.	Dec.	
Bioslurper System #1	40.35	21.35	13.51	35.86	21.58	7.60	581.16	73.62	68.41	19.99	2.27		885.70
Bioslurper System #2	2.40	0.18	4.68	0.75	5.08	1.60	2.77	1.13	0.02	ND	1.43		20.04
Total	42.75	21.53	18.19	36.61	26.66	9.20	583.93	74.75	68.43	19.99	3.70		905.74

**Pounds of TPH Removed via Groundwater Treatment to Date = 4186.02**

Notes:

ND - no data due to system not in operation

Pounds of TPH: Influent - effluent concentration (mg/l) x 3.785 l/gal x 0.001 g/mg x 0.002205 lb/g x monthly effluent (gal) = lbs TPH

**TABLE 4**  
**NAVAL WEAPONS STATION-EARLE**  
**BIOSLURPER UNITS NO. 1 AND NO. 2**  
**TOTAL PETROLEUM HYDROCARBON (TPH)**  
**EFFLUENT CONCENTRATIONS (mg/l)**

Effluent Sample Date	Unit No. 1		Unit No. 2	
	Before Clay/Carbon	After Clay/Carbon	Before Clay/Carbon	After Clay/Carbon
02/29/00	<0.5	<0.5	NA	NA
04/04/00	210	0.57	NA	NA
04/28/00	16(A)EW00W5	16(A)EW00W6		
	340	0.68	NA	NA
06/19/00	270	<1.0	4.4	<1.0
07/21/00	16(A)EW00W10	16(A)EW00W09	16(B)EW00W05	16(B)EW00W06
	110	<1.0	8.7	<1.0
09/07/00	16(A)EW11	16(A)EW12	16(B)EW07	16(B)EW08
	310	5.1	18	3.1
10/30/00	16(A)EW13	16(A)EW14	16(B)EW09	16(B)EW10
	610	1.4	210	1.6
11/30/00	16(A)EW15	16(A)EW16	16(B)EW11	16(B)EW12
	400	3.1	220	2
12/28/00	16(A)EW17	16(A)EW18	16(B)EW13	16(B)EW14
	1300	2.4	1301	2.6
01/29/01	16(A)EW19	16(A)EW20	16(B)EW15	16(B)EW16
	210	1.6	75	1.6
02/27/01	16(A)EW21	16(A)EW22	16(B)EW17	16(B)EW18
	160	1.2	67	2.1
03/30/01	16(A)EW23	16(A)EW24	16(B)EW19	16(B)EW20
	180	1	360	2.4
07/31/01	16(A)EW24	16(A)EW25	NA	NA
	3.1	0.018	NA	NA
08/29/01	16(A)EW27	16(A)EW28	NA	NA
	187	<0.068	NA	NA
09/30/01	16(A)EW27	16(A)EW28	16(B)EW19	16(B)EW20
	40.8	<0.068	45.3	<0.067
10/31/01	16(A)EW31	16(A)EW32	16(B)EW01	16(B)EW02
	50	<0.07	65.7	<0.066
11/30/01	16(A)EW33	16(A)EW34	16(B)EW05	16(B)EW06
	76.9	0.18	12	<.20

Notes:

All units are mg/L.

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.

ND - not detected above laboratory detection limit

NA - not applicable (no sample collected)

**TABLE 4**  
**NAVAL WEAPONS STATION-EARLE**  
**BIOSLURPER UNITS NO. 1 AND NO. 2**  
**TOTAL PETROLEUM HYDROCARBON (TPH)**  
**EFFLUENT CONCENTRATIONS (mg/l)**

Effluent Sample Date	Unit No. 1		Unit No. 2	
	Before Clay/Carbon	After Clay/Carbon	Before Clay/Carbon	After Clay/Carbon
01/09/02	16(A)EW35 421	16(A)EW36 <0.066	16(B)EW07 2.3	16(B)EW08 <0.066
01/31/02	16(A)EW31 368	16(A)EW32 <0.066	16(B)EW01 22.1	16(B)EW02 <0.066
02/27/02	16(A)EW39 276	16(A)EW40 0.7	16(B)EW11 17.6	16(B)EW12
02/28/02	16(A)EW41 101	16(A)EW42 0.81	16(B)EW13 98.1	16(B)EW14 0.19
03/29/02	16(A)EW41 101	16(A)EW42 0.81	16(B)EW13 98.1	16(B)EW14 0.24
04/23/02	16(A)EW43 338	16(A)EW44 0.96	16(B)EW15 12	0.24 0.19
05/29/02	16(A)EW45 104	16(A)EW46 0.28	16(B)EW17 78.9	16(B)EW18 0.076
06/28/02	16(A)EW47 46.6	16(A)EW48 0.23	16(B)EW19 29.7	16(B)EW20 0.11
07/29/02	16(A)EW49 2800	16(A)EW50 0.63	16(B)EW21 62.5	16(B)EW22 0.54
08/28/02	16(A)EW51 284	16(A)EW52 0.61	16(B)EW23 23.3	16(B)EW24 0.74
09/30/02	16(A)EW53 790	16(A)EW54 1.09	16(B)EW25 8.8	16(B)EW26 0.5
10/29/02	16(A)EW55 124	16(A)EW56 1.57	16(B)EW27 97	16(B)EW28 3.12
11/26/02	16(A)EW57 56	16(A)EW58 <0.16	16(B)EW29 36	16(B)EW30 <0.17

Notes:

All units are mg/L.

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.

ND - not detected above laboratory detection limit

NA - not applicable (no sample collected)

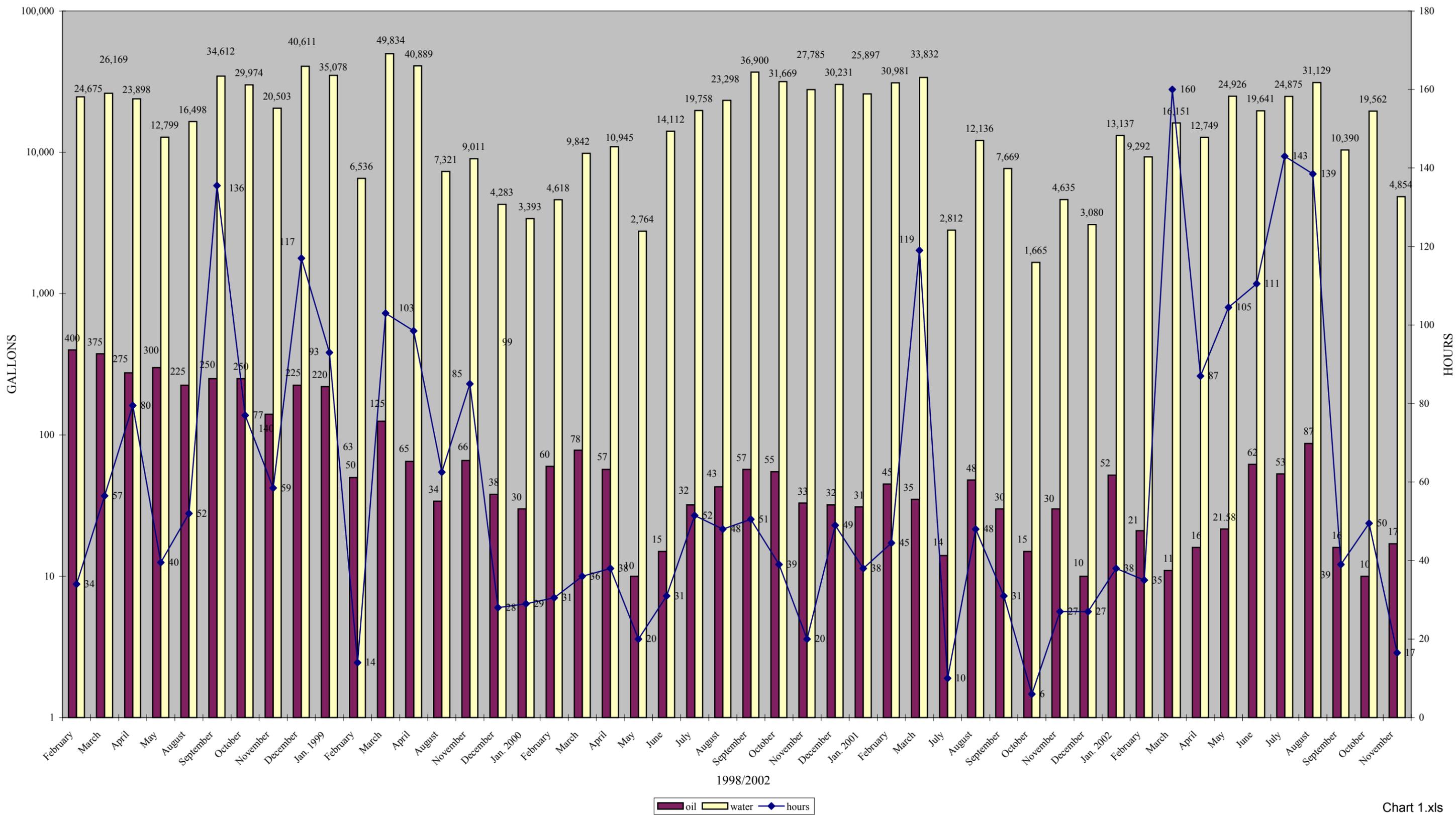
Table 4

Table 4

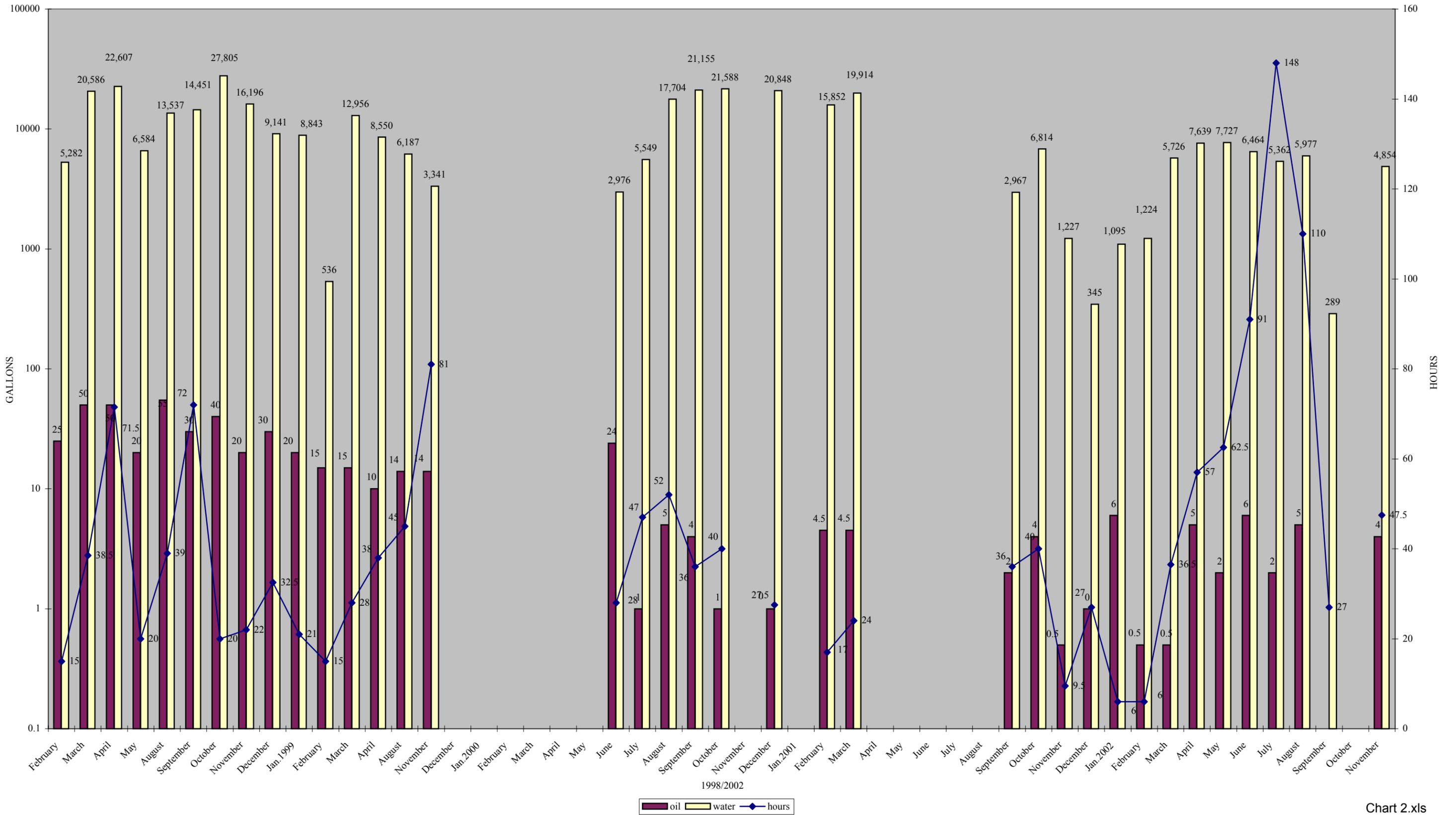
page 2 of 2

APPENDIX A  
GRAPHS OF OIL/WATER EXTRACTED TO DATE

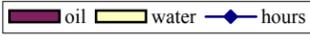
# BIOSLURPER UNIT 1 OIL/WATER RECOVERED VERSUS OPERATIONAL TIME



# BIOSLURPER UNIT 2 OIL/WATER RECOVERED VERSUS OPERATIONAL TIME

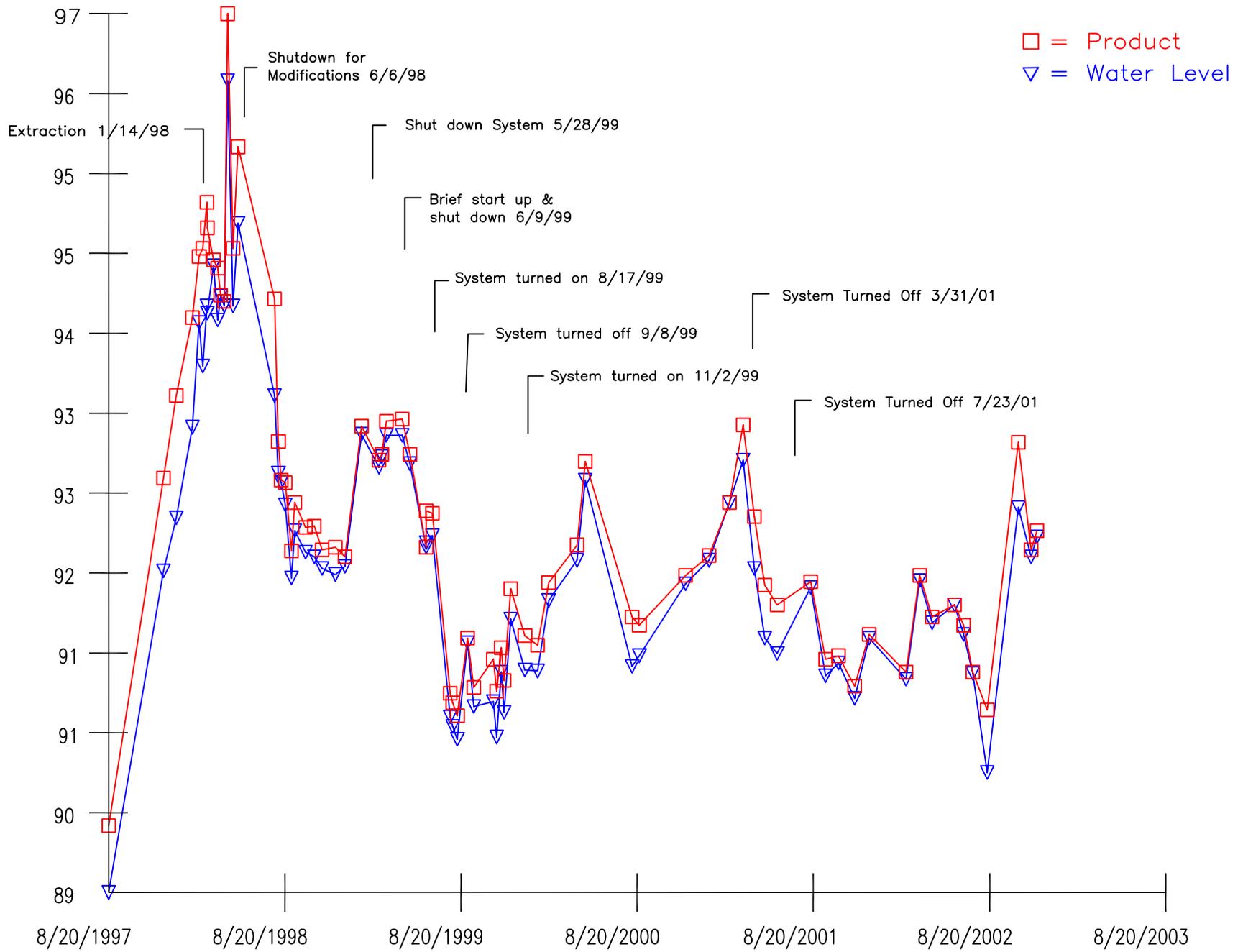


1998/2002

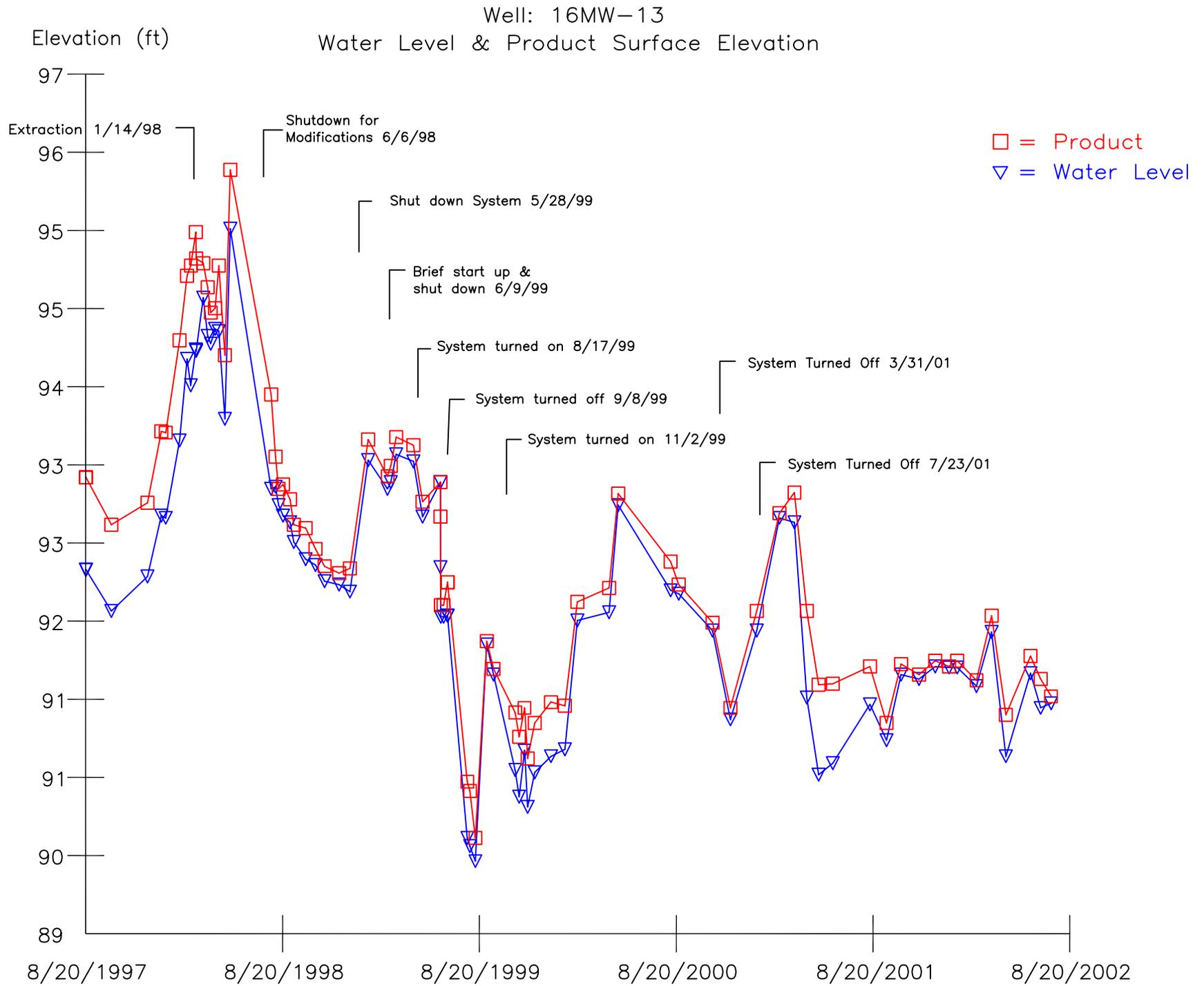


APPENDIX B  
GRAPHS OF WATER LEVELS AND PRODUCT THICKNESS  
DATA FROM EXTRACTION WELLS

Well: 16MW-04  
Water Level & Product Surface Elevation

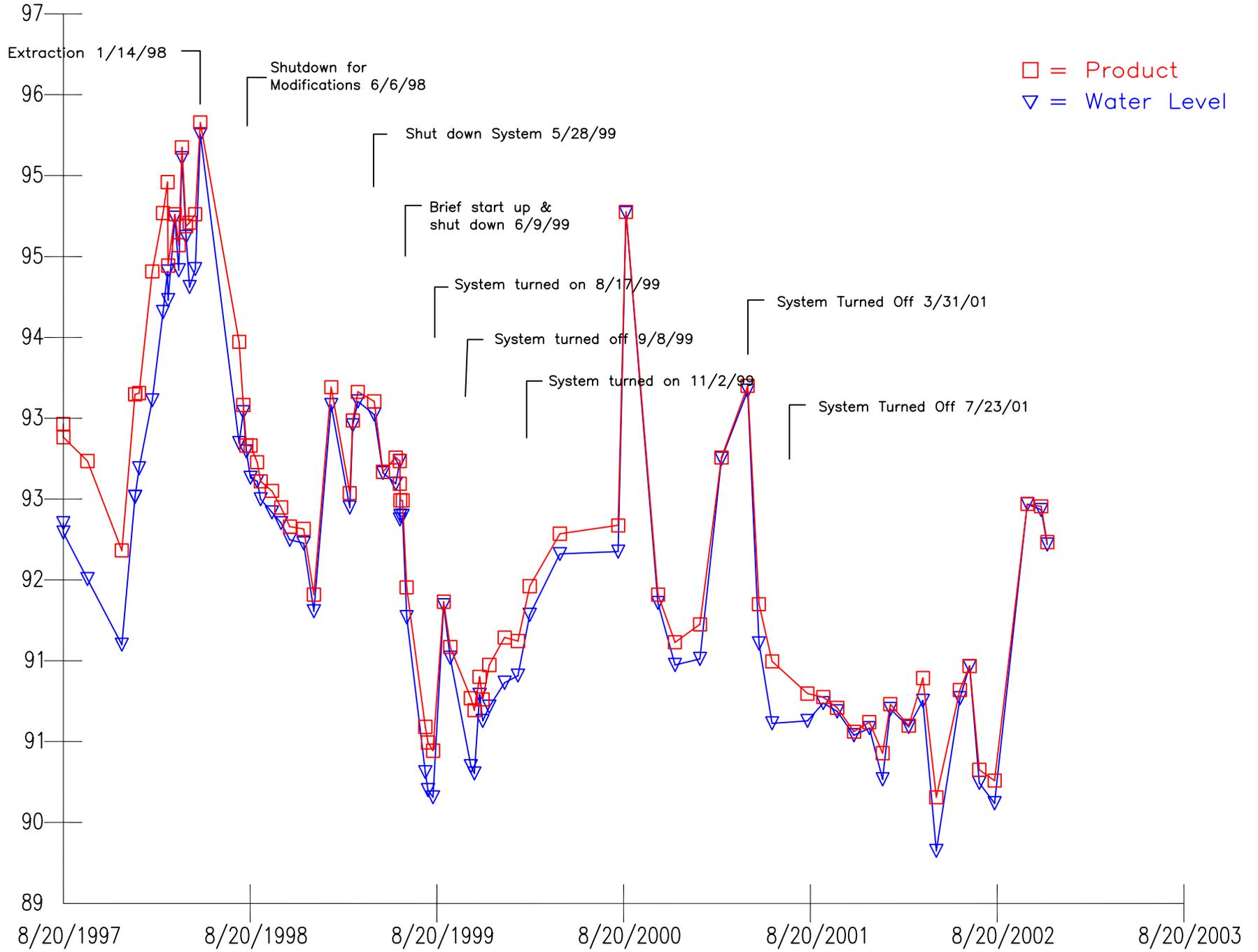


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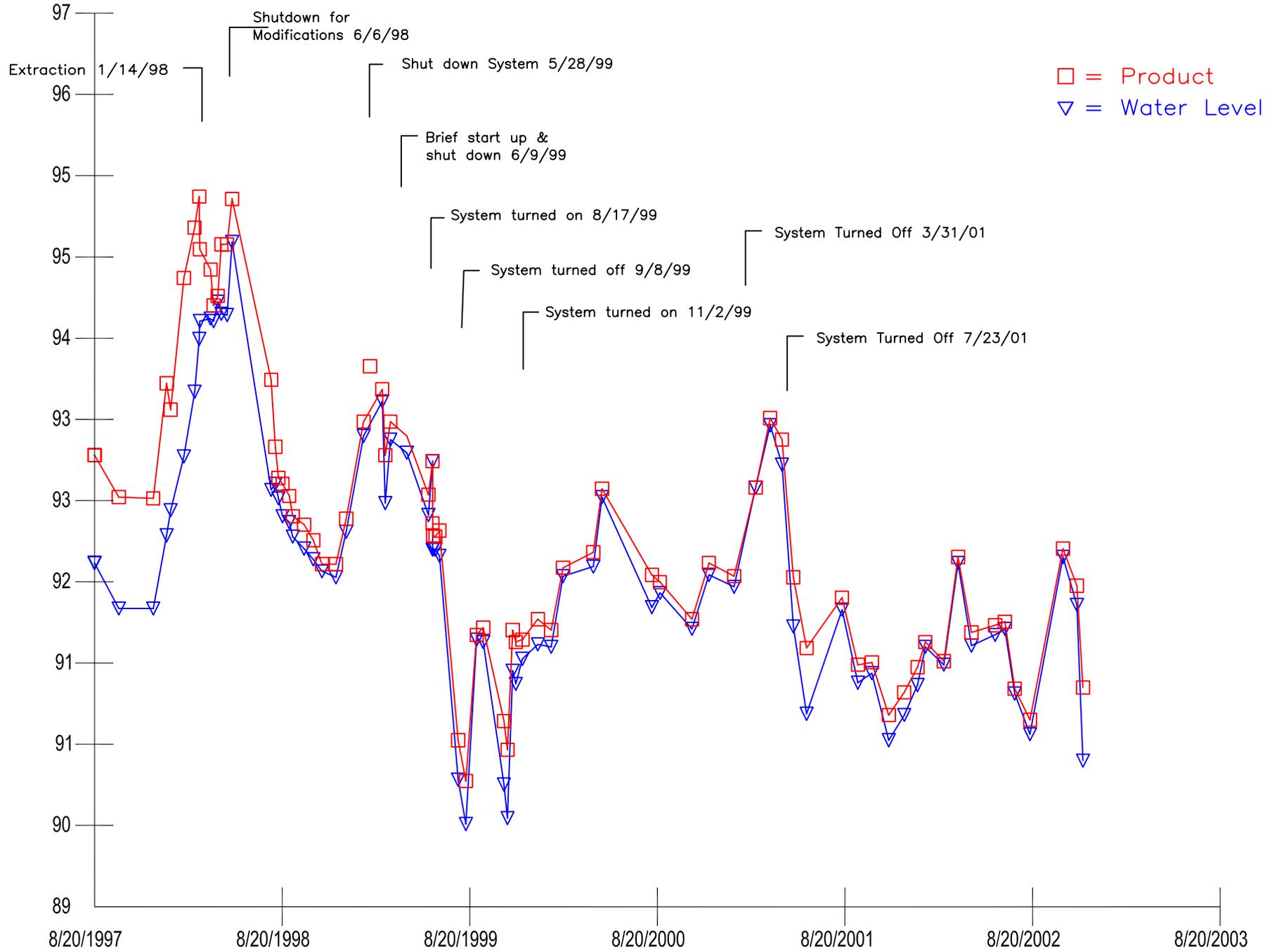
Elevation (ft)

# Well: 16MW-14 Water Level & Product Surface Elevation



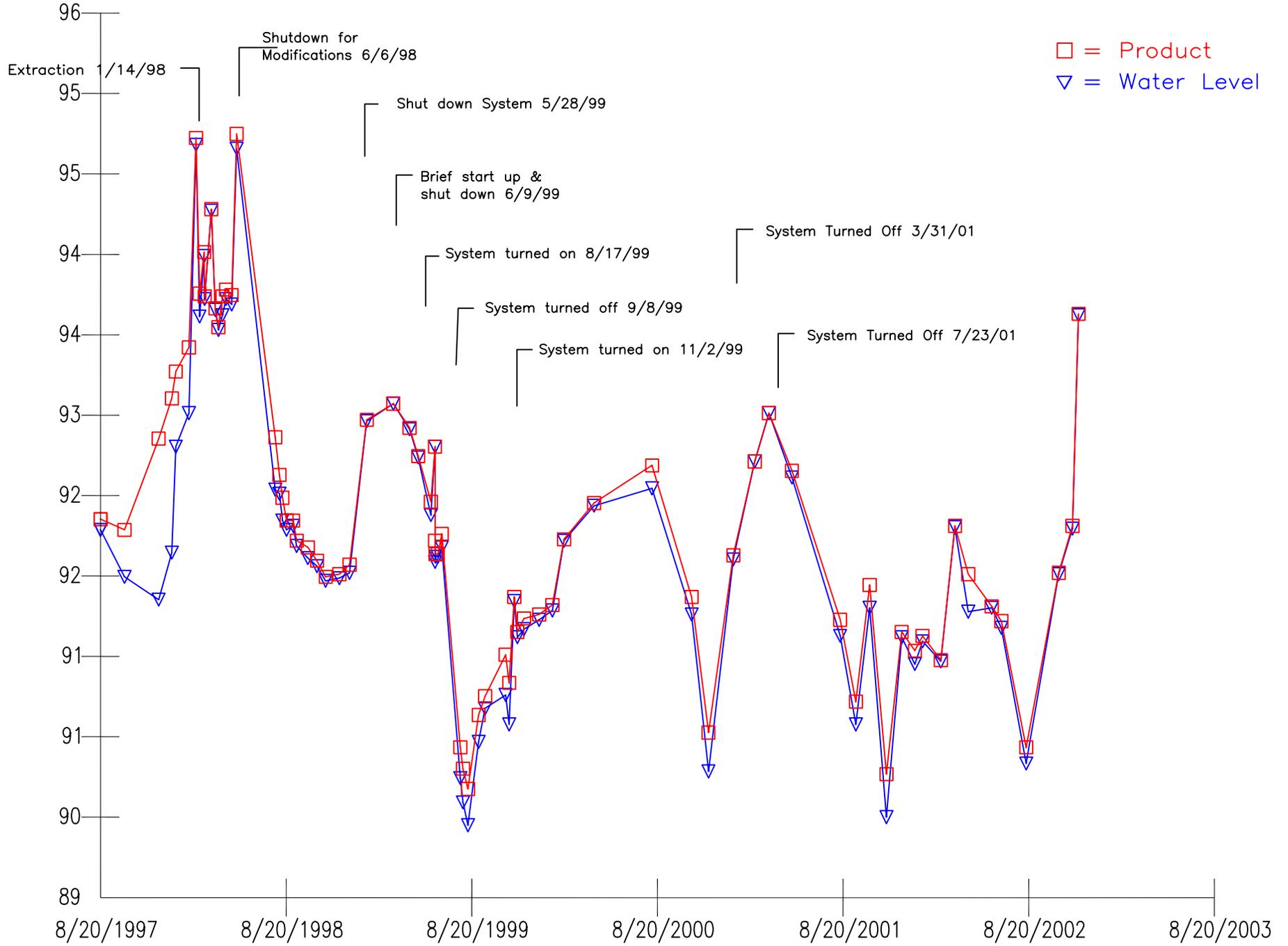
Elevation (ft)

# Well: 16MW-15 Water Level & Product Surface Elevation



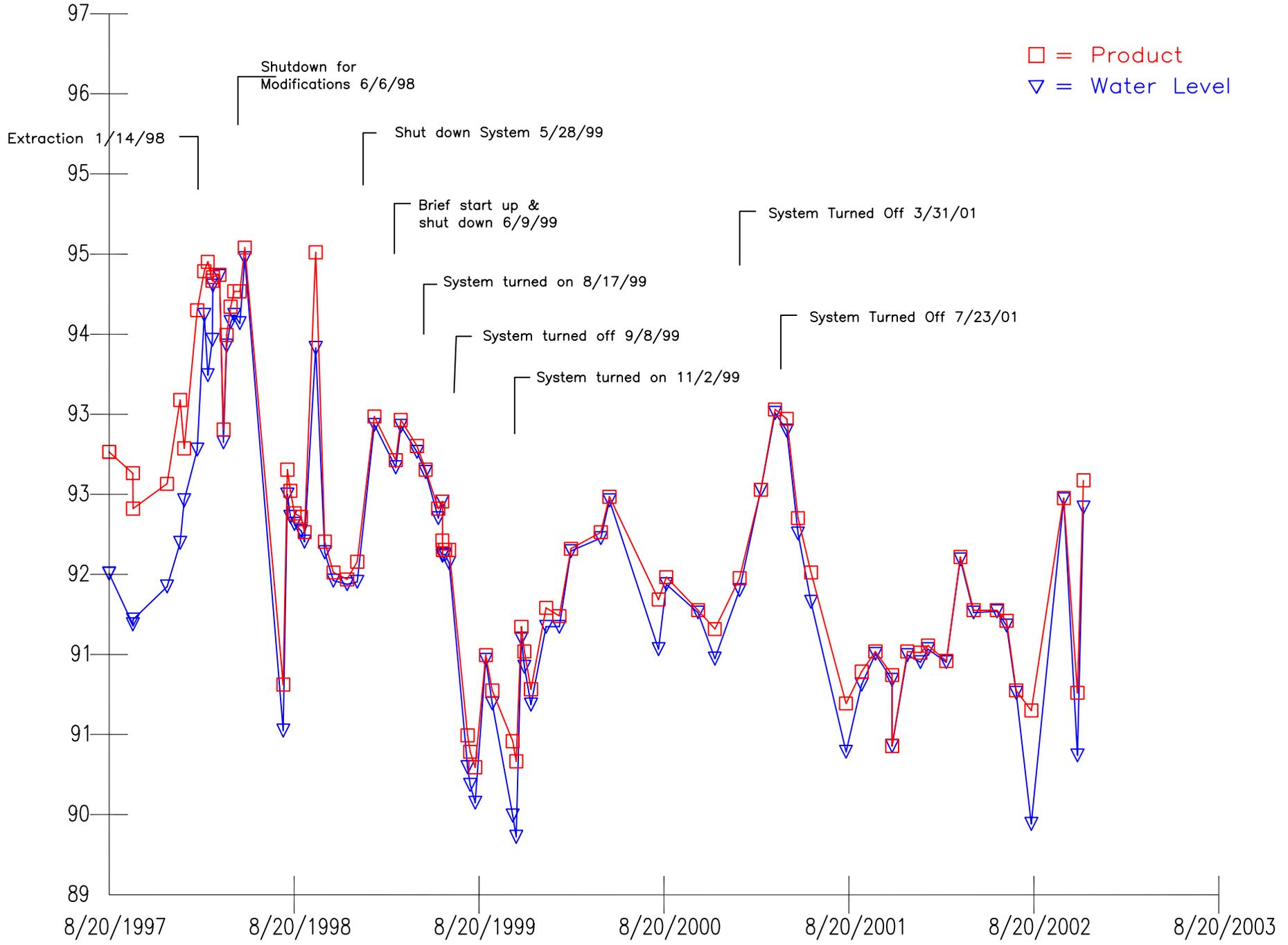
Elevation (ft)

# Well: 16MW-16 Water Level & Product Surface Elevation



Elevation (ft)

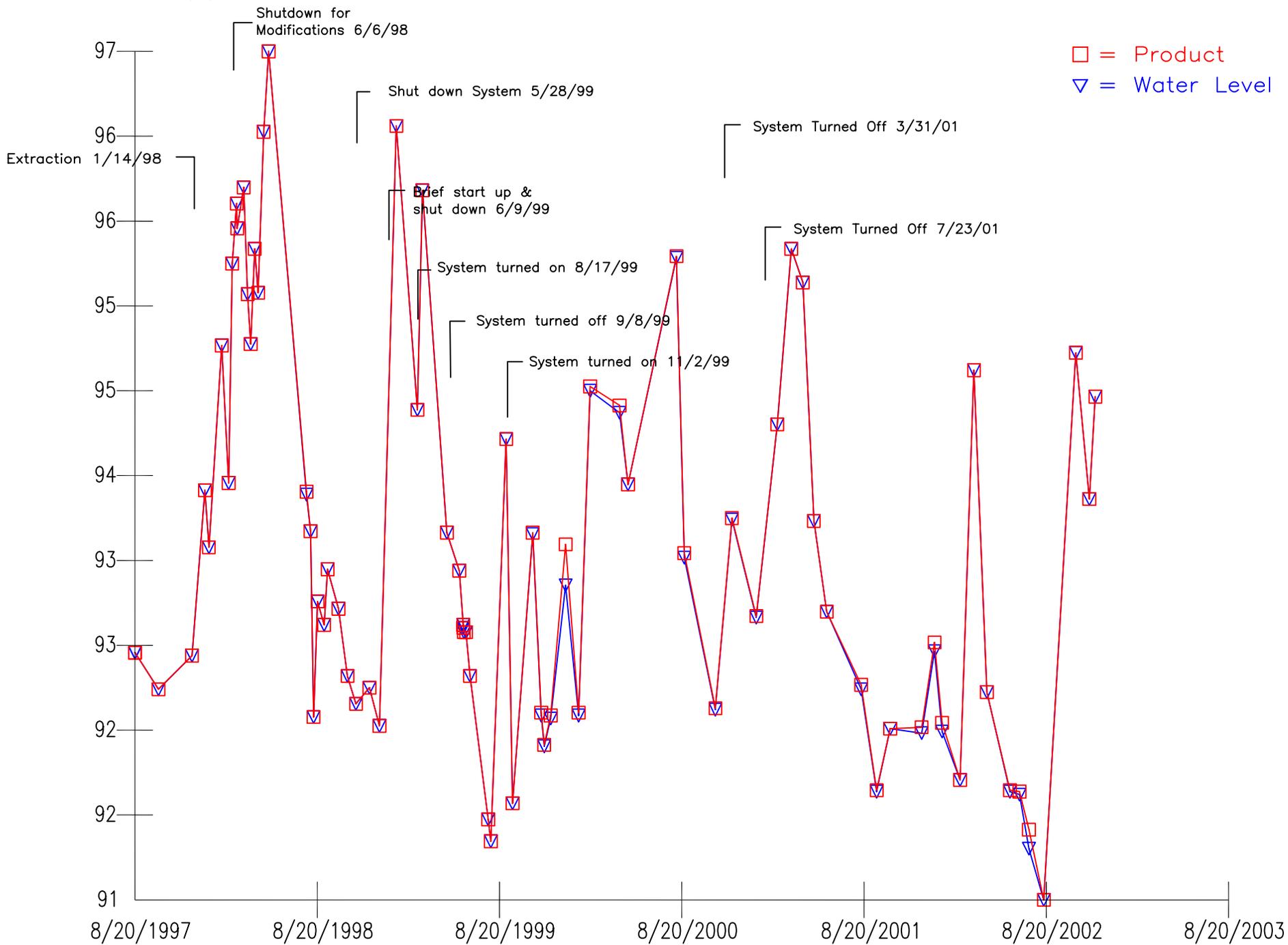
# Well: 16MW-17 Water Level & Product Surface Elevation



Well: 16MW-18  
Water Level & Product Surface Elevation

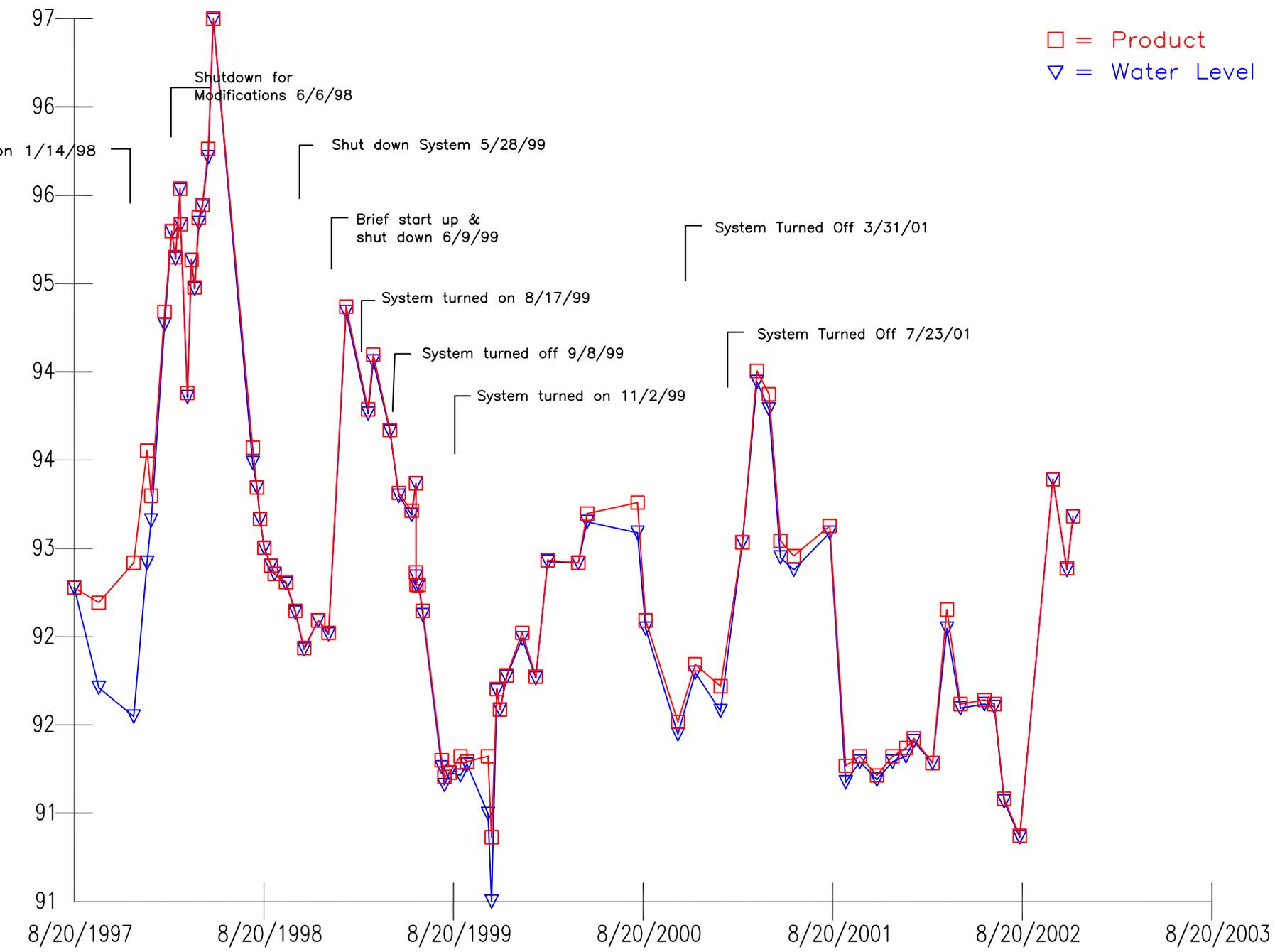
Elevation (ft)

□ = Product  
▽ = Water Level

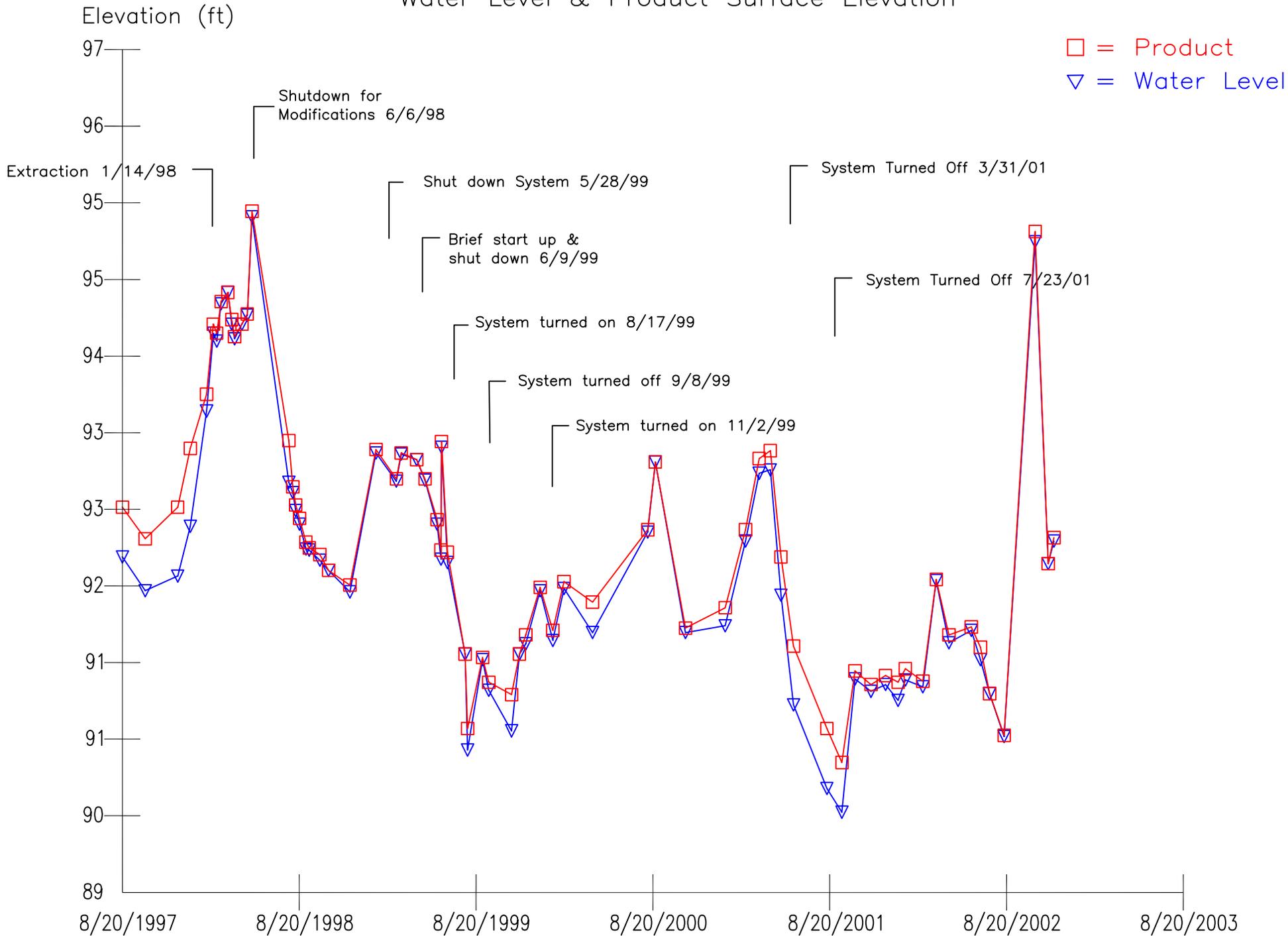


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# Well: 16MW-19 Water Level & Product Surface Elevation

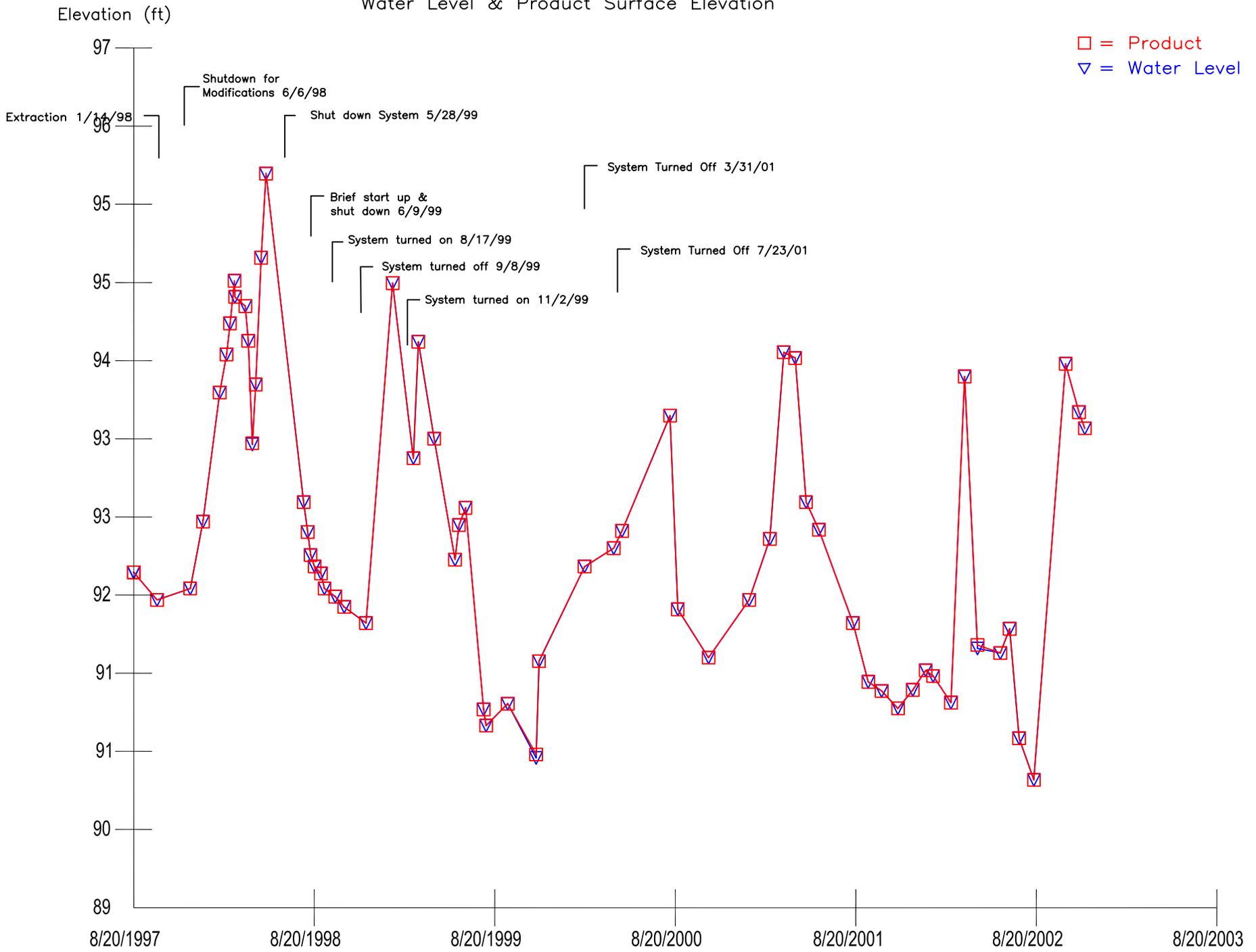


# Well: 16MW-20 Water Level & Product Surface Elevation



Well: 16MW-21  
Water Level & Product Surface Elevation

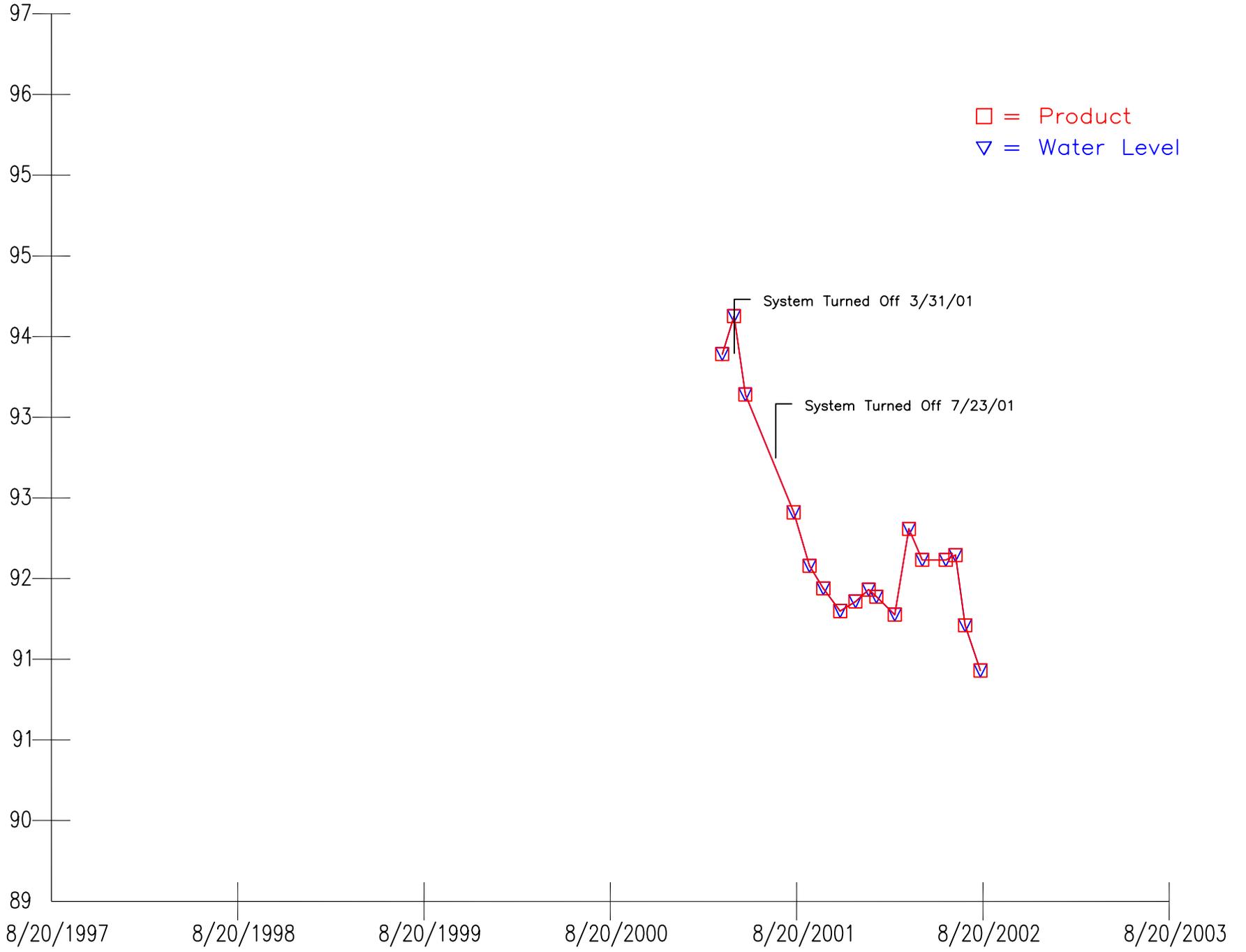
□ = Product  
▽ = Water Level



Elevation (ft)

# Well: 16MW-24 Water Level & Product Surface Elevation

□ = Product  
▽ = Water Level

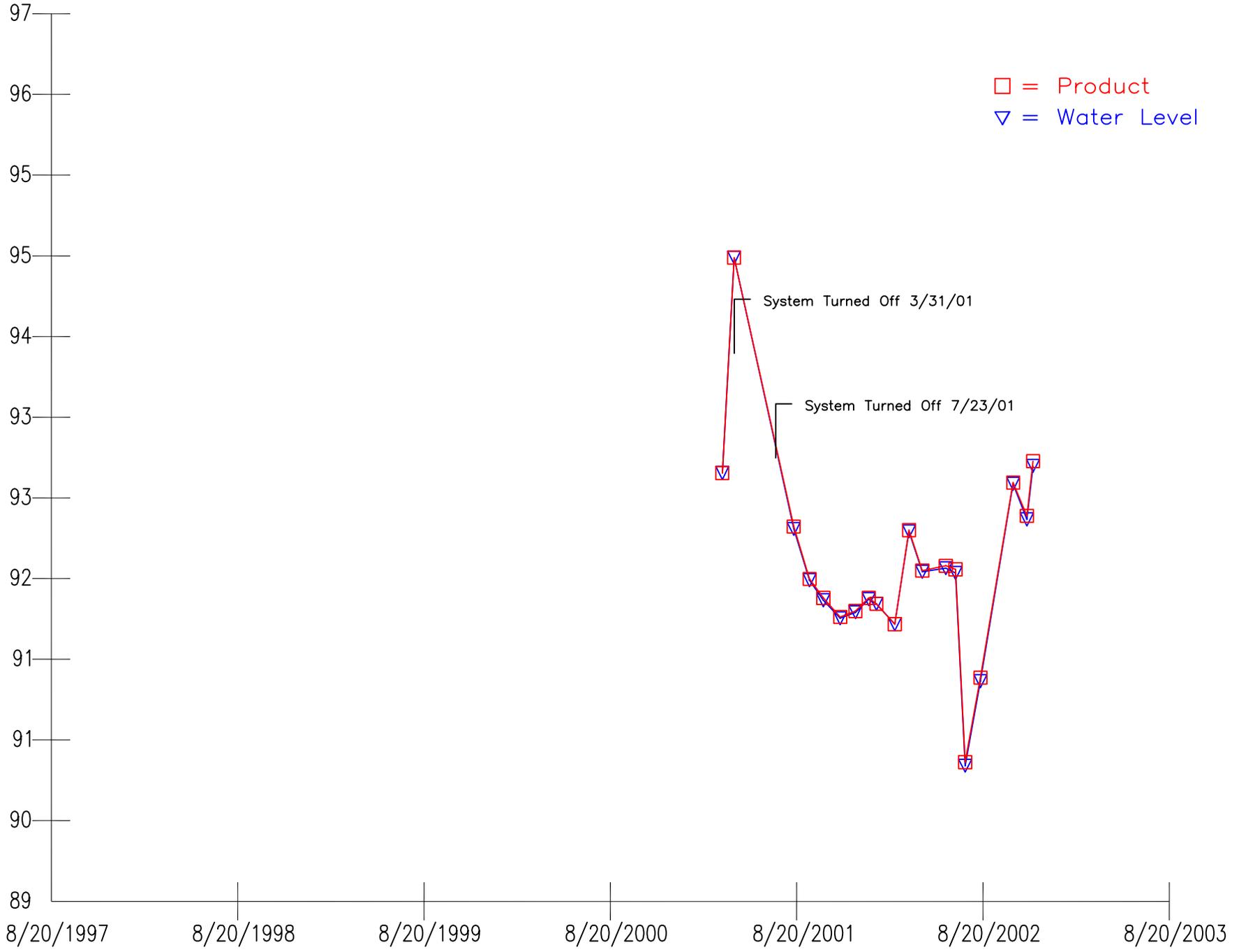


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Elevation (ft)

# Well: 16MW-25 Water Level & Product Surface Elevation

□ = Product  
▽ = Water Level

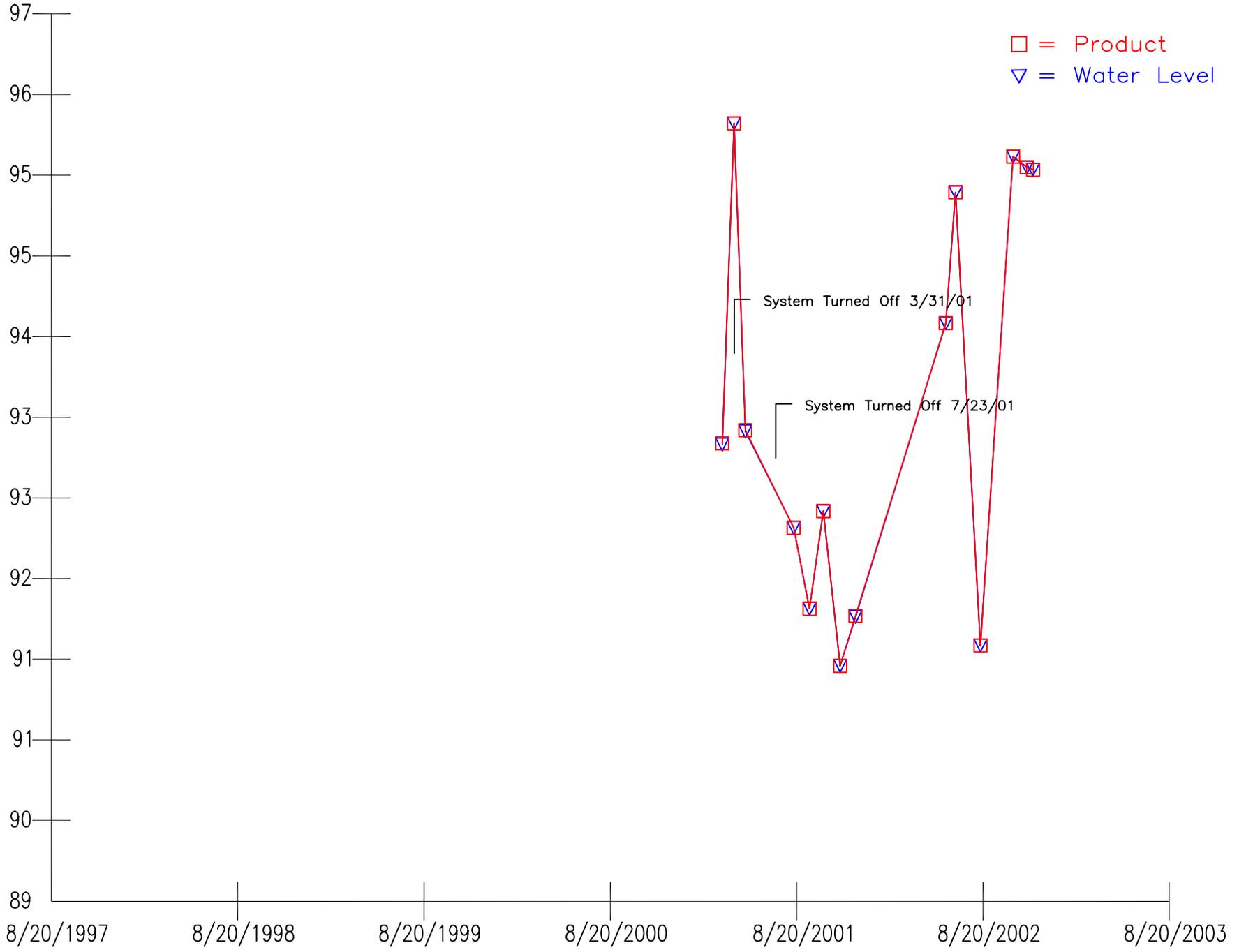


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Elevation (ft)

Well: 16MW-26  
Water Level & Product Surface Elevation

□ = Product  
▽ = Water Level

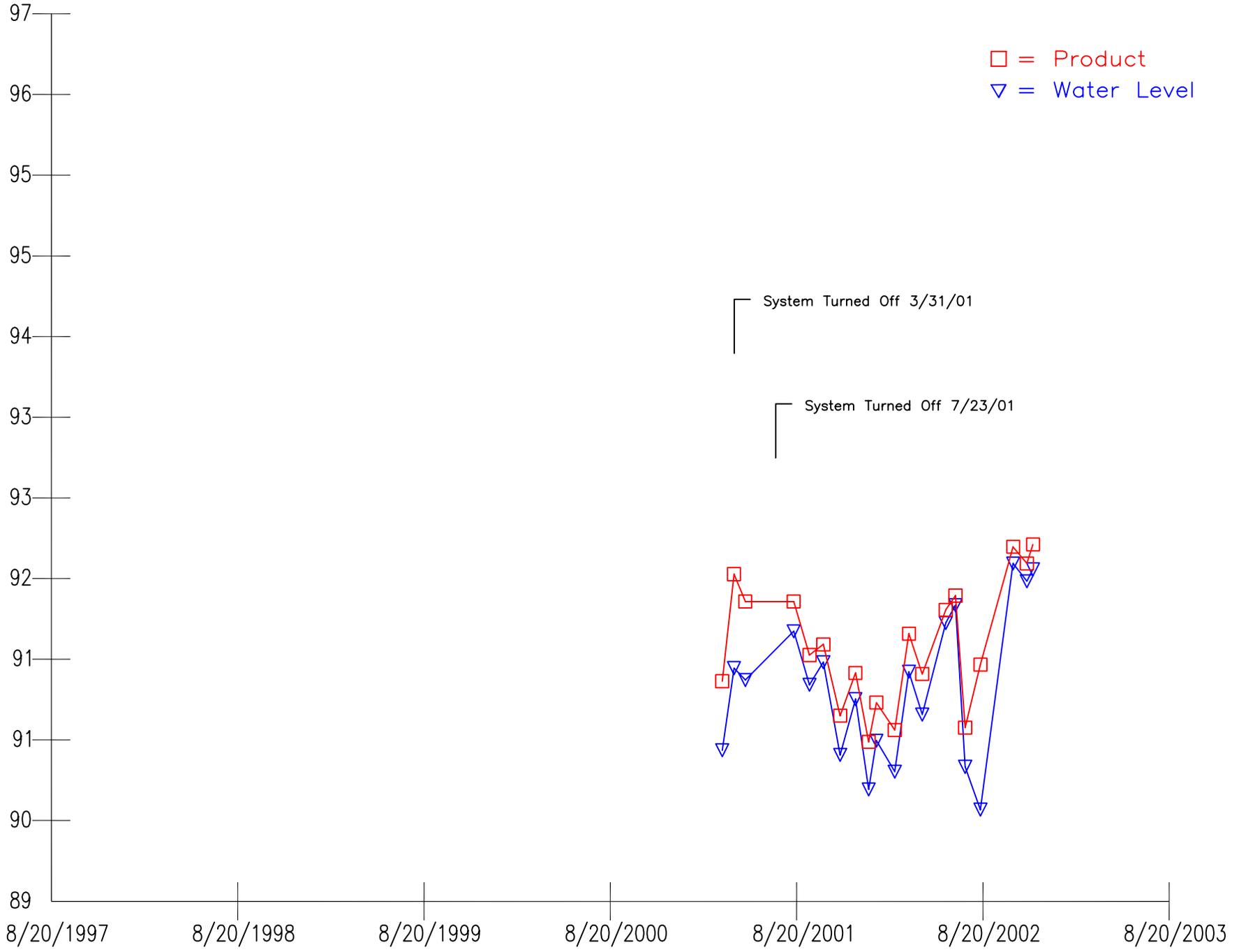


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Elevation (ft)

# Well: 16MW-27 Water Level & Product Surface Elevation

□ = Product  
▽ = Water Level

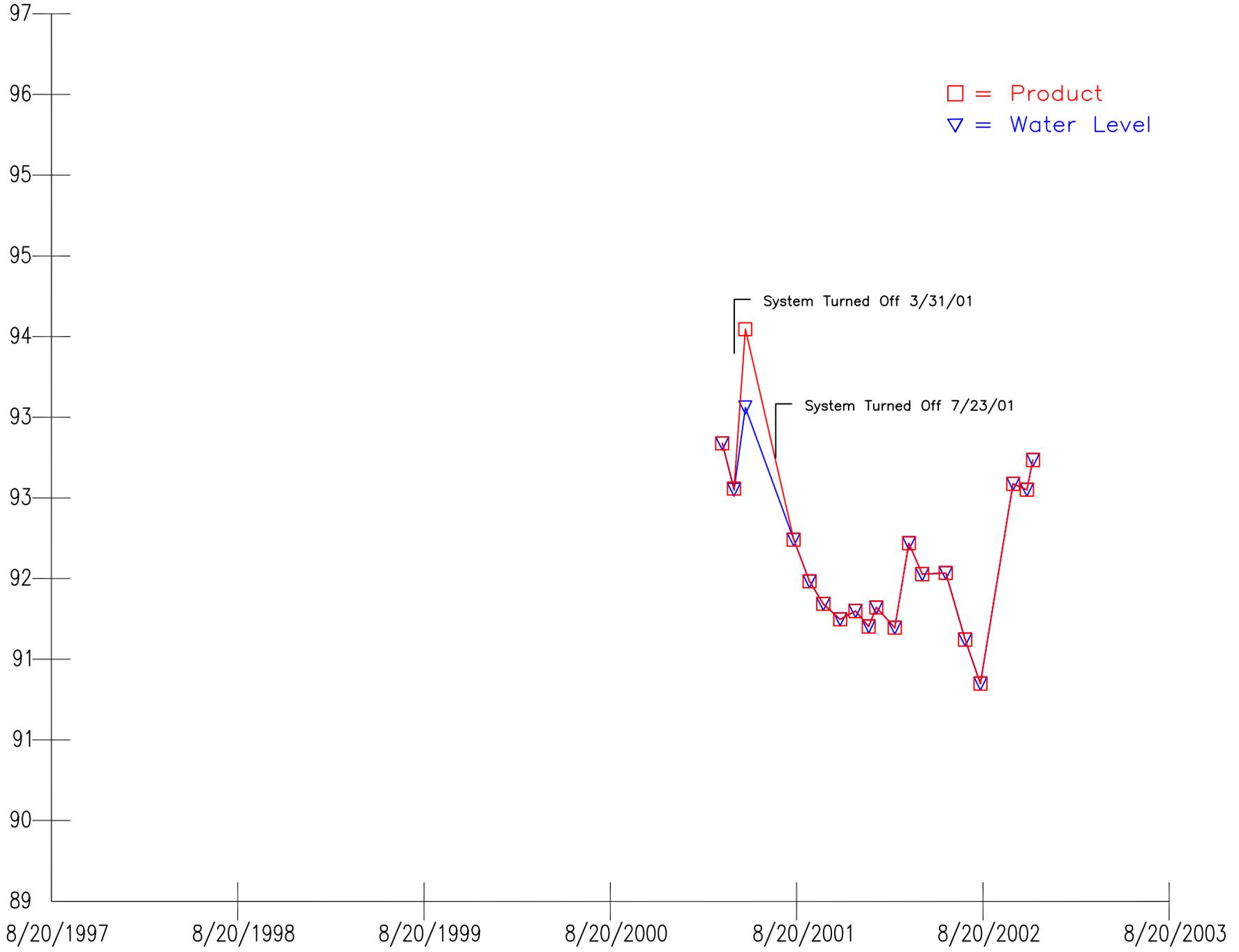


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Elevation (ft)

# Well: 16MW-28 Water Level & Product Surface Elevation

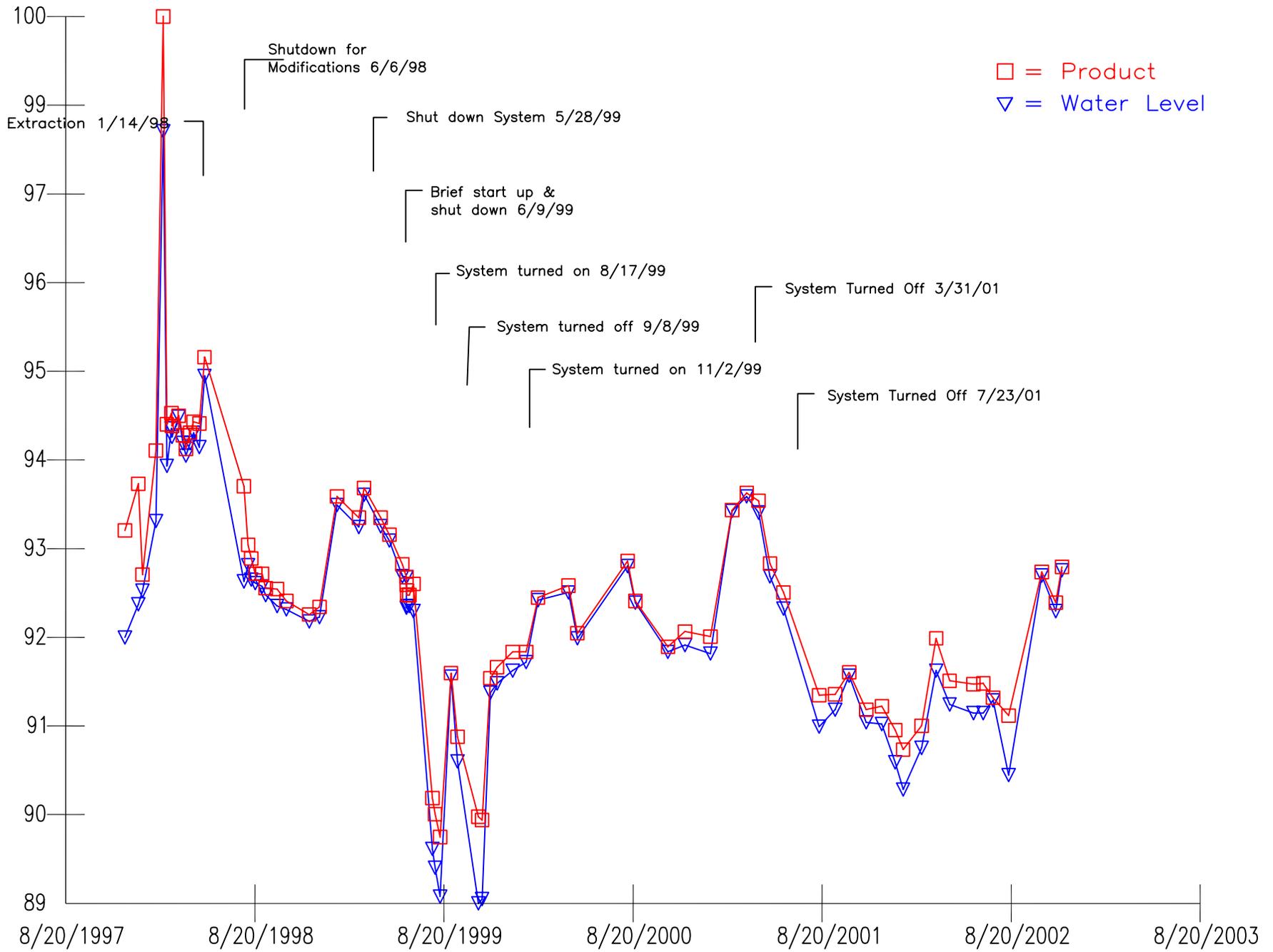
□ = Product  
▽ = Water Level



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Elevation (ft)

# Well: C17MW-07 Water Level & Product Surface Elevation



PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-04	8/20/1997	101.23	11:34	11.93	0.58	89.31	NA	89.80
16MW-04	12/12/1997	101.23	00:00	9.19	0.79	92.04	2.74	92.71
16MW-04	1/7/1998	101.23	11:02	8.74	1.04	92.49	0.45	93.38
16MW-04	2/10/1998	101.23	00:00	7.98	0.94	93.26	0.76	94.05
16MW-04	2/24/1998	101.23	00:00	7.09	0.57	94.15	0.89	94.63
16MW-04	3/3/1998	101.23	00:00	7.45	1.00	93.78	-0.37	94.63
16MW-04	3/12/1998	101.23	00:00	6.95	0.89	94.29	0.51	95.04
16MW-04	3/13/1998	101.23	00:00	7.00	0.72	94.23	-0.05	94.84
16MW-04	3/26/1998	101.23	00:00	6.60	0.05	94.63	0.40	94.67
16MW-04	4/3/1998	101.23	00:00	7.07	0.45	94.17	-0.46	94.54
16MW-04	4/9/1998	101.23	00:00	6.86	0.01	94.37	0.20	94.38
16MW-04	4/17/1998	101.23	00:00	6.94	0.04	94.29	-0.08	94.32
16MW-04	4/24/1998	101.23	00:00	5.03	0.58	96.20	1.91	96.69
16MW-04	5/5/1998	101.23	00:00	6.94	0.49	94.29	-1.90	94.78
16MW-04	5/15/1998	101.23	00:00	6.24	0.65	94.99	0.69	95.54
16MW-04	7/30/1998	101.23	00:00	7.70	0.82	93.53	-1.46	94.23
16MW-04	8/7/1998	101.23	00:00	8.36	0.27	92.87	-0.66	93.10
16MW-04	8/13/1998	101.23	00:00	8.44	0.02	92.79	-0.08	92.81
16MW-04	8/21/1998	101.23	00:00	8.63	0.19	92.60	-0.19	92.76
16MW-04	9/3/1998	101.23	00:00	9.25	0.23	91.98	-0.62	92.18
16MW-04	9/10/1998	101.23	00:00	8.85	0.24	92.38	0.40	92.58
16MW-04	10/2/1998	101.23	00:00	9.03	0.21	92.20	-0.18	92.38
16MW-04	10/20/1998	101.23	00:00	9.07	0.26	92.16	-0.04	92.38
16MW-04	11/6/1998	101.23	00:00	9.17	0.16	92.06	-0.10	92.19
16MW-04	12/3/1998	101.23	00:00	9.23	0.24	92.01	-0.05	92.21
16MW-04	12/23/1998	101.23	00:00	9.15	0.08	92.08	0.07	92.15
16MW-04	1/26/1999	101.23	00:00	8.04	0.08	93.20	1.12	93.26
16MW-04	3/3/1999	101.23	00:00	8.31	0.06	92.92	-0.28	92.97
16MW-04	3/9/1999	101.23	00:00	8.22	0.02	93.01	0.09	93.03
16MW-04	3/19/1999	101.23	00:00	8.04	0.12	93.19	0.18	93.29
16MW-04	4/20/1999	101.23	00:00	8.04	0.14	93.19	0.00	93.31
16MW-04	5/7/1999	101.23	00:00	8.28	0.08	92.95	-0.24	93.02
16MW-04	6/9/1999	101.23	00:00	8.99	0.00	92.24	-0.71	92.24
16MW-04	6/9/1999	101.23	00:01	8.95	0.27	92.28	0.04	92.51
16MW-04	6/22/1999	101.23	08:55	8.89	0.19	92.34	0.06	92.50
16MW-04	7/29/1999	101.23	00:00	10.43	0.20	90.80	-1.54	90.97
16MW-04	8/3/1999	101.23	00:00	10.51	0.20	90.72	-0.08	90.89
16MW-04	8/13/1999	101.23	00:00	10.62	0.20	90.61	-0.11	90.78
16MW-04	9/3/1999	101.23	00:00	9.80	0.04	91.43	0.82	91.46

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-04	9/15/1999	101.23	13:35	10.34	0.16	90.89	-0.54	91.03
16MW-04	10/26/1999	101.23	00:00	10.30	0.36	90.93	0.04	91.23
16MW-04	11/2/1999	101.23	00:00	10.60	0.39	90.63	-0.30	90.96
16MW-04	11/12/1999	101.23	00:00	10.05	0.21	91.18	0.55	91.36
16MW-04	11/18/1999	101.23	00:00	10.39	0.27	90.84	-0.34	91.07
16MW-04	12/1/1999	101.23	00:00	9.60	0.26	91.63	0.79	91.85
16MW-04	12/31/1999	101.23	00:00	10.03	0.29	91.20	-0.43	91.45
16MW-04	1/26/2000	101.23	00:00	10.04	0.22	91.19	-0.01	91.38
16MW-04	2/18/2000	101.23	00:00	9.44	0.15	91.79	0.60	91.92
16MW-04	4/17/2000	101.23	00:00	9.10	0.13	92.13	0.34	92.24
16MW-04	5/4/2000	101.23	00:00	8.42	0.16	92.81	0.68	92.95
16MW-04	8/9/2000	101.23	00:00	10.00	0.42	91.23	-1.58	91.59
16MW-04	8/24/2000	101.23	00:00	9.91	0.26	91.32	0.09	91.54
16MW-04	11/28/2000	101.23	00:00	9.30	0.07	91.93	0.61	91.99
16MW-04	1/16/2001	101.23	00:00	9.10	0.04	92.13	0.20	92.16
16MW-04	2/27/2001	101.23	00:00	8.61	0.00	92.62	0.49	92.62
16MW-04	3/27/2001	101.23	00:00	8.25	0.30	92.98	0.36	93.24
16MW-04	4/19/2001	101.23	00:00	9.17	0.44	92.06	-0.92	92.44
16MW-04	5/11/2001	101.23	00:00	9.76	0.45	91.47	-0.59	91.86
16MW-04	6/6/2001	101.23	00:00	9.89	0.41	91.34	-0.13	91.69
16MW-04	8/14/2001	101.23	00:00	9.33	0.05	91.90	0.56	91.94
16MW-04	9/14/2001	101.23	00:00	10.08	0.14	91.15	-0.75	91.27
16MW-04	10/11/2001	101.23	00:00	9.97	0.06	91.26	0.11	91.31
16MW-04	11/13/2001	101.23	00:00	10.27	0.10	90.96	-0.30	91.05
16MW-04	12/13/2001	101.23	00:00	9.76	0.03	91.47	0.51	91.49
16MW-04	2/28/2002	101.23	00:00	10.11	0.06	91.12	-0.35	91.17
16MW-04	3/28/2002	101.23	00:00	9.27	0.04	91.96	0.84	91.99
16MW-04	4/23/2002	101.23	00:00	9.63	0.05	91.60	-0.36	91.64
16MW-04	6/8/2002	101.23	00:00	9.48	0.00	91.75	0.15	91.75
16MW-04	6/27/2002	101.23	00:00	9.73	0.08	91.50	-0.25	91.56
16MW-04	7/16/2002	101.23	00:00	10.06	0.01	91.17	-0.33	91.17
16MW-04	8/15/2002	101.23	00:00	10.90	0.53	90.33	-0.84	90.78
16MW-04	10/18/2002	101.23	00:00	8.65	0.55	92.58	2.25	93.05
16MW-04	11/14/2002	101.23	00:00	9.07	0.06	92.16	-0.42	92.21
16MW-04	11/26/2002	101.23	00:00	8.90	0.05	92.33	0.17	92.37
16MW-13	8/20/1997	100.97	00:00	8.50	0.80	92.47	NA	93.15
16MW-13	8/20/1997	100.97	08:45	8.50	0.80	92.47	0.00	93.15
16MW-13	10/6/1997	100.97	10:45	8.86	0.75	92.11	-0.36	92.75

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-13	12/12/1997	100.97	08:30	8.57	0.65	92.41	0.29	92.96
16MW-13	1/7/1998	100.97	09:35	8.03	0.73	92.94	0.54	93.56
16MW-13	1/15/1998	100.97	07:30	8.06	0.75	92.92	-0.03	93.55
16MW-13	2/10/1998	100.97	00:00	7.39	0.88	93.59	0.67	94.33
16MW-13	2/24/1998	100.97	00:00	6.67	0.72	94.30	0.72	94.91
16MW-13	3/3/1998	100.97	00:00	6.90	1.04	94.07	-0.23	94.96
16MW-13	3/12/1998	100.97	00:00	6.60	1.03	94.38	0.31	95.25
16MW-13	3/13/1998	100.97	00:00	6.61	0.81	94.37	-0.01	95.05
16MW-13	3/26/1998	100.97	00:00	6.14	0.30	94.83	0.46	95.09
16MW-13	4/3/1998	100.97	00:00	6.47	0.42	94.50	-0.33	94.86
16MW-13	4/9/1998	100.97	00:00	6.54	0.27	94.43	-0.07	94.66
16MW-13	4/17/1998	100.97	00:00	6.41	0.18	94.56	0.13	94.71
16MW-13	4/24/1998	100.97	00:00	6.44	0.58	94.54	-0.03	95.03
16MW-13	5/5/1998	100.97	00:00	7.19	0.55	93.78	-0.76	94.33
16MW-13	5/15/1998	100.97	00:00	5.55	0.52	95.43	1.65	95.94
16MW-13	7/30/1998	100.97	00:00	7.80	0.82	93.17	-2.25	93.87
16MW-13	8/7/1998	100.97	00:00	7.78	0.26	93.19	0.02	93.41
16MW-13	8/13/1998	100.97	00:00	7.94	0.14	93.03	-0.16	93.15
16MW-13	8/21/1998	100.97	00:00	8.03	0.27	92.94	-0.09	93.17
16MW-13	9/3/1998	100.97	00:00	8.09	0.20	92.88	-0.06	93.05
16MW-13	9/10/1998	100.97	00:00	8.26	0.15	92.71	-0.17	92.84
16MW-13	10/2/1998	100.97	00:00	8.41	0.27	92.56	-0.15	92.79
16MW-13	10/20/1998	100.97	00:00	8.46	0.14	92.51	-0.05	92.63
16MW-13	11/6/1998	100.97	00:00	8.61	0.14	92.37	-0.15	92.48
16MW-13	12/3/1998	100.97	00:00	8.64	0.11	92.34	-0.03	92.42
16MW-13	12/23/1998	100.97	00:00	8.69	0.20	92.28	-0.06	92.45
16MW-13	1/26/1999	100.97	00:00	7.55	0.18	93.42	1.14	93.57
16MW-13	3/3/1999	100.97	00:00	7.80	0.11	93.17	-0.25	93.26
16MW-13	3/9/1999	100.97	00:00	7.74	0.14	93.23	0.06	93.35
16MW-13	3/19/1999	100.97	00:00	7.51	0.16	93.47	0.24	93.60
16MW-13	4/20/1999	100.97	00:00	7.57	0.15	93.41	-0.06	93.53
16MW-13	5/7/1999	100.97	00:00	8.05	0.14	92.93	-0.48	93.04
16MW-13	6/9/1999	100.97	00:00	7.75	0.01	93.23	0.30	93.23
16MW-13	6/9/1999	100.97	00:01	8.48	0.44	92.49	-0.74	92.87
16MW-13	6/10/1999	100.97	00:00	8.91	0.10	92.06	-0.43	92.14
16MW-13	6/14/1999	100.97	13:05	8.91	0.10	92.06	0.00	92.14
16MW-13	6/22/1999	100.97	08:55	8.90	0.29	92.07	0.01	92.32
16MW-13	6/22/1999	100.97	09:45	8.90	0.29	92.07	0.00	92.32
16MW-13	7/29/1999	100.97	00:00	10.83	0.49	90.14	-1.93	90.56

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-13	8/3/1999	100.97	00:00	10.90	0.48	90.07	-0.07	90.48
16MW-13	8/13/1999	100.97	00:00	11.03	0.20	89.94	-0.13	90.11
16MW-13	9/3/1999	100.97	00:00	9.15	0.03	91.82	1.88	91.85
16MW-13	9/15/1999	100.97	13:30	9.41	0.05	91.56	-0.26	91.60
16MW-13	10/26/1999	100.97	00:00	10.24	0.50	90.73	-0.83	91.15
16MW-13	11/2/1999	100.97	00:00	10.47	0.52	90.50	-0.23	90.94
16MW-13	11/12/1999	100.97	00:00	10.07	0.37	90.90	0.40	91.21
16MW-13	11/18/1999	100.97	00:00	10.56	0.42	90.41	-0.49	90.76
16MW-13	12/1/1999	100.97	00:00	10.26	0.43	90.71	0.30	91.07
16MW-13	12/31/1999	100.97	00:00	10.12	0.47	90.85	0.14	91.25
16MW-13	1/26/2000	100.97	00:00	10.06	0.38	90.91	0.06	91.24
16MW-13	2/18/2000	100.97	00:00	8.94	0.16	92.03	1.12	92.17
16MW-13	4/17/2000	100.97	00:00	8.87	0.21	92.10	0.07	92.28
16MW-13	5/4/2000	100.97	00:00	7.94	0.10	93.03	0.93	93.12
16MW-13	8/9/2000	100.97	00:00	8.68	0.25	92.29	-0.74	92.50
16MW-13	8/24/2000	100.97	00:00	8.71	0.08	92.26	-0.03	92.33
16MW-13	10/26/2000	100.97	00:00	9.03	0.07	91.94	-0.32	92.00
16MW-13	11/28/2000	100.97	00:00	9.80	0.10	91.17	-0.77	91.26
16MW-13	1/16/2001	100.97	00:00	9.03	0.17	91.94	0.77	92.09
16MW-13	2/27/2001	100.97	00:00	8.05	0.04	92.92	0.98	92.95
16MW-13	3/27/2001	100.97	00:00	8.09	0.26	92.88	-0.04	93.10
16MW-13	4/19/2001	100.97	00:00	9.61	0.75	91.36	-1.52	92.00
16MW-13	5/11/2001	100.97	00:00	10.28	0.78	90.69	-0.67	91.36
16MW-13	6/6/2001	100.97	00:00	10.18	0.69	90.79	0.10	91.38
16MW-13	8/14/2001	100.97	00:00	9.67	0.33	91.30	0.51	91.58
16MW-13	9/14/2001	100.97	00:00	9.98	0.15	90.99	-0.31	91.12
16MW-13	10/11/2001	100.97	00:00	9.41	0.09	91.56	0.57	91.63
16MW-13	11/13/2001	100.97	00:00	9.45	0.04	91.52	-0.04	91.56
16MW-13	12/13/2001	100.97	00:00	9.34	0.05	91.63	0.11	91.67
16MW-13	1/8/2002	100.97	00:00	9.35	0.01	91.62	-0.01	91.63
16MW-13	1/23/2002	100.97	00:00	9.35	0.06	91.62	0.00	91.67
16MW-13	2/28/2002	100.97	00:00	9.51	0.05	91.46	-0.16	91.50
16MW-13	3/28/2002	100.97	00:00	9.04	0.14	91.93	0.47	92.05
16MW-13	4/23/2002	100.97	00:00	10.12	0.36	90.85	-1.08	91.16
16MW-13	6/8/2002	100.97	00:00	9.40	0.15	91.57	0.72	91.70
16MW-13	6/27/2002	100.97	00:00	9.70	0.25	91.27	-0.30	91.48
16MW-13	7/16/2002	100.97	00:00	9.66	0.06	91.31	0.04	91.36
16MW-13	8/15/2002	100.97	00:00	9.98	0.19	90.99	-0.32	91.15
16MW-13	10/18/2002	100.97	00:00	9.00	0.21	91.97	0.98	92.15

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-13	11/14/2002	100.97	00:00	9.40	0.05	91.57	-0.40	91.61
16MW-13	11/26/2002	100.97	00:00	9.90	0.52	91.07	-0.50	91.52
16MW-14	8/20/1997	100.66	00:00	8.16	0.83	92.50	NA	93.21
16MW-14	8/20/1997	100.66	08:48	8.24	0.80	92.42	-0.08	93.10
16MW-14	10/6/1997	100.66	10:45	8.63	0.99	92.03	-0.39	92.87
16MW-14	12/12/1997	100.66	08:30	9.18	0.79	91.48	-0.55	92.15
16MW-14	1/7/1998	100.66	09:49	7.94	0.86	92.72	1.24	93.45
16MW-14	1/7/1998	100.66	09:56	7.94	0.86	92.72	0.00	93.45
16MW-14	1/15/1998	100.66	07:30	7.71	0.64	92.96	0.24	93.50
16MW-14	2/10/1998	100.66	00:00	7.13	1.08	93.53	0.58	94.45
16MW-14	3/3/1998	100.66	00:00	6.40	0.84	94.27	0.73	94.98
16MW-14	3/12/1998	100.66	00:00	6.05	0.75	94.61	0.35	95.25
16MW-14	3/13/1998	100.66	00:00	6.29	0.29	94.37	-0.24	94.62
16MW-14	3/26/1998	100.66	00:00	5.60	0.03	95.06	0.69	95.09
16MW-14	4/3/1998	100.66	00:00	6.04	0.21	94.62	-0.44	94.80
16MW-14	4/9/1998	100.66	00:00	5.10	0.09	95.56	0.94	95.63
16MW-14	4/17/1998	100.66	00:00	5.77	0.10	94.90	-0.66	94.98
16MW-14	4/24/1998	100.66	00:00	6.19	0.55	94.48	-0.42	94.94
16MW-14	5/5/1998	100.66	00:00	6.03	0.46	94.63	0.16	95.02
16MW-14	5/15/1998	100.66	00:00	4.90	0.10	95.76	1.13	95.85
16MW-14	7/30/1998	100.66	00:00	7.49	0.85	93.17	-2.59	93.89
16MW-14	8/7/1998	100.66	00:00	7.23	0.06	93.43	0.27	93.48
16MW-14	8/13/1998	100.66	00:00	7.56	0.05	93.10	-0.33	93.14
16MW-14	8/21/1998	100.66	00:00	7.78	0.27	92.88	-0.22	93.11
16MW-14	9/3/1998	100.66	00:00	7.81	0.16	92.85	-0.03	92.99
16MW-14	9/10/1998	100.66	00:00	7.96	0.15	92.70	-0.15	92.83
16MW-14	10/2/1998	100.66	00:00	8.07	0.18	92.59	-0.11	92.74
16MW-14	10/20/1998	100.66	00:00	8.17	0.14	92.50	-0.09	92.61
16MW-14	11/6/1998	100.66	00:00	8.31	0.12	92.36	-0.14	92.45
16MW-14	12/3/1998	100.66	00:00	8.34	0.13	92.33	-0.03	92.43
16MW-14	12/23/1998	100.66	00:00	8.90	0.14	91.76	-0.57	91.88
16MW-14	1/26/1999	100.66	00:00	7.17	0.15	93.49	1.73	93.62
16MW-14	3/3/1999	100.66	00:00	8.04	0.13	92.63	-0.87	92.73
16MW-14	3/9/1999	100.66	00:00	7.34	0.04	93.32	0.70	93.35
16MW-14	3/19/1999	100.66	00:00	7.15	0.09	93.52	0.19	93.59
16MW-14	4/20/1999	100.66	00:00	7.25	0.11	93.41	-0.11	93.50
16MW-14	5/7/1999	100.66	00:00	7.74	0.01	92.92	-0.49	92.93
16MW-14	6/1/1999	100.66	00:00	7.83	0.22	92.83	-0.09	93.01

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-14	6/9/1999	100.66	00:00	7.64	0.00	93.02	0.19	93.02
16MW-14	6/9/1999	100.66	00:01	8.13	0.30	92.53	-0.49	92.78
16MW-14	6/10/1999	100.66	00:00	8.10	0.13	92.56	0.03	92.67
16MW-14	6/14/1999	100.66	13:10	8.10	0.13	92.56	0.00	92.67
16MW-14	6/22/1999	100.66	09:00	8.95	0.25	91.71	-0.85	91.93
16MW-14	7/29/1999	100.66	00:00	10.25	0.38	90.41	-1.30	90.73
16MW-14	8/3/1999	100.66	00:00	10.40	0.40	90.26	-0.15	90.60
16MW-14	8/13/1999	100.66	00:00	10.46	0.39	90.20	-0.06	90.53
16MW-14	9/3/1999	100.66	00:00	8.85	0.03	91.81	1.61	91.84
16MW-14	9/15/1999	100.66	13:40	9.29	0.09	91.37	-0.44	91.45
16MW-14	10/26/1999	100.66	00:00	10.20	0.57	90.46	-0.91	90.95
16MW-14	11/2/1999	100.66	00:00	10.26	0.53	90.40	-0.06	90.85
16MW-14	11/12/1999	100.66	00:00	9.60	0.15	91.06	0.66	91.19
16MW-14	11/18/1999	100.66	00:00	9.82	0.18	90.84	-0.22	90.99
16MW-14	12/1/1999	100.66	00:00	9.70	0.35	90.96	0.12	91.26
16MW-14	12/31/1999	100.66	00:00	9.50	0.38	91.16	0.20	91.48
16MW-14	1/26/2000	100.66	00:00	9.44	0.29	91.22	0.06	91.46
16MW-14	2/18/2000	100.66	00:00	8.93	0.24	91.73	0.51	91.94
16MW-14	4/17/2000	100.66	00:00	8.42	0.17	92.24	0.51	92.38
16MW-14	5/4/2000	100.66	00:00	NM	NA	NA	NA	NA
16MW-14	8/9/2000	100.66	00:00	8.40	0.22	92.26	-8.40	92.45
16MW-14	8/24/2000	100.66	00:00	5.56	0.01	95.10	2.84	95.11
16MW-14	10/26/2000	100.66	00:00	8.83	0.07	91.83	-3.27	91.89
16MW-14	11/28/2000	100.66	00:00	9.35	0.19	91.31	-0.52	91.47
16MW-14	1/16/2001	100.66	00:00	9.30	0.29	91.36	0.05	91.61
16MW-14	2/27/2001	100.66	00:00	7.62	0.01	93.04	1.68	93.04
16MW-14	4/19/2001	100.66	00:00	7.05	0.04	93.61	0.57	93.64
16MW-14	5/11/2001	100.66	00:00	9.17	0.33	91.49	-2.12	91.77
16MW-14	6/6/2001	100.66	00:00	9.84	0.52	90.82	-0.67	91.26
16MW-14	8/14/2001	100.66	00:00	9.82	0.23	90.84	0.02	91.04
16MW-14	9/14/2001	100.66	00:00	9.67	0.05	90.99	0.15	91.03
16MW-14	10/11/2001	100.66	00:00	9.74	0.03	90.92	-0.07	90.95
16MW-14	11/13/2001	100.66	00:00	9.94	0.03	90.72	-0.20	90.75
16MW-14	12/13/2001	100.66	00:00	9.88	0.05	90.78	0.06	90.82
16MW-14	1/8/2002	100.66	00:00	10.31	0.22	90.35	-0.43	90.53
16MW-14	1/23/2002	100.66	00:00	9.72	0.04	90.94	0.59	90.98
16MW-14	2/28/2002	100.66	00:00	9.87	0.01	90.79	-0.15	90.80
16MW-14	3/28/2002	100.66	00:00	9.65	0.19	91.01	0.22	91.17
16MW-14	4/23/2002	100.66	00:00	10.91	0.45	89.75	-1.26	90.13

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-14	6/8/2002	100.66	00:00	9.63	0.07	91.03	1.28	91.09
16MW-14	6/27/2002	100.66	00:00	9.36	0.00	91.30	0.27	91.30
16MW-14	7/16/2002	100.66	00:00	10.34	0.11	90.32	-0.98	90.41
16MW-14	8/15/2002	100.66	00:00	10.51	0.19	90.15	-0.17	90.31
16MW-14	10/18/2002	100.66	00:00	8.00	0.00	92.66	2.51	92.66
16MW-14	11/14/2002	100.66	00:00	8.05	0.03	92.61	-0.05	92.63
16MW-14	11/26/2002	100.66	00:00	8.34	0.02	92.32	-0.29	92.34
16MW-15	8/20/1997	100.98	00:00	8.80	0.90	92.18	NA	92.95
16MW-15	8/20/1997	100.98	08:55	8.80	0.90	92.18	0.00	92.95
16MW-15	8/20/1997	100.98	09:12	8.80	0.90	92.18	0.00	92.95
16MW-15	10/6/1997	100.98	10:45	9.18	0.93	91.80	-0.39	92.59
16MW-15	12/12/1997	100.98	08:30	9.19	0.93	91.80	0.00	92.58
16MW-15	1/7/1998	100.98	10:05	8.57	1.27	92.41	0.62	93.49
16MW-15	1/15/1998	100.98	07:30	8.36	0.84	92.62	0.21	93.34
16MW-15	2/10/1998	100.98	00:00	7.92	1.50	93.07	0.45	94.34
16MW-15	3/3/1998	100.98	00:00	7.38	1.38	93.61	0.54	94.78
16MW-15	3/12/1998	100.98	00:00	6.93	1.19	94.05	0.45	95.06
16MW-15	3/13/1998	100.98	00:00	6.79	0.61	94.20	0.15	94.71
16MW-15	4/3/1998	100.98	00:00	6.77	0.42	94.22	0.02	94.57
16MW-15	4/9/1998	100.98	00:00	6.79	0.14	94.20	-0.02	94.31
16MW-15	4/17/1998	100.98	00:00	6.63	0.06	94.36	0.16	94.40
16MW-15	4/24/1998	100.98	00:00	6.72	0.58	94.26	-0.09	94.76
16MW-15	5/5/1998	100.98	00:00	6.73	0.59	94.25	-0.01	94.84
16MW-15	5/15/1998	100.98	00:00	6.12	0.36	94.86	0.61	95.17
16MW-15	7/30/1998	100.98	00:00	8.19	0.92	92.79	-2.07	93.57
16MW-15	8/7/1998	100.98	00:00	8.14	0.31	92.84	0.06	93.10
16MW-15	8/13/1998	100.98	00:00	8.26	0.17	92.72	-0.12	92.87
16MW-15	8/21/1998	100.98	00:00	8.41	0.27	92.57	-0.15	92.80
16MW-15	9/3/1998	100.98	00:00	8.46	0.22	92.52	-0.05	92.71
16MW-15	9/10/1998	100.98	00:00	8.59	0.18	92.40	-0.13	92.54
16MW-15	10/2/1998	100.98	00:00	8.69	0.21	92.30	-0.10	92.47
16MW-15	10/20/1998	100.98	00:00	8.77	0.16	92.21	-0.09	92.35
16MW-15	11/6/1998	100.98	00:00	8.87	0.06	92.11	-0.10	92.16
16MW-15	12/3/1998	100.98	00:00	8.93	0.12	92.06	-0.05	92.15
16MW-15	12/23/1998	100.98	00:00	8.54	0.11	92.44	0.39	92.53
16MW-15	1/26/1999	100.98	00:00	7.75	0.13	93.24	0.80	93.34
16MW-15	3/3/1999	100.98	00:00	7.46	0.11	93.53	0.29	93.61
16MW-15	3/9/1999	100.98	00:00	8.30	0.40	92.68	-0.85	93.02

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-15	3/19/1999	100.98	00:00	7.77	0.15	93.21	0.53	93.34
16MW-15	4/20/1999	100.98	00:00	7.88	0.14	93.10	-0.11	93.22
16MW-15	6/1/1999	100.98	00:00	8.40	0.17	92.58	-0.52	92.73
16MW-15	6/9/1999	100.98	00:00	7.95	0.00	93.03	0.45	93.03
16MW-15	6/9/1999	100.98	00:01	8.70	0.23	92.29	-0.74	92.48
16MW-15	6/10/1999	100.98	00:00	8.68	0.11	92.30	0.02	92.39
16MW-15	6/14/1999	100.98	13:15	8.69	0.11	92.29	-0.01	92.38
16MW-15	6/22/1999	100.98	09:00	8.74	0.21	92.24	-0.05	92.42
16MW-15	7/29/1999	100.98	00:00	10.61	0.33	90.37	-1.87	90.65
16MW-15	8/13/1999	100.98	00:00	10.98	0.36	90.00	-0.37	90.31
16MW-15	9/3/1999	100.98	00:00	9.44	0.04	91.54	1.54	91.57
16MW-15	9/15/1999	100.98	13:45	9.46	0.12	91.52	-0.02	91.62
16MW-15	10/26/1999	100.98	00:00	10.65	0.53	90.33	-1.19	90.78
16MW-15	11/2/1999	100.98	00:00	10.93	0.57	90.05	-0.28	90.54
16MW-15	11/12/1999	100.98	00:00	9.70	0.34	91.28	1.23	91.57
16MW-15	11/18/1999	100.98	00:00	9.81	0.35	91.17	-0.11	91.47
16MW-15	12/1/1999	100.98	00:00	9.60	0.16	91.38	0.21	91.52
16MW-15	12/31/1999	100.98	00:00	9.48	0.21	91.50	0.12	91.68
16MW-15	1/26/2000	100.98	00:00	9.50	0.14	91.48	-0.02	91.60
16MW-15	2/18/2000	100.98	00:00	8.91	0.07	92.07	0.59	92.13
16MW-15	4/17/2000	100.98	00:00	8.83	0.12	92.15	0.08	92.25
16MW-15	5/4/2000	100.98	00:00	8.25	0.07	92.73	0.58	92.79
16MW-15	8/9/2000	100.98	00:00	9.17	0.27	91.81	-0.92	92.04
16MW-15	8/24/2000	100.98	13:50	9.05	0.09	91.93	0.12	92.00
16MW-15	10/26/2000	100.98	00:00	9.35	0.08	91.63	-0.30	91.69
16MW-15	11/28/2000	100.98	00:00	8.90	0.10	92.08	0.45	92.17
16MW-15	1/16/2001	100.98	00:00	9.00	0.09	91.98	-0.10	92.06
16MW-15	2/27/2001	100.98	00:00	8.17	0.00	92.81	0.83	92.81
16MW-15	3/27/2001	100.98	00:00	7.65	0.06	93.33	0.52	93.38
16MW-15	4/19/2001	100.98	00:00	7.98	0.21	93.00	-0.33	93.18
16MW-15	5/11/2001	100.98	00:00	9.33	0.41	91.65	-1.35	92.00
16MW-15	6/6/2001	100.98	00:00	10.06	0.55	90.92	-0.73	91.39
16MW-15	8/14/2001	100.98	00:00	9.19	0.10	91.79	0.87	91.88
16MW-15	9/14/2001	100.98	00:00	9.80	0.15	91.18	-0.61	91.30
16MW-15	10/11/2001	100.98	00:00	9.72	0.09	91.26	0.08	91.33
16MW-15	11/13/2001	100.98	00:00	10.28	0.21	90.70	-0.56	90.88
16MW-15	12/13/2001	100.98	00:00	10.07	0.19	90.91	0.21	91.07
16MW-15	1/8/2002	100.98	00:00	9.82	0.15	91.16	0.25	91.29
16MW-15	1/23/2002	100.98	00:00	9.50	0.04	91.48	0.32	91.51

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-15	2/28/2002	100.98	00:00	9.65	0.03	91.33	-0.15	91.36
16MW-15	3/28/2002	100.98	00:00	8.80	0.05	92.18	0.85	92.22
16MW-15	4/23/2002	100.98	00:00	9.49	0.11	91.49	-0.69	91.58
16MW-15	6/8/2002	100.98	00:00	9.40	0.08	91.58	0.09	91.64
16MW-15	6/27/2002	100.98	00:00	9.35	0.06	91.63	0.05	91.68
16MW-15	7/16/2002	100.98	00:00	9.89	0.04	91.09	-0.54	91.12
16MW-15	8/15/2002	100.98	00:00	10.23	0.12	90.75	-0.34	90.85
16MW-15	10/18/2002	100.98	00:00	8.75	0.07	92.23	1.48	92.29
16MW-15	11/14/2002	100.98	00:00	9.15	0.16	91.83	-0.40	91.97
16MW-15	11/26/2002	100.98	00:00	10.45	0.61	90.53	-1.30	91.05
16MW-16	8/20/1997	98.82	00:00	6.77	0.08	92.05	NA	92.12
16MW-16	8/20/1997	98.82	09:12	6.77	0.08	92.05	0.00	92.12
16MW-16	10/6/1997	98.82	10:45	7.13	0.36	91.70	-0.36	92.00
16MW-16	12/12/1997	98.82	08:30	7.29	1.20	91.53	-0.17	92.55
16MW-16	1/7/1998	98.82	10:10	6.94	1.15	91.88	0.35	92.86
16MW-16	1/15/1998	98.82	07:30	6.15	0.56	92.67	0.79	93.15
16MW-16	2/10/1998	98.82	00:00	5.90	0.49	92.92	0.25	93.34
16MW-16	2/24/1998	98.82	00:00	3.90	0.05	94.92	2.00	94.96
16MW-16	3/3/1998	98.82	00:00	5.18	0.17	93.64	-1.28	93.78
16MW-16	3/12/1998	98.82	00:00	4.73	0.03	94.09	0.46	94.12
16MW-16	3/13/1998	98.82	00:00	5.05	0.02	93.77	-0.33	93.79
16MW-16	3/26/1998	98.82	00:00	4.39	0.01	94.43	0.66	94.44
16MW-16	4/3/1998	98.82	00:00	5.13	0.01	93.69	-0.74	93.70
16MW-16	4/9/1998	98.82	00:00	5.28	0.02	93.54	-0.15	93.56
16MW-16	4/17/1998	98.82	00:00	5.17	0.14	93.65	0.11	93.77
16MW-16	4/24/1998	98.82	00:00	5.06	0.08	93.77	0.12	93.83
16MW-16	5/5/1998	98.82	00:00	5.10	0.08	93.73	-0.04	93.80
16MW-16	5/15/1998	98.82	00:00	3.93	0.11	94.89	1.17	94.98
16MW-16	7/30/1998	98.82	00:00	6.47	0.39	92.35	-2.54	92.68
16MW-16	8/7/1998	98.82	00:00	6.50	0.14	92.32	-0.03	92.44
16MW-16	8/13/1998	98.82	00:00	6.70	0.17	92.12	-0.20	92.26
16MW-16	8/21/1998	98.82	00:00	6.77	0.07	92.05	-0.07	92.11
16MW-16	9/3/1998	98.82	00:00	6.74	0.04	92.08	0.03	92.11
16MW-16	9/10/1998	98.82	00:00	6.89	0.04	91.93	-0.15	91.96
16MW-16	10/2/1998	98.82	00:00	6.98	0.08	91.84	-0.09	91.91
16MW-16	10/20/1998	98.82	00:00	7.04	0.04	91.78	-0.06	91.81
16MW-16	11/6/1998	98.82	00:00	7.15	0.03	91.67	-0.11	91.69
16MW-16	12/3/1998	98.82	00:00	7.14	0.04	91.69	0.02	91.72

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-16	12/23/1998	98.82	00:00	7.09	0.06	91.73	0.05	91.78
16MW-16	1/26/1999	98.82	00:00	5.96	0.01	92.86	1.13	92.87
16MW-16	3/19/1999	98.82	00:00	5.84	0.01	92.99	0.12	92.99
16MW-16	4/20/1999	98.82	00:00	6.02	0.01	92.80	-0.19	92.81
16MW-16	5/7/1999	98.82	00:00	6.23	0.01	92.59	-0.21	92.60
16MW-16	6/1/1999	98.82	00:00	6.66	0.10	92.16	-0.43	92.24
16MW-16	6/9/1999	98.82	00:00	6.15	0.00	92.67	0.51	92.67
16MW-16	6/9/1999	98.82	00:01	7.01	0.16	91.81	-0.86	91.94
16MW-16	6/10/1999	98.82	00:00	6.98	0.03	91.85	0.04	91.87
16MW-16	6/14/1999	98.82	13:40	6.98	0.03	91.85	0.00	91.87
16MW-16	6/22/1999	98.82	09:30	6.90	0.10	91.92	0.08	92.00
16MW-16	7/29/1999	98.82	00:00	8.62	0.23	90.20	-1.72	90.39
16MW-16	8/3/1999	98.82	00:00	8.80	0.25	90.02	-0.18	90.23
16MW-16	8/13/1999	98.82	00:00	8.97	0.27	89.85	-0.17	90.08
16MW-16	9/3/1999	98.82	00:00	8.35	0.20	90.47	0.62	90.64
16MW-16	9/15/1999	98.82	14:20	8.10	0.09	90.72	0.25	90.79
16MW-16	10/26/1999	98.82	00:00	8.00	0.30	90.82	0.10	91.08
16MW-16	11/2/1999	98.82	00:00	8.22	0.31	90.60	-0.22	90.86
16MW-16	11/12/1999	98.82	00:00	7.30	0.03	91.52	0.92	91.54
16MW-16	11/18/1999	98.82	00:00	7.57	0.04	91.25	-0.27	91.29
16MW-16	12/1/1999	98.82	00:00	7.51	0.08	91.31	0.06	91.38
16MW-16	12/31/1999	98.82	00:00	7.44	0.04	91.38	0.07	91.41
16MW-16	1/26/2000	98.82	00:00	7.37	0.04	91.45	0.07	91.49
16MW-16	2/18/2000	98.82	00:00	6.85	0.01	91.97	0.52	91.98
16MW-16	4/17/2000	98.82	00:00	6.59	0.02	92.23	0.26	92.25
16MW-16	8/9/2000	98.82	00:00	6.46	0.17	92.36	0.13	92.51
16MW-16	8/24/2000	98.82	13:50	0	NA	NA	NA	NA
16MW-16	10/26/2000	98.82	00:00	7.40	0.13	91.42	-7.40	91.53
16MW-16	11/28/2000	98.82	00:00	8.57	0.29	90.25	-1.17	90.49
16MW-16	1/16/2001	98.82	00:00	6.99	0.03	91.83	1.58	91.85
16MW-16	2/27/2001	98.82	00:00	6.26	0.00	92.56	0.73	92.56
16MW-16	3/27/2001	98.82	00:00	5.90	0.00	92.92	0.36	92.92
16MW-16	5/11/2001	98.82	00:00	6.38	0.05	92.44	-0.48	92.48
16MW-16	8/14/2001	98.82	00:00	7.56	0.12	91.26	-1.18	91.36
16MW-16	9/14/2001	98.82	00:00	8.22	0.17	90.60	-0.66	90.75
16MW-16	10/11/2001	98.82	00:00	7.35	0.17	91.47	0.87	91.62
16MW-16	11/13/2001	98.82	00:00	8.91	0.32	89.91	-1.56	90.18
16MW-16	12/13/2001	98.82	00:00	7.57	0.04	91.25	1.34	91.28
16MW-16	1/8/2002	98.82	00:00	7.77	0.10	91.05	-0.20	91.13

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-16	1/23/2002	98.82	00:00	7.60	0.04	91.22	0.17	91.25
16MW-16	2/28/2002	98.82	00:00	7.75	0.01	91.07	-0.15	91.07
16MW-16	3/28/2002	98.82	00:00	6.75	0.01	92.07	1.00	92.08
16MW-16	4/23/2002	98.82	00:00	7.38	0.28	91.44	-0.63	91.68
16MW-16	6/8/2002	98.82	00:00	7.35	0.01	91.47	0.03	91.48
16MW-16	6/27/2002	98.82	00:00	7.50	0.05	91.32	-0.15	91.36
16MW-16	8/15/2002	98.82	00:00	8.51	0.12	90.31	-1.01	90.41
16MW-16	10/18/2002	98.82	00:00	7.10	0.01	91.72	1.41	91.73
16MW-16	11/14/2002	98.82	00:00	6.76	0.02	92.06	0.34	92.08
16MW-16	11/26/2002	98.82	00:00	5.17	0.01	93.65	1.59	93.65
16MW-17	8/20/1997	99.79	00:00	7.77	1.04	92.03	NA	92.91
16MW-17	8/20/1997	99.79	09:07	7.77	1.04	92.03	0.00	92.91
16MW-17	10/6/1997	99.79	00:00	8.19	1.28	91.60	-0.43	92.69
16MW-17	10/6/1997	99.79	10:45	8.15	0.94	91.64	0.04	92.44
16MW-17	12/12/1997	99.79	08:30	7.88	0.88	91.92	0.28	92.66
16MW-17	1/7/1998	99.79	10:23	7.51	1.22	92.29	0.37	93.32
16MW-17	1/15/1998	99.79	07:30	7.14	0.44	92.65	0.37	93.03
16MW-17	2/10/1998	99.79	00:00	6.71	1.18	93.08	0.43	94.09
16MW-17	2/24/1998	99.79	00:00	5.58	0.38	94.22	1.13	94.54
16MW-17	3/3/1998	99.79	00:00	6.08	0.96	93.71	-0.50	94.53
16MW-17	3/12/1998	99.79	00:00	5.78	0.50	94.01	0.30	94.44
16MW-17	3/13/1998	99.79	00:00	5.33	0.08	94.47	0.45	94.53
16MW-17	3/26/1998	99.79	00:00	5.25	0.02	94.55	0.08	94.56
16MW-17	4/3/1998	99.79	00:00	6.65	0.11	93.14	-1.40	93.23
16MW-17	4/9/1998	99.79	00:00	5.84	0.10	93.96	0.81	94.04
16MW-17	4/17/1998	99.79	00:00	5.64	0.14	94.16	0.20	94.27
16MW-17	4/24/1998	99.79	00:00	5.58	0.21	94.22	0.06	94.39
16MW-17	5/5/1998	99.79	00:00	5.64	0.27	94.15	-0.07	94.42
16MW-17	5/15/1998	99.79	00:00	5.09	0.09	94.70	0.55	94.78
16MW-17	7/30/1998	99.79	00:00	9.09	0.39	90.70	-4.00	91.03
16MW-17	8/7/1998	99.79	00:00	7.09	0.21	92.70	2.00	92.88
16MW-17	8/13/1998	99.79	00:00	7.28	0.22	92.51	-0.19	92.70
16MW-17	8/21/1998	99.79	00:00	7.34	0.09	92.45	-0.06	92.52
16MW-17	9/3/1998	99.79	00:00	7.40	0.12	92.39	-0.06	92.49
16MW-17	9/10/1998	99.79	00:00	7.49	0.08	92.30	-0.09	92.37
16MW-17	10/2/1998	99.79	00:00	5.85	0.81	93.94	1.64	94.63
16MW-17	10/20/1998	99.79	00:00	7.58	0.09	92.21	-1.73	92.29
16MW-17	11/6/1998	99.79	00:00	7.82	0.07	91.97	-0.24	92.03

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-17	12/3/1998	99.79	00:00	7.86	0.05	91.94	-0.03	91.97
16MW-17	12/23/1998	99.79	00:00	7.84	0.18	91.96	0.02	92.10
16MW-17	1/26/1999	99.79	00:00	6.51	0.08	93.29	1.33	93.35
16MW-17	3/9/1999	99.79	00:00	6.86	0.06	92.93	-0.35	92.98
16MW-17	3/19/1999	99.79	00:00	6.52	0.06	93.28	0.34	93.32
16MW-17	4/20/1999	99.79	00:00	6.74	0.06	93.06	-0.22	93.10
16MW-17	5/7/1999	99.79	00:00	6.90	0.02	92.89	-0.17	92.91
16MW-17	6/1/1999	99.79	00:00	7.29	0.08	92.50	-0.39	92.57
16MW-17	6/9/1999	99.79	00:00	7.15	0.00	92.64	0.14	92.64
16MW-17	6/9/1999	99.79	00:01	7.61	0.13	92.18	-0.46	92.29
16MW-17	6/10/1999	99.79	00:00	7.61	0.05	92.19	0.00	92.22
16MW-17	6/14/1999	99.79	13:30	7.61	0.05	92.19	0.00	92.22
16MW-17	6/22/1999	99.79	09:20	7.67	0.11	92.12	-0.07	92.22
16MW-17	7/29/1999	99.79	00:00	9.40	0.27	90.39	-1.73	90.62
16MW-17	8/3/1999	99.79	00:00	9.55	0.28	90.24	-0.15	90.48
16MW-17	8/13/1999	99.79	00:00	9.70	0.30	90.09	-0.15	90.35
16MW-17	9/3/1999	99.79	00:00	8.49	0.04	91.30	1.21	91.34
16MW-17	9/15/1999	99.79	14:05	8.86	0.11	90.93	-0.37	91.03
16MW-17	10/26/1999	99.79	00:00	9.81	0.63	89.98	-0.95	90.51
16MW-17	11/2/1999	99.79	00:00	9.99	0.64	89.80	-0.18	90.34
16MW-17	11/12/1999	99.79	00:00	8.31	0.10	91.48	1.68	91.57
16MW-17	11/18/1999	99.79	00:00	8.55	0.13	91.24	-0.24	91.35
16MW-17	12/1/1999	99.79	00:00	8.87	0.13	90.92	-0.32	91.03
16MW-17	12/31/1999	99.79	00:00	8.21	0.16	91.58	0.66	91.72
16MW-17	1/26/2000	99.79	00:00	8.21	0.09	91.58	0.00	91.66
16MW-17	2/18/2000	99.79	00:00	7.57	0.02	92.22	0.64	92.24
16MW-17	4/17/2000	99.79	00:00	7.46	0.05	92.33	0.11	92.37
16MW-17	5/4/2000	99.79	00:00	7.14	0.03	92.65	0.32	92.67
16MW-17	8/9/2000	99.79	00:00	8.40	0.42	91.39	-1.26	91.75
16MW-17	8/24/2000	99.79	00:00	7.85	0.06	91.94	0.55	91.99
16MW-17	10/26/2000	99.79	00:00	8.09	0.02	91.70	-0.24	91.72
16MW-17	11/28/2000	99.79	00:00	8.48	0.25	91.31	-0.39	91.53
16MW-17	1/16/2001	99.79	00:00	7.90	0.10	91.89	0.58	91.98
16MW-17	2/27/2001	99.79	00:00	7.05	0.00	92.74	0.85	92.74
16MW-17	3/27/2001	99.79	00:00	6.40	0.03	93.39	0.65	93.41
16MW-17	4/19/2001	99.79	00:00	6.55	0.10	93.24	-0.15	93.33
16MW-17	5/11/2001	99.79	00:00	7.42	0.13	92.37	-0.87	75.90
16MW-17	6/6/2001	99.79	00:00	8.00	0.25	91.79	-0.58	74.26
16MW-17	8/14/2001	99.79	00:00	9.27	0.41	90.52	-1.27	90.87

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-17	9/14/2001	99.79	00:00	8.70	0.11	91.09	0.57	91.18
16MW-17	10/11/2001	99.79	00:00	8.44	0.02	91.35	0.26	91.36
16MW-17	11/13/2001	99.79	00:00	8.66	0.04	91.13	-0.22	91.16
16MW-17	11/13/2001	99.79	00:00	9.22	0.00	90.57	-0.56	90.57
16MW-17	12/13/2001	99.79	00:00	8.45	0.03	91.34	0.77	91.36
16MW-17	1/8/2002	99.79	00:00	8.51	0.08	91.28	-0.06	91.35
16MW-17	1/23/2002	99.79	00:00	8.40	0.03	91.39	0.11	91.42
16MW-17	2/28/2002	99.79	00:00	8.51	0.01	91.28	-0.11	91.29
16MW-17	3/28/2002	99.79	00:00	7.64	0.02	92.15	0.87	92.16
16MW-17	4/23/2002	99.79	00:00	8.09	0.02	91.70	-0.45	91.72
16MW-17	6/8/2002	99.79	00:00	8.08	0.01	91.71	0.01	91.72
16MW-17	6/27/2002	99.79	00:00	8.20	0.04	91.59	-0.12	91.62
16MW-17	7/16/2002	99.79	00:00	8.77	0.02	91.02	-0.57	91.04
16MW-17	8/15/2002	99.79	00:00	9.88	0.96	89.91	-1.11	90.73
16MW-17	10/18/2002	99.79	00:00	7.13	0.01	92.66	2.75	92.67
16MW-17	11/14/2002	99.79	00:00	9.30	0.53	90.49	-2.17	90.94
16MW-17	11/26/2002	99.79	00:00	7.20	0.23	92.59	2.10	92.78
16MW-18	8/20/1997	100.69	00:00	7.96	0.00	92.73	NA	92.73
16MW-18	8/20/1997	100.69	09:03	7.96	0.00	92.73	0.00	92.73
16MW-18	10/6/1997	100.69	10:45	8.21	0.00	92.48	-0.25	92.48
16MW-18	12/12/1997	100.69	08:30	7.98	0.00	92.71	0.23	92.71
16MW-18	1/7/1998	100.69	10:30	6.85	0.00	93.84	1.13	93.84
16MW-18	1/15/1998	100.69	07:30	7.24	0.00	93.45	-0.39	93.45
16MW-18	2/10/1998	100.69	00:00	5.86	0.00	94.83	1.38	94.83
16MW-18	2/24/1998	100.69	00:00	6.80	0.00	93.89	-0.94	93.89
16MW-18	3/3/1998	100.69	00:00	5.30	0.00	95.39	1.50	95.39
16MW-18	3/12/1998	100.69	00:00	4.89	0.00	95.80	0.41	95.80
16MW-18	3/13/1998	100.69	00:00	5.06	0.00	95.63	-0.17	95.63
16MW-18	3/26/1998	100.69	00:00	4.78	0.00	95.91	0.28	95.91
16MW-18	4/3/1998	100.69	00:00	5.51	0.00	95.18	-0.73	95.18
16MW-18	4/9/1998	100.69	00:00	5.85	0.00	94.84	-0.34	94.84
16MW-18	4/17/1998	100.69	00:00	5.20	0.00	95.49	0.65	95.49
16MW-18	4/24/1998	100.69	00:00	5.50	0.00	95.19	-0.30	95.19
16MW-18	5/5/1998	100.69	00:00	4.40	0.00	96.29	1.10	96.29
16MW-18	5/15/1998	100.69	00:00	3.85	0.00	96.84	0.55	96.84
16MW-18	7/30/1998	100.69	00:00	6.88	0.02	93.81	-3.03	93.83
16MW-18	8/7/1998	100.69	00:00	7.13	0.00	93.56	-0.26	93.56
16MW-18	8/13/1998	100.69	00:00	8.40	0.00	92.29	-1.27	92.29

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-18	8/21/1998	100.69	00:00	7.61	0.00	93.08	0.79	93.08
16MW-18	9/3/1998	100.69	00:00	7.77	0.00	92.92	-0.16	92.92
16MW-18	9/10/1998	100.69	00:00	7.39	0.00	93.30	0.38	93.30
16MW-18	10/2/1998	100.69	00:00	7.66	0.00	93.03	-0.27	93.03
16MW-18	10/20/1998	100.69	00:00	8.12	0.00	92.57	-0.46	92.57
16MW-18	11/6/1998	100.69	00:00	8.31	0.00	92.38	-0.19	92.38
16MW-18	12/3/1998	100.69	00:00	8.20	0.00	92.49	0.11	92.49
16MW-18	12/23/1998	100.69	00:00	8.47	0.01	92.23	-0.27	92.23
16MW-18	1/26/1999	100.69	00:00	4.36	0.00	96.33	4.11	96.33
16MW-18	3/9/1999	100.69	00:00	6.30	0.00	94.39	-1.94	94.39
16MW-18	3/19/1999	100.69	00:00	4.80	0.00	95.89	1.50	95.89
16MW-18	5/7/1999	100.69	00:00	7.14	0.00	93.55	-2.34	93.55
16MW-18	6/1/1999	100.69	00:00	7.40	0.00	93.29	-0.26	93.29
16MW-18	6/9/1999	100.69	00:00	7.79	0.00	92.90	-0.39	92.90
16MW-18	6/9/1999	100.69	00:01	7.77	0.00	92.92	0.02	92.92
16MW-18	6/10/1999	100.69	00:00	7.82	0.00	92.87	-0.05	92.87
16MW-18	6/14/1999	100.69	13:25	7.82	0.00	92.87	0.00	92.87
16MW-18	6/22/1999	100.69	09:15	8.12	0.00	92.57	-0.30	92.57
16MW-18	7/29/1999	100.69	00:00	9.10	0.00	91.59	-0.98	91.59
16MW-18	8/3/1999	100.69	00:00	9.25	0.00	91.44	-0.15	91.44
16MW-18	9/3/1999	100.69	00:00	6.50	0.00	94.19	2.75	94.19
16MW-18	9/15/1999	100.69	14:00	8.99	0.00	91.70	-2.49	91.70
16MW-18	10/26/1999	100.69	00:00	7.15	0.01	93.54	1.84	93.55
16MW-18	11/12/1999	100.69	00:00	8.39	0.02	92.30	-1.24	92.32
16MW-18	11/18/1999	100.69	00:00	8.60	0.01	92.09	-0.21	92.10
16MW-18	12/1/1999	100.69	00:00	8.41	0.02	92.28	0.19	92.29
16MW-18	12/31/1999	100.69	00:00	7.50	0.28	93.19	0.91	93.42
16MW-18	1/26/2000	100.69	00:00	8.39	0.02	92.30	-0.89	92.32
16MW-18	2/18/2000	100.69	00:00	6.17	0.03	94.52	2.22	94.55
16MW-18	4/17/2000	100.69	00:00	6.32	0.05	94.37	-0.15	94.41
16MW-18	5/4/2000	100.69	00:00	6.81	0.00	93.88	-0.49	93.88
16MW-18	8/9/2000	100.69	00:00	5.26	0.01	95.43	1.55	95.44
16MW-18	8/24/2000	100.69	14:00	7.31	0.03	93.38	-2.05	93.40
16MW-18	10/26/2000	100.69	00:00	8.35	0.01	92.34	-1.04	92.35
16MW-18	11/28/2000	100.69	00:00	7.05	0.01	93.64	1.30	93.65
16MW-18	1/16/2001	100.69	00:00	7.72	0.01	92.97	-0.67	92.97
16MW-18	2/27/2001	100.69	00:00	6.40	0.00	94.29	1.32	94.29
16MW-18	3/27/2001	100.69	00:00	5.20	0.00	95.49	1.20	95.49
16MW-18	4/19/2001	100.69	00:00	5.43	0.00	95.26	-0.23	95.26

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-18	5/11/2001	100.69	00:00	7.06	0.00	93.63	-1.63	93.63
16MW-18	6/6/2001	100.69	00:00	7.68	0.00	93.01	-0.62	93.01
16MW-18	8/14/2001	100.69	00:00	8.21	0.03	92.48	-0.53	92.50
16MW-18	9/14/2001	100.69	00:00	8.91	0.01	91.78	-0.70	91.79
16MW-18	10/11/2001	100.69	00:00	8.48	0.00	92.21	0.43	92.21
16MW-18	12/13/2001	100.69	00:00	8.51	0.04	92.18	-0.03	92.22
16MW-18	1/8/2002	100.69	00:00	7.95	0.06	92.74	0.56	92.79
16MW-18	1/23/2002	100.69	00:00	8.50	0.06	92.19	-0.55	92.24
16MW-18	2/28/2002	100.69	00:00	8.83	0.00	91.86	-0.33	91.86
16MW-18	3/28/2002	100.69	00:00	6.03	0.00	94.66	2.80	94.66
16MW-18	4/23/2002	100.69	00:00	8.23	0.00	92.46	-2.20	92.46
16MW-18	6/8/2002	100.69	00:00	8.91	0.01	91.78	-0.68	91.79
16MW-18	6/27/2002	100.69	00:00	8.93	0.02	91.76	-0.02	91.77
16MW-18	7/16/2002	100.69	00:00	9.30	0.13	91.39	-0.37	91.50
16MW-18	8/15/2002	100.69	00:00	9.65	0.00	91.04	-0.35	91.04
16MW-18	10/18/2002	100.69	00:00	5.91	0.00	94.78	3.74	94.78
16MW-18	11/14/2002	100.69	00:00	6.91	0.00	93.78	-1.00	93.78
16MW-18	11/26/2002	100.69	00:00	6.21	0.00	94.48	0.70	94.48
16MW-19	8/20/1997	100.54	08:57	7.70	0.00	92.84	NA	92.84
16MW-19	10/6/1997	100.54	10:45	8.43	0.62	92.11	-0.73	92.64
16MW-19	12/12/1997	100.54	08:30	8.65	1.13	91.90	-0.22	92.85
16MW-19	1/7/1998	100.54	10:37	7.53	0.83	93.02	1.12	93.72
16MW-19	1/15/1998	100.54	07:30	7.21	0.18	93.33	0.31	93.48
16MW-19	2/10/1998	100.54	00:00	5.79	0.10	94.76	1.43	94.84
16MW-19	2/24/1998	100.54	00:00	5.10	0.00	95.44	0.69	95.44
16MW-19	3/3/1998	100.54	00:00	5.31	0.02	95.24	-0.21	95.25
16MW-19	3/12/1998	100.54	00:00	4.81	0.02	95.74	0.50	95.75
16MW-19	3/13/1998	100.54	00:00	5.05	0.00	95.49	-0.25	95.49
16MW-19	3/26/1998	100.54	00:00	6.31	0.03	94.23	-1.26	94.26
16MW-19	4/3/1998	100.54	00:00	5.31	0.00	95.23	1.00	95.23
16MW-19	4/9/1998	100.54	00:00	5.52	0.01	95.02	-0.21	95.03
16MW-19	4/17/1998	100.54	00:00	5.04	0.04	95.50	0.48	95.54
16MW-19	4/24/1998	100.54	00:00	4.92	0.01	95.62	0.12	95.63
16MW-19	5/5/1998	100.54	00:00	4.56	0.06	95.98	0.36	96.04
16MW-19	5/15/1998	100.54	00:00	3.56	0.01	96.98	0.99	96.99
16MW-19	7/30/1998	100.54	00:00	6.79	0.11	93.75	-3.23	93.84
16MW-19	8/7/1998	100.54	00:00	6.97	0.00	93.57	-0.18	93.57
16MW-19	8/13/1998	100.54	00:00	7.21	0.01	93.34	-0.24	93.34

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-19	8/21/1998	100.54	00:00	7.41	0.00	93.13	-0.21	93.13
16MW-19	9/3/1998	100.54	00:00	7.54	0.00	93.00	-0.13	93.00
16MW-19	9/10/1998	100.54	00:00	7.60	0.00	92.94	-0.06	92.94
16MW-19	10/2/1998	100.54	00:00	7.67	0.01	92.87	-0.07	92.88
16MW-19	10/20/1998	100.54	00:00	7.88	0.01	92.66	-0.21	92.67
16MW-19	11/6/1998	100.54	00:00	8.15	0.01	92.39	-0.27	92.40
16MW-19	12/3/1998	100.54	00:00	7.94	0.00	92.60	0.21	92.60
16MW-19	12/23/1998	100.54	00:00	8.05	0.02	92.50	-0.10	92.51
16MW-19	1/26/1999	100.54	00:00	5.69	0.04	94.85	2.36	94.88
16MW-19	3/9/1999	100.54	00:00	6.43	0.03	94.11	-0.74	94.14
16MW-19	3/19/1999	100.54	00:00	6.05	0.05	94.49	0.38	94.53
16MW-19	4/20/1999	100.54	00:00	6.56	0.01	93.98	-0.51	93.99
16MW-19	5/7/1999	100.54	00:00	7.04	0.03	93.51	-0.47	93.53
16MW-19	6/1/1999	100.54	00:00	7.17	0.03	93.37	-0.14	93.39
16MW-19	6/9/1999	100.54	00:00	6.94	0.00	93.60	0.23	93.60
16MW-19	6/9/1999	100.54	00:01	7.62	0.03	92.92	-0.68	92.95
16MW-19	6/10/1999	100.54	00:00	7.68	0.00	92.86	-0.06	92.86
16MW-19	6/14/1999	100.54	13:20	7.68	0.00	92.86	0.00	92.86
16MW-19	6/22/1999	100.54	09:10	7.90	0.03	92.64	-0.22	92.66
16MW-19	7/29/1999	100.54	00:00	9.01	0.05	91.53	-1.11	91.57
16MW-19	8/3/1999	100.54	00:00	9.14	0.06	91.40	-0.13	91.45
16MW-19	8/13/1999	100.54	00:00	9.05	0.00	91.49	0.09	91.49
16MW-19	9/3/1999	100.54	00:00	9.07	0.14	91.47	-0.02	91.59
16MW-19	9/15/1999	100.54	13:55	8.99	0.02	91.55	0.08	91.57
16MW-19	10/26/1999	100.54	00:00	9.35	0.42	91.19	-0.36	91.54
16MW-19	11/2/1999	100.54	00:00	9.99	0.47	90.55	-0.64	90.95
16MW-19	11/12/1999	100.54	00:00	8.45	0.01	92.09	1.54	92.10
16MW-19	11/18/1999	100.54	00:00	8.59	0.00	91.95	-0.14	91.95
16MW-19	12/1/1999	100.54	00:00	8.35	0.01	92.19	0.24	92.20
16MW-19	12/31/1999	100.54	00:00	8.07	0.04	92.47	0.28	92.50
16MW-19	1/26/2000	100.54	00:00	8.36	0.01	92.18	-0.29	92.19
16MW-19	2/18/2000	100.54	00:00	7.51	0.01	93.03	0.85	93.04
16MW-19	4/17/2000	100.54	00:00	7.52	0.00	93.02	-0.01	93.02
16MW-19	5/4/2000	100.54	00:00	7.22	0.06	93.32	0.30	93.37
16MW-19	8/9/2000	100.54	00:00	7.30	0.22	93.24	-0.08	93.42
16MW-19	8/24/2000	100.54	13:55	8.00	0.06	92.54	-0.70	92.59
16MW-19	10/26/2000	100.54	00:00	8.77	0.09	91.77	-0.77	91.84
16MW-19	11/28/2000	100.54	00:00	8.32	0.06	92.22	0.45	92.27
16MW-19	1/16/2001	100.54	00:00	8.60	0.18	91.94	-0.28	92.09

1- Change in Water Elevation since last reported measurement

2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-19	2/27/2001	100.54	00:00	7.37	0.00	93.17	1.23	93.17
16MW-19	3/27/2001	100.54	00:00	6.20	0.08	94.34	1.17	94.41
16MW-19	4/19/2001	100.54	00:00	6.40	0.11	94.14	-0.20	94.23
16MW-19	5/11/2001	100.54	00:00	7.48	0.12	93.06	-1.08	93.16
16MW-19	6/6/2001	100.54	00:00	7.57	0.10	92.97	-0.09	93.06
16MW-19	8/14/2001	100.54	00:00	7.30	0.05	93.24	0.27	93.28
16MW-19	9/14/2001	100.54	00:00	9.12	0.12	91.42	-1.82	91.52
16MW-19	10/11/2001	100.54	00:00	8.97	0.04	91.57	0.15	91.60
16MW-19	11/13/2001	100.54	00:00	9.10	0.03	91.44	-0.13	91.47
16MW-19	12/13/2001	100.54	00:00	8.97	0.04	91.57	0.13	91.60
16MW-19	1/8/2002	100.54	00:00	8.93	0.06	91.61	0.04	91.66
16MW-19	1/23/2002	100.54	00:00	8.82	0.02	91.72	0.11	91.73
16MW-19	2/28/2002	100.54	00:00	8.98	0.00	91.56	-0.16	91.56
16MW-19	3/28/2002	100.54	00:00	8.00	0.14	92.54	0.98	92.66
16MW-19	4/23/2002	100.54	00:00	8.58	0.03	91.96	-0.58	91.98
16MW-19	6/8/2002	100.54	00:00	8.55	0.03	91.99	0.03	92.01
16MW-19	6/27/2002	100.54	00:00	8.57	0.02	91.97	-0.02	91.99
16MW-19	7/16/2002	100.54	00:00	9.26	0.02	91.28	-0.69	91.29
16MW-19	8/15/2002	100.54	00:00	9.52	0.01	91.02	-0.26	91.03
16MW-19	10/18/2002	100.54	00:00	6.91	0.00	93.63	2.61	93.63
16MW-19	11/14/2002	100.54	00:00	7.57	0.01	92.97	-0.66	92.97
16MW-19	11/26/2002	100.54	00:00	7.18	0.00	93.36	0.39	93.36
16MW-20	8/20/1997	100.82	09:26	8.55	0.45	92.28	NA	92.65
16MW-20	10/6/1997	100.82	10:45	8.84	0.46	91.98	-0.30	92.37
16MW-20	12/12/1997	100.82	08:30	8.71	0.61	92.11	0.13	92.63
16MW-20	1/7/1998	100.82	10:49	8.28	0.70	92.55	0.44	93.14
16MW-20	2/10/1998	100.82	00:00	7.25	0.15	93.57	1.02	93.70
16MW-20	2/24/1998	100.82	00:00	6.56	0.08	94.26	0.69	94.33
16MW-20	3/3/1998	100.82	00:00	6.63	0.07	94.19	-0.07	94.25
16MW-20	3/12/1998	100.82	00:00	6.30	0.02	94.52	0.33	94.54
16MW-20	3/26/1998	100.82	00:00	6.20	0.00	94.62	0.10	94.62
16MW-20	4/3/1998	100.82	00:00	6.48	0.04	94.34	-0.28	94.37
16MW-20	4/9/1998	100.82	00:00	6.61	0.02	94.21	-0.13	94.23
16MW-20	4/24/1998	100.82	00:00	6.48	0.00	94.34	0.13	94.34
16MW-20	5/5/1998	100.82	00:00	6.40	0.01	94.42	0.08	94.43
16MW-20	5/15/1998	100.82	00:00	5.54	0.06	95.29	0.86	95.33
16MW-20	7/30/1998	100.82	00:00	7.88	0.37	92.94	-2.34	93.25
16MW-20	8/7/1998	100.82	00:00	7.97	0.05	92.85	-0.09	92.89

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-20	8/13/1998	100.82	00:00	8.13	0.05	92.69	-0.17	92.73
16MW-20	8/21/1998	100.82	00:00	8.25	0.05	92.57	-0.12	92.61
16MW-20	9/3/1998	100.82	00:00	8.47	0.06	92.35	-0.22	92.40
16MW-20	9/10/1998	100.82	00:00	8.48	0.02	92.34	-0.01	92.36
16MW-20	10/2/1998	100.82	00:00	8.57	0.05	92.25	-0.10	92.29
16MW-20	10/20/1998	100.82	00:00	8.66	0.00	92.16	-0.09	92.16
16MW-20	12/3/1998	100.82	00:00	8.85	0.06	91.97	-0.19	92.02
16MW-20	1/26/1999	100.82	00:00	7.62	0.03	93.20	1.23	93.22
16MW-20	3/9/1999	100.82	00:00	7.88	0.03	92.95	-0.26	92.97
16MW-20	3/19/1999	100.82	00:00	7.63	0.01	93.19	0.25	93.20
16MW-20	4/20/1999	100.82	00:00	7.69	0.01	93.14	-0.06	93.14
16MW-20	5/7/1999	100.82	00:00	7.87	0.02	92.96	-0.18	92.97
16MW-20	6/1/1999	100.82	00:00	8.25	0.04	92.57	-0.39	92.60
16MW-20	6/9/1999	100.82	00:01	8.56	0.08	92.26	-0.31	92.33
16MW-20	6/10/1999	100.82	00:00	7.57	0.05	93.25	0.99	93.29
16MW-20	6/22/1999	100.82	09:35	8.59	0.09	92.23	-1.02	92.30
16MW-20	7/29/1999	100.82	00:00	9.40	0.00	91.42	-0.81	91.42
16MW-20	8/3/1999	100.82	00:00	10.25	0.19	90.57	-0.85	90.73
16MW-20	9/3/1999	100.82	00:00	9.45	0.02	91.37	0.80	91.38
16MW-20	9/15/1999	100.82	14:30	9.72	0.07	91.10	-0.27	91.16
16MW-20	11/2/1999	100.82	00:00	10.08	0.32	90.74	-0.36	91.01
16MW-20	11/18/1999	100.82	00:00	9.40	0.00	91.42	0.68	91.42
16MW-20	12/1/1999	100.82	00:00	9.31	0.08	91.51	0.09	91.58
16MW-20	12/31/1999	100.82	00:00	8.84	0.03	91.98	0.47	92.01
16MW-20	1/26/2000	100.82	00:00	9.28	0.09	91.54	-0.44	91.62
16MW-20	2/18/2000	100.82	00:00	8.82	0.06	92.00	0.46	92.05
16MW-20	4/17/2000	100.82	00:00	9.21	0.27	91.61	-0.39	91.84
16MW-20	8/9/2000	100.82	00:00	8.32	0.02	92.50	0.89	92.52
16MW-20	8/24/2000	100.82	14:15	7.70	0.00	93.12	0.62	93.12
16MW-20	10/26/2000	100.82	00:00	9.21	0.04	91.61	-1.51	91.64
16MW-20	1/16/2001	100.82	00:00	9.15	0.16	91.67	0.06	91.81
16MW-20	2/27/2001	100.82	00:00	8.40	0.10	92.42	0.75	92.50
16MW-20	3/27/2001	100.82	00:00	7.80	0.13	93.02	0.60	93.13
16MW-20	4/19/2001	100.82	00:00	7.77	0.17	93.05	0.03	93.20
16MW-20	5/11/2001	100.82	00:00	8.88	0.34	91.94	-1.11	92.23
16MW-20	6/6/2001	100.82	00:00	9.85	0.52	90.97	-0.97	91.41
16MW-20	8/14/2001	100.82	00:00	10.59	0.53	90.23	-0.74	90.68
16MW-20	9/14/2001	100.82	00:00	10.80	0.44	90.02	-0.21	90.40
16MW-20	10/11/2001	100.82	00:00	9.62	0.07	91.20	1.18	91.26

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

Water Level & Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-20	11/13/2001	100.82	00:00	9.73	0.06	91.09	-0.11	91.14
16MW-20	12/13/2001	100.82	00:00	9.67	0.08	91.15	0.06	91.21
16MW-20	1/8/2002	100.82	00:00	9.81	0.16	91.01	-0.14	91.15
16MW-20	1/23/2002	100.82	00:00	9.63	0.10	91.19	0.18	91.28
16MW-20	2/28/2002	100.82	00:00	9.69	0.05	91.13	-0.06	91.17
16MW-20	3/28/2002	100.82	00:00	8.75	0.01	92.07	0.94	92.07
16MW-20	4/23/2002	100.82	00:00	9.30	0.07	91.52	-0.55	91.58
16MW-20	6/8/2002	100.82	00:00	9.19	0.03	91.63	0.11	91.65
16MW-20	6/27/2002	100.82	00:00	9.45	0.11	91.37	-0.26	91.47
16MW-20	7/16/2002	100.82	00:00	9.75	0.00	91.07	-0.30	91.07
16MW-20	8/15/2002	100.82	00:00	10.13	0.01	90.69	-0.38	90.70
16MW-20	10/18/2002	100.82	00:00	5.75	0.09	95.07	4.38	95.14
16MW-20	11/14/2002	100.82	00:00	8.60	0.00	92.22	-2.85	92.22
16MW-20	11/26/2002	100.82	00:00	8.40	0.03	92.42	0.20	92.44
16MW-21	8/20/1997	99.78	00:00	7.56	0.00	92.22	NA	92.22
16MW-21	8/20/1997	99.78	09:35	7.56	0.00	92.22	0.00	92.22
16MW-21	10/6/1997	99.78	10:45	7.80	0.00	91.98	-0.24	91.98
16MW-21	12/12/1997	99.78	08:30	7.70	0.00	92.08	0.10	92.08
16MW-21	1/7/1998	99.78	10:58	7.12	0.00	92.66	0.58	92.66
16MW-21	2/10/1998	99.78	00:00	6.00	0.00	93.78	1.12	93.78
16MW-21	2/24/1998	99.78	00:00	5.67	0.00	94.11	0.33	94.11
16MW-21	3/3/1998	99.78	00:00	5.40	0.00	94.38	0.27	94.38
16MW-21	3/12/1998	99.78	00:00	5.03	0.00	94.75	0.37	94.75
16MW-21	3/13/1998	99.78	00:00	5.17	0.00	94.61	-0.14	94.61
16MW-21	4/3/1998	99.78	00:00	5.25	0.00	94.53	-0.08	94.53
16MW-21	4/9/1998	99.78	00:00	5.55	0.00	94.23	-0.30	94.23
16MW-21	4/17/1998	99.78	00:00	6.45	0.01	93.33	-0.90	93.34
16MW-21	4/24/1998	99.78	00:00	5.93	0.00	93.85	0.52	93.85
16MW-21	5/5/1998	99.78	00:00	4.83	0.00	94.95	1.10	94.95
16MW-21	5/15/1998	99.78	00:00	4.10	0.00	95.68	0.73	95.68
16MW-21	7/30/1998	99.78	00:00	6.95	0.00	92.83	-2.85	92.83
16MW-21	8/7/1998	99.78	00:00	7.21	0.00	92.57	-0.26	92.57
16MW-21	8/13/1998	99.78	00:00	7.41	0.00	92.37	-0.20	92.37
16MW-21	8/21/1998	99.78	00:00	7.51	0.00	92.27	-0.10	92.27
16MW-21	9/3/1998	99.78	00:00	7.57	0.00	92.21	-0.06	92.21
16MW-21	9/10/1998	99.78	00:00	7.70	0.00	92.08	-0.13	92.08
16MW-21	10/2/1998	99.78	00:00	7.77	0.00	92.01	-0.07	92.01
16MW-21	10/20/1998	99.78	00:00	7.86	0.00	91.92	-0.09	91.92

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-21	12/3/1998	99.78	00:00	8.00	0.00	91.78	-0.14	91.78
16MW-21	1/26/1999	99.78	00:00	5.05	0.00	94.73	2.95	94.73
16MW-21	3/9/1999	99.78	00:00	6.57	0.00	93.21	-1.52	93.21
16MW-21	3/19/1999	99.78	00:00	5.56	0.00	94.22	1.01	94.22
16MW-21	4/20/1999	99.78	00:00	6.40	0.00	93.38	-0.84	93.38
16MW-21	6/1/1999	99.78	00:00	7.45	0.00	92.33	-1.05	92.33
16MW-21	6/9/1999	99.78	00:01	7.15	0.00	92.63	0.30	92.63
16MW-21	6/22/1999	99.78	09:40	7.00	0.00	92.78	0.15	92.78
16MW-21	7/29/1999	99.78	00:00	8.75	0.00	91.03	-1.75	91.03
16MW-21	8/3/1999	99.78	00:00	8.89	0.00	90.89	-0.14	90.89
16MW-21	9/15/1999	99.78	14:35	8.70	0.00	91.08	0.19	91.08
16MW-21	11/12/1999	99.78	00:00	9.17	0.03	90.61	-0.47	90.64
16MW-21	11/18/1999	99.78	00:00	8.33	0.00	91.45	0.84	91.45
16MW-21	2/18/2000	99.78	00:00	7.51	0.00	92.27	0.82	92.27
16MW-21	4/17/2000	99.78	00:00	7.35	0.00	92.43	0.16	92.43
16MW-21	5/4/2000	99.78	00:00	7.20	0.00	92.58	0.15	92.58
16MW-21	8/9/2000	99.78	00:00	6.20	0.00	93.58	1.00	93.58
16MW-21	8/24/2000	99.78	14:20	7.88	0.00	91.90	-1.68	91.90
16MW-21	10/26/2000	99.78	00:00	8.30	0.00	91.48	-0.42	91.48
16MW-21	1/16/2001	99.78	00:00	7.80	0.00	91.98	0.50	91.98
16MW-21	2/27/2001	99.78	00:00	7.27	0.00	92.51	0.53	92.51
16MW-21	3/27/2001	99.78	00:00	5.65	0.00	94.13	1.62	94.13
16MW-21	4/19/2001	99.78	00:00	5.70	0.00	94.08	-0.05	94.08
16MW-21	5/11/2001	99.78	00:00	6.95	0.00	92.83	-1.25	92.83
16MW-21	6/6/2001	99.78	00:00	7.19	0.00	92.59	-0.24	92.59
16MW-21	8/14/2001	99.78	00:00	8.00	0.00	91.78	-0.81	91.78
16MW-21	9/14/2001	99.78	00:00	8.51	0.00	91.27	-0.51	91.27
16MW-21	10/11/2001	99.78	00:00	8.59	0.00	91.19	-0.08	91.19
16MW-21	11/13/2001	99.78	00:00	8.74	0.00	91.04	-0.15	91.04
16MW-21	12/13/2001	99.78	00:00	8.58	0.00	91.20	0.16	91.20
16MW-21	1/8/2002	99.78	00:00	8.41	0.00	91.37	0.17	91.37
16MW-21	1/23/2002	99.78	00:00	8.46	0.00	91.32	-0.05	91.32
16MW-21	2/28/2002	99.78	00:00	8.69	0.00	91.09	-0.23	91.09
16MW-21	3/28/2002	99.78	00:00	5.86	0.00	93.92	2.83	93.92
16MW-21	4/23/2002	99.78	00:00	8.22	0.03	91.56	-2.36	91.58
16MW-21	6/8/2002	99.78	00:00	8.26	0.00	91.52	-0.04	91.52
16MW-21	6/27/2002	99.78	00:00	8.05	0.00	91.73	0.21	91.73
16MW-21	7/16/2002	99.78	00:00	9.00	0.00	90.78	-0.95	90.78
16MW-21	8/15/2002	99.78	00:00	9.36	0.00	90.42	-0.36	90.42

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-21	10/18/2002	99.78	00:00	5.70	0.00	94.08	3.66	94.08
16MW-21	11/14/2002	99.78	00:00	6.17	0.00	93.61	-0.47	93.61
16MW-21	11/26/2002	99.78	00:00	6.31	0.00	93.47	-0.14	93.47
16MW-22	12/12/1997	102.22	00:00	7.70	0.00	94.52	NA	94.52
16MW-22	1/7/1998	102.22	00:00	5.34	0.00	96.88	2.36	96.88
16MW-22	2/10/1998	102.22	00:00	2.98	0.00	99.24	2.36	99.24
16MW-22	2/24/1998	102.22	00:00	1.60	0.00	100.62	1.38	100.62
16MW-22	3/3/1998	102.22	00:00	2.87	0.00	99.35	-1.27	99.35
16MW-22	3/26/1998	102.22	00:00	1.85	0.00	100.37	1.02	100.37
16MW-22	4/3/1998	102.22	00:00	2.05	0.00	100.17	-0.20	100.17
16MW-22	4/17/1998	102.22	00:00	2.10	0.00	100.12	-0.05	100.12
16MW-22	4/24/1998	102.22	00:00	1.52	0.00	100.70	0.58	100.70
16MW-22	5/5/1998	102.22	00:00	0.00	0.00	102.22	1.52	102.22
16MW-22	5/15/1998	102.22	00:00	2.86	0.00	99.36	-2.86	99.36
16MW-22	7/30/1998	102.22	00:00	6.03	0.00	96.19	-3.17	96.19
16MW-22	8/13/1998	102.22	00:00	6.10	0.00	96.12	-0.07	96.12
16MW-22	10/2/1998	102.22	00:00	7.78	0.00	94.44	-1.68	94.44
16MW-22	11/6/1998	102.22	00:00	8.79	0.00	93.43	-1.01	93.43
16MW-22	1/26/1999	102.22	00:00	1.81	0.00	100.41	6.98	100.41
16MW-22	3/9/1999	102.22	00:00	3.45	0.00	98.77	-1.64	98.77
16MW-22	3/19/1999	102.22	00:00	8.38	0.00	93.84	-4.93	93.84
16MW-22	4/20/1999	102.22	00:00	4.15	0.00	98.07	4.23	98.07
16MW-22	5/7/1999	102.22	00:00	7.05	0.00	95.17	-2.90	95.17
16MW-22	6/1/1999	102.22	00:00	5.81	0.00	96.41	1.24	96.41
16MW-22	6/9/1999	102.22	00:01	6.11	0.00	96.11	-0.30	96.11
16MW-22	6/14/1999	102.22	13:45	7.57	0.05	94.65	-1.46	94.69
16MW-22	6/22/1999	102.22	10:15	7.11	0.00	95.11	0.46	95.11
16MW-22	5/4/2000	102.22	00:00	8.86	0.00	93.36	-1.75	93.36
16MW-23	12/12/1997	102.58	08:30	9.19	0.00	93.39	NA	93.39
16MW-23	1/7/1998	102.58	09:35	8.67	0.00	93.91	0.52	93.91
16MW-23	1/7/1998	102.58	09:49	8.67	0.00	93.91	0.00	93.91
16MW-23	2/10/1998	102.58	00:00	2.98	0.00	99.60	5.69	99.60
16MW-23	2/24/1998	102.58	00:00	7.20	0.00	95.38	-4.22	95.38
16MW-23	3/3/1998	102.58	00:00	7.10	0.00	95.48	0.10	95.48
16MW-23	3/26/1998	102.58	00:00	6.60	0.00	95.98	0.50	95.98
16MW-23	4/3/1998	102.58	00:00	6.90	0.00	95.68	-0.30	95.68
16MW-23	4/17/1998	102.58	00:00	6.95	0.00	95.63	-0.05	95.63

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-23	4/24/1998	102.58	00:00	6.84	0.00	95.74	0.11	95.74
16MW-23	5/5/1998	102.58	00:00	0.00	0.00	102.58	6.84	102.58
16MW-23	5/15/1998	102.58	00:00	5.89	0.00	96.69	-5.89	96.69
16MW-23	7/30/1998	102.58	00:00	8.03	0.00	94.55	-2.14	94.55
16MW-23	8/13/1998	102.58	00:00	8.46	0.00	94.12	-0.43	94.12
16MW-23	10/2/1998	102.58	00:00	9.03	0.00	93.55	-0.57	93.55
16MW-23	1/26/1999	102.58	00:00	8.21	0.00	94.37	0.82	94.37
16MW-23	3/9/1999	102.58	00:00	8.53	0.00	94.05	-0.32	94.05
16MW-23	3/19/1999	102.58	00:00	8.31	0.00	94.27	0.22	94.27
16MW-23	4/20/1999	102.58	00:00	8.32	0.00	94.26	-0.01	94.26
16MW-23	6/1/1999	102.58	00:00	8.80	0.00	93.78	-0.48	93.78
16MW-23	6/9/1999	102.58	00:01	9.01	0.00	93.57	-0.21	93.57
16MW-23	6/22/1999	102.58	10:00	9.75	0.00	92.83	-0.74	92.83
16MW-23	8/3/1999	102.58	00:00	10.00	0.00	92.58	-0.25	92.58
16MW-23	9/15/1999	102.58	15:00	10.11	0.00	92.47	-0.11	92.47
16MW-23	4/17/2000	102.58	00:00	NM	NA	NA	NA	NA
16MW-23	5/4/2000	102.58	00:00	D	NA	NA	NA	NA
16MW-24	3/27/2001	102.06	00:00	8.15	0.00	93.91	NA	93.91
16MW-24	4/19/2001	102.06	00:00	7.83	0.00	94.23	0.32	94.23
16MW-24	5/11/2001	102.06	00:00	8.49	0.00	93.57	-0.66	93.57
16MW-24	8/14/2001	102.06	00:00	9.48	0.00	92.58	-0.99	92.58
16MW-24	9/14/2001	102.06	00:00	9.93	0.00	92.13	-0.45	92.13
16MW-24	10/11/2001	102.06	00:00	10.12	0.00	91.94	-0.19	91.94
16MW-24	11/13/2001	102.06	00:00	10.31	0.00	91.75	-0.19	91.75
16MW-24	12/13/2001	102.06	00:00	10.23	0.00	91.83	0.08	91.83
16MW-24	1/8/2002	102.06	00:00	10.13	0.00	91.93	0.10	91.93
16MW-24	1/23/2002	102.06	00:00	10.19	0.00	91.87	-0.06	91.87
16MW-24	2/28/2002	102.06	00:00	10.34	0.00	91.72	-0.15	91.72
16MW-24	3/28/2002	102.06	00:00	9.62	0.00	92.44	0.72	92.44
16MW-24	4/23/2002	102.06	00:00	9.88	0.00	92.18	-0.26	92.18
16MW-24	6/8/2002	102.06	00:00	9.88	0.00	92.18	0.00	92.18
16MW-24	6/27/2002	102.06	00:00	9.84	0.00	92.22	0.04	92.22
16MW-24	7/16/2002	102.06	00:00	10.43	0.00	91.63	-0.59	91.63
16MW-24	8/15/2002	102.06	00:00	10.81	0.00	91.25	-0.38	91.25
16MW-25	3/27/2001	100.92	00:00	8.01	0.00	92.91	NA	92.91
16MW-25	4/19/2001	100.92	00:00	6.20	0.00	94.72	1.81	94.72
16MW-25	8/14/2001	100.92	00:00	8.48	0.02	92.44	-2.28	92.45

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-25	9/14/2001	100.92	00:00	8.91	0.01	92.01	-0.43	92.02
16MW-25	10/11/2001	100.92	00:00	9.08	0.02	91.84	-0.17	91.85
16MW-25	11/13/2001	100.92	00:00	9.23	0.01	91.69	-0.15	91.70
16MW-25	12/13/2001	100.92	00:00	9.18	0.01	91.74	0.05	91.75
16MW-25	1/8/2002	100.92	00:00	9.07	0.01	91.85	0.11	91.85
16MW-25	1/23/2002	100.92	00:00	9.11	0.00	91.81	-0.04	91.81
16MW-25	2/28/2002	100.92	00:00	9.28	0.00	91.64	-0.17	91.64
16MW-25	3/28/2002	100.92	00:00	8.50	0.01	92.42	0.78	92.43
16MW-25	4/23/2002	100.92	00:00	8.84	0.01	92.08	-0.34	92.09
16MW-25	6/8/2002	100.92	00:00	8.81	0.02	92.11	0.03	92.12
16MW-25	6/27/2002	100.92	00:00	8.85	0.03	92.07	-0.04	92.09
16MW-25	7/16/2002	100.92	00:00	10.47	0.03	90.45	-1.62	90.47
16MW-25	8/15/2002	100.92	00:00	9.76	0.03	91.16	0.71	91.19
16MW-25	10/18/2002	100.92	00:00	8.10	0.01	92.82	1.66	92.83
16MW-25	11/14/2002	100.92	00:00	8.40	0.03	92.52	-0.30	92.54
16MW-25	11/26/2002	100.92	00:00	7.95	0.04	92.97	0.45	93.00
16MW-26	3/27/2001	101.67	00:00	8.52	0.01	93.15	NA	93.15
16MW-26	4/19/2001	101.67	00:00	5.82	0.00	95.85	2.70	95.85
16MW-26	5/11/2001	101.67	00:00	8.41	0.01	93.26	-2.59	93.26
16MW-26	8/14/2001	101.67	00:00	9.22	0.00	92.45	-0.81	92.45
16MW-26	9/14/2001	101.67	00:00	9.90	0.00	91.77	-0.68	91.77
16MW-26	10/11/2001	101.67	00:00	9.08	0.00	92.59	0.82	92.59
16MW-26	11/13/2001	101.67	00:00	10.38	0.00	91.29	-1.30	91.29
16MW-26	12/13/2001	101.67	00:00	9.97	0.01	91.70	0.41	91.70
16MW-26	6/8/2002	101.67	00:00	7.50	0.00	94.17	2.47	94.17
16MW-26	6/27/2002	101.67	00:00	6.40	0.00	95.27	1.10	95.27
16MW-26	8/15/2002	101.67	00:00	10.21	0.00	91.46	-3.81	91.46
16MW-26	10/18/2002	101.57	00:00	6.00	0.00	95.57	4.11	95.57
16MW-26	11/14/2002	101.57	00:00	6.09	0.00	95.48	-0.09	95.48
16MW-26	11/26/2002	101.57	00:00	6.11	0.00	95.46	-0.02	95.46
16MW-27	3/27/2001	100.80	00:00	10.22	0.58	90.58	NA	91.07
16MW-27	4/19/2001	100.80	00:00	9.53	0.79	91.27	0.69	91.95
16MW-27	5/11/2001	100.80	00:00	9.63	0.66	91.17	-0.10	91.73
16MW-27	8/14/2001	100.80	00:00	9.22	0.25	91.58	0.41	91.79
16MW-27	9/14/2001	100.80	00:00	9.67	0.25	91.13	-0.45	91.34
16MW-27	10/11/2001	100.80	00:00	9.48	0.15	91.32	0.19	91.45
16MW-27	11/13/2001	100.80	00:00	10.26	0.33	90.54	-0.78	90.82

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
16MW-27	12/13/2001	100.80	00:00	9.79	0.22	91.01	0.47	91.19
16MW-27	1/8/2002	100.80	00:00	10.55	0.40	90.25	-0.76	90.59
16MW-27	1/23/2002	100.80	00:00	10.14	0.32	90.66	0.41	90.93
16MW-27	2/28/2002	100.80	00:00	10.40	0.35	90.40	-0.26	90.70
16MW-27	3/28/2002	100.80	00:00	9.56	0.32	91.24	0.84	91.51
16MW-27	4/23/2002	100.80	00:00	9.92	0.34	90.88	-0.36	91.17
16MW-27	6/8/2002	100.80	00:00	9.15	0.11	91.65	0.77	91.75
16MW-27	6/27/2002	100.80	00:00	9.00	0.08	91.80	0.15	91.86
16MW-27	7/16/2002	100.80	00:00	10.36	0.33	90.44	-1.36	90.72
16MW-27	8/15/2002	100.80	00:00	10.72	1.22	90.08	-0.36	91.12
16MW-27	10/18/2002	100.80	00:00	8.65	0.14	92.15	2.07	92.27
16MW-27	11/14/2002	100.80	00:00	8.80	0.15	92.00	-0.15	92.12
16MW-27	11/26/2002	100.80	00:00	8.70	0.21	92.10	0.10	92.28
16MW-28	3/27/2001	100.62	00:00	7.46	0.00	93.16	NA	93.16
16MW-28	4/19/2001	100.62	00:00	7.85	0.01	92.77	-0.39	92.78
16MW-28	5/11/2001	100.62	00:00	7.16	0.66	93.46	0.69	94.02
16MW-28	8/14/2001	100.62	00:00	8.27	0.00	92.35	-1.11	92.35
16MW-28	9/14/2001	100.62	00:00	8.62	0.00	92.00	-0.35	92.00
16MW-28	10/11/2001	100.62	00:00	8.81	0.00	91.81	-0.19	91.81
16MW-28	11/13/2001	100.62	00:00	8.94	0.00	91.68	-0.13	91.68
16MW-28	12/13/2001	100.62	00:00	8.87	0.00	91.75	0.07	91.75
16MW-28	1/8/2002	100.62	00:00	9.00	0.00	91.62	-0.13	91.62
16MW-28	1/23/2002	100.62	00:00	8.84	0.00	91.78	0.16	91.78
16MW-28	2/28/2002	100.62	00:00	9.01	0.00	91.61	-0.17	91.61
16MW-28	3/28/2002	100.62	00:00	8.30	0.00	92.32	0.71	92.32
16MW-28	4/23/2002	100.62	00:00	8.56	0.00	92.06	-0.26	92.06
16MW-28	6/8/2002	100.62	00:00	8.55	0.00	92.07	0.01	92.07
16MW-28	7/16/2002	100.62	00:00	9.11	0.00	91.51	-0.56	91.51
16MW-28	8/15/2002	100.62	00:00	9.48	0.00	91.14	-0.37	91.14
16MW-28	10/18/2002	100.62	00:00	7.80	0.00	92.82	1.68	92.82
16MW-28	11/14/2002	100.62	00:00	7.85	0.00	92.77	-0.05	92.77
16MW-28	11/26/2002	100.62	00:00	7.60	0.00	93.02	0.25	93.02
C17MW-07	10/6/1979	100.16	00:00	8.19	1.28	91.97	NA	93.06
C17MW-07	12/12/1997	100.16	00:00	7.91	1.26	92.25	0.28	93.32
C17MW-07	1/7/1998	100.16	00:00	7.52	1.42	92.64	0.39	93.85
C17MW-07	1/15/1998	100.16	00:00	7.37	0.20	92.80	0.16	92.96
C17MW-07	2/10/1998	100.16	00:00	6.55	0.84	93.62	0.82	94.33

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
C17MW-07	2/24/1998	100.16	00:00	1.95	1.35	98.21	4.60	99.36
C17MW-07	3/3/1998	100.16	00:00	5.89	0.49	94.27	-3.94	94.69
C17MW-07	3/12/1998	100.16	00:00	5.45	0.18	94.71	0.44	94.86
C17MW-07	3/13/1998	100.16	00:00	5.56	0.14	94.61	-0.11	94.72
C17MW-07	3/26/1998	100.16	00:00	5.31	0.01	94.85	0.24	94.86
C17MW-07	4/3/1998	100.16	00:00	5.62	0.09	94.54	-0.31	94.61
C17MW-07	4/9/1998	100.16	00:00	5.77	0.08	94.39	-0.15	94.46
C17MW-07	4/17/1998	100.16	00:00	5.62	0.12	94.54	0.15	94.64
C17MW-07	4/24/1998	100.16	00:00	5.50	0.13	94.66	0.12	94.77
C17MW-07	5/5/1998	100.16	00:00	5.67	0.28	94.49	-0.17	94.77
C17MW-07	5/15/1998	100.16	00:00	4.83	0.22	95.33	0.83	95.52
C17MW-07	7/30/1998	100.16	00:00	7.25	1.12	92.91	-2.42	93.86
C17MW-07	8/7/1998	100.16	00:00	7.07	0.25	93.10	0.19	93.30
C17MW-07	8/13/1998	100.16	00:00	7.23	0.25	92.93	-0.17	93.14
C17MW-07	8/21/1998	100.16	00:00	7.27	0.11	92.89	-0.04	92.98
C17MW-07	9/3/1998	100.16	00:00	7.31	0.15	92.85	-0.04	92.98
C17MW-07	9/10/1998	100.16	00:00	7.42	0.09	92.75	-0.11	92.82
C17MW-07	10/2/1998	100.16	00:00	7.55	0.21	92.62	-0.13	92.79
C17MW-07	10/20/1998	100.16	00:00	7.58	0.10	92.58	-0.04	92.67
C17MW-07	12/3/1998	100.16	00:00	7.72	0.08	92.44	-0.14	92.51
C17MW-07	12/23/1998	100.16	00:00	7.67	0.12	92.49	0.05	92.59
C17MW-07	1/26/1999	100.16	00:00	6.35	0.10	93.81	1.32	93.90
C17MW-07	3/9/1999	100.16	00:00	6.61	0.11	93.55	-0.26	93.64
C17MW-07	3/19/1999	100.16	00:00	6.23	0.08	93.93	0.39	94.00
C17MW-07	4/20/1999	100.16	00:00	6.61	0.11	93.56	-0.38	93.64
C17MW-07	5/7/1999	100.16	00:00	6.78	0.08	93.39	-0.17	93.45
C17MW-07	6/1/1999	100.16	00:00	7.19	0.14	92.97	-0.42	93.09
C17MW-07	6/9/1999	100.16	00:00	7.20	0.00	92.96	-0.01	92.96
C17MW-07	6/9/1999	100.16	00:01	7.57	0.28	92.60	-0.37	92.83
C17MW-07	6/10/1999	100.16	00:00	7.54	0.13	92.62	0.03	92.73
C17MW-07	6/14/1999	100.16	13:35	7.54	0.13	92.62	0.00	92.73
C17MW-07	6/22/1999	100.16	09:25	7.60	0.32	92.56	-0.06	92.83
C17MW-07	7/29/1999	100.16	00:00	10.40	0.60	89.76	-2.80	90.27
C17MW-07	8/3/1999	100.16	00:00	10.62	0.63	89.54	-0.22	90.08
C17MW-07	8/13/1999	100.16	00:00	10.96	0.70	89.20	-0.34	89.20
C17MW-07	9/3/1999	100.16	00:00	8.37	0.04	91.79	2.59	91.83
C17MW-07	9/15/1999	100.16	14:15	9.37	0.29	90.79	-1.00	90.82
C17MW-07	10/26/1999	100.16	00:00	11.04	1.02	89.12	-1.67	89.99
C17MW-07	11/2/1999	100.16	00:00	10.99	0.93	89.17	0.05	89.17

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

## Water Level &amp; Product Thickness Data

PERIOD: From 10/06/1979 thru 11/26/2002 - Inclusive

SITE	DATE	MP ELEVATION (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV. (feet)	DELTA WATER ELEV (feet)	EQUIV. FRESH WATER HEAD (feet)
C17MW-07	11/18/1999	100.16	00:00	8.56	0.17	91.60	2.43	91.74
C17MW-07	12/1/1999	100.16	00:00	8.45	0.19	91.71	0.11	91.87
C17MW-07	12/31/1999	100.16	00:00	8.30	0.22	91.86	0.15	92.05
C17MW-07	1/26/2000	100.16	00:00	8.20	0.12	91.96	0.10	92.06
C17MW-07	2/18/2000	100.16	00:00	7.47	0.03	92.69	0.73	92.72
C17MW-07	4/17/2000	100.16	00:00	7.38	0.08	92.78	0.09	92.85
C17MW-07	5/4/2000	100.16	00:00	7.92	0.06	92.24	-0.54	92.29
C17MW-07	8/9/2000	100.16	00:00	7.07	0.06	93.09	0.85	93.14
C17MW-07	8/24/2000	100.16	00:00	7.50	0.02	92.66	-0.43	92.68
C17MW-07	10/26/2000	100.16	00:00	8.08	0.06	92.08	-0.58	92.13
C17MW-07	11/28/2000	100.16	00:00	8.00	0.16	92.16	0.08	92.30
C17MW-07	1/16/2001	100.16	00:00	8.10	0.20	92.06	-0.10	92.23
C17MW-07	2/27/2001	100.16	00:00	6.42	0.01	93.74	1.68	93.74
C17MW-07	3/27/2001	100.16	00:00	6.25	0.04	93.91	0.17	93.95
C17MW-07	4/19/2001	100.16	00:00	6.44	0.14	93.72	-0.19	93.84
C17MW-07	5/11/2001	100.16	00:00	7.19	0.15	92.97	-0.75	93.10
C17MW-07	6/6/2001	100.16	00:00	7.57	0.19	92.59	-0.38	92.75
C17MW-07	8/14/2001	100.16	00:00	8.96	0.37	91.20	-1.39	91.52
C17MW-07	9/14/2001	100.16	00:00	8.76	0.18	91.40	0.20	91.55
C17MW-07	10/11/2001	100.16	00:00	8.36	0.04	91.80	0.40	91.83
C17MW-07	11/13/2001	100.16	00:00	8.91	0.15	91.25	-0.55	91.38
C17MW-07	12/13/2001	100.16	00:00	8.93	0.21	91.23	-0.02	91.41
C17MW-07	1/8/2002	100.16	00:00	9.38	0.38	90.78	-0.45	91.11
C17MW-07	1/23/2002	100.16	00:00	9.70	0.47	90.46	-0.32	90.86
C17MW-07	2/28/2002	100.16	00:00	9.21	0.26	90.95	0.49	91.17
C17MW-07	3/28/2002	100.16	00:00	8.30	0.38	91.86	0.91	92.18
C17MW-07	4/23/2002	100.16	00:00	8.70	0.28	91.46	-0.40	91.70
C17MW-07	6/8/2002	100.16	00:00	8.80	0.34	91.36	-0.10	91.65
C17MW-07	6/27/2002	100.16	00:00	8.80	0.35	91.36	0.00	91.66
C17MW-07	7/16/2002	100.16	00:00	8.65	0.03	91.51	0.15	91.53
C17MW-07	8/15/2002	100.16	00:00	9.53	0.70	90.63	-0.88	91.23
C17MW-07	10/18/2002	100.16	00:00	7.18	0.04	92.98	2.35	93.02
C17MW-07	11/14/2002	100.16	00:00	7.60	0.10	92.56	-0.42	92.65
C17MW-07	11/26/2002	100.16	00:00	7.12	0.04	93.04	0.48	93.08

1- Change in Water Elevation since last reported measurement  
2- Measurements based on mean sea level.

APPENDIX C  
ANALYTICAL SUMMARY TABLES FOR AIR DISCHARGES  
AND ASSOCIATED DATA

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 1  
 Analytical Results of Air Samples

**Bioslurper Unit #1**

<b>SAMPLE NO.</b> 16(A)VD(02)-29 <b>Sample Date:</b> 9/30/2002								
<b>Compound</b>	<b>Molecular Weight (lbs/lbs-mol)</b>	<b>Conversion Constant (cu. ft/lbs-mol)</b>	<b>Time Conversion (min/hr)</b>	<b>Weekly Flow Rate (cu. ft/min)</b>	<b>Compound Conc. (ppm(v))</b>	<b>Compound Emission Limit ppm(v)</b>	<b>Output Rate (lbs/hr)</b>	<b>Emission Limits (lbs/hr)</b>
Acetone	58.1	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	43.0	0.000	7.0	0.00E+00	8.00E-03
Toluene	92.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Vinyl Chloride	62.5	384.6	60.0	68.0	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
<b>Total Emissions:</b>					<b>0.00</b>	<b>27.5</b>	<b>0.00E+00</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 2  
 Analytical Results of Air Samples

**Bioslurper Unit #2**

<b>SAMPLE NO.</b> 16(B)VD(02)-13 <b>Sample Date:</b> 9/30/2002								
<b>Compound</b>	<b>Molecular Weight (lbs/lbs-mol)</b>	<b>Conversion Constant (cu. ft/lbs-mol)</b>	<b>Time Conversion (min/hr)</b>	<b>Weekly Flow Rate (cu. ft/min)</b>	<b>Compound Conc. (ppm(v))</b>	<b>Compound Emission Limit ppm(v)</b>	<b>Output Rate (lbs/hr)</b>	<b>Emission Limits (lbs/hr)</b>
Acetone	58.1	384.6	60.0	68.0	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	68.0	0.013	7.0	1.08E-05	8.00E-03
Toluene	92.0	384.6	60.0	68.0	0.009	N/A	9.08E-06	
Ethylbenzene	106.0	384.6	60.0	68.0	0.200	N/A	2.25E-04	
m,p-Xylenes	106.0	384.6	60.0	68.0	0.540	N/A	6.07E-04	
o-Xylene	106.0	384.6	60.0	68.0	0.130	N/A	1.46E-04	
Vinyl Chloride	62.5	384.6	60.0	68.0	0.370	N/A	2.45E-04	
Cis-1,2-dichlorethene	96.9	384.6	60.0	68.0	0.007	N/A	7.30E-06	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	68.0	0.460	N/A	5.86E-04	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	68.0	1.600	N/A	2.04E-03	
<b>Total Emissions:</b>					<b>3.33</b>	<b>27.5</b>	<b>3.63E-03</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 1  
 Analytical Results of Air Samples

**Bioslurper Unit #1**

<b>SAMPLE NO.</b> 16(A)VD(02)-31 <b>Sample Date:</b> 10/29/2002								
<b>Compound</b>	<b>Molecular Weight (lbs/lbs-mol)</b>	<b>Conversion Constant (cu. ft/lbs-mol)</b>	<b>Time Conversion (min/hr)</b>	<b>Weekly Flow Rate (cu. ft/min)</b>	<b>Compound Conc. (ppm(v))</b>	<b>Compound Emission Limit ppm(v)</b>	<b>Output Rate (lbs/hr)</b>	<b>Emission Limits (lbs/hr)</b>
Acetone	58.1	384.6	60.0	43.0	0.006	N/A	2.22E-06	
Benzene	78.0	384.6	60.0	43.0	0.000	7.0	0.00E+00	8.00E-03
Toluene	92.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
<b>Total Emissions:</b>					<b>0.01</b>	<b>27.5</b>	<b>2.22E-06</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 2  
 Analytical Results of Air Samples

**Bioslurper Unit #2**

<b>SAMPLE NO.</b> 16(B)VD(02)-14 <b>Sample Date:</b> 10/29/2002								
<b>Compound</b>	<b>Molecular Weight (lbs/lbs-mol)</b>	<b>Conversion Constant (cu. ft/lbs-mol)</b>	<b>Time Conversion (min/hr)</b>	<b>Weekly Flow Rate (cu. ft/min)</b>	<b>Compound Conc. (ppm(v))</b>	<b>Compound Emission Limit ppm(v)</b>	<b>Output Rate (lbs/hr)</b>	<b>Emission Limits (lbs/hr)</b>
Acetone	58.1	384.6	60.0	68.0	0.0	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	68.0	0.046	7.0	3.81E-05	8.00E-03
Toluene	92.0	384.6	60.0	68.0	0.018	N/A	1.76E-05	
Ethylbenzene	106.0	384.6	60.0	68.0	0.360	N/A	4.05E-04	
m,p-Xylenes	106.0	384.6	60.0	68.0	0.870	N/A	9.78E-04	
o-Xylene	106.0	384.6	60.0	68.0	0.160	N/A	1.80E-04	
Vinyl Chloride	62.5	384.6	60.0	68.0	0.064	N/A	4.24E-05	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	68.0	0.360	N/A	4.58E-04	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	68.0	1.400	N/A	1.78E-03	
<b>Total Emissions:</b>					<b>3.28</b>	<b>27.5</b>	<b>3.90E-03</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 1  
 Analytical Results of Air Samples

**Bioslurper Unit #1**

SAMPLE NO. 16(A)VD(02)-33								
Sample Date: 11/26/2002								
Compound	Molecular Weight (lbs/lbs-mol)	Conversion Constant (cu. ft/lbs-mol)	Time Conversion (min/hr)	Weekly Flow Rate (cu. ft/min)	Compound Conc. (ppm(v))	Compound Emission Limit ppm(v)	Output Rate (lbs/hr)	Emission Limits (lbs/hr)
Acetone	58.1	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	43.0	0.000	7.0	0.00E+00	8.00E-03
Toluene	92.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	43.0	0.000	N/A	0.00E+00	
<b>Total Emissions:</b>					<b>0.00</b>	<b>27.5</b>	<b>0.00E+00</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

U.S. Navy RAC Contract No.62472-99-D-0032  
 Naval Weapons Station-Earle: Bioslurper No. 2  
 Analytical Results of Air Samples

**Bioslurper Unit #2**

<b>SAMPLE NO.</b> 16(B)VD(02)-15 <b>Sample Date:</b> 11/26/2002								
<b>Compound</b>	<b>Molecular Weight (lbs/lbs-mol)</b>	<b>Conversion Constant (cu. ft/lbs-mol)</b>	<b>Time Conversion (min/hr)</b>	<b>Weekly Flow Rate (cu. ft/min)</b>	<b>Compound Conc. (ppm(v))</b>	<b>Compound Emission Limit ppm(v)</b>	<b>Output Rate (lbs/hr)</b>	<b>Emission Limits (lbs/hr)</b>
Acetone	58.1	384.6	60.0	68.0	0.029	N/A	1.79E-05	
Benzene	78.0	384.6	60.0	68.0	0.036	7.0	2.98E-05	8.00E-03
Toluene	92.0	384.6	60.0	68.0	0.019	N/A	1.85E-05	
Ethylbenzene	106.0	384.6	60.0	68.0	0.600	N/A	6.75E-04	
m,p-Xylenes	106.0	384.6	60.0	68.0	2.000	N/A	2.25E-03	
o-Xylene	106.0	384.6	60.0	68.0	0.420	N/A	4.72E-04	
Vinyl Chloride	62.5	384.6	60.0	68.0	0.007	N/A	4.64E-06	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	68.0	0.700	N/A	8.91E-04	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	68.0	2.300	N/A	2.93E-03	
<b>Total Emissions:</b>					<b>6.11</b>	<b>27.5</b>	<b>7.28E-03</b>	<b>3.50E-02</b>

**Formula:** Output Rate per Compound =  $\frac{(\text{Mol. Wt.}) \times (\text{Time Conv.}) \times (\text{Concentration}) \times (\text{Flow Rate})}{(\text{Conv. Constant}) \times 10^6}$

Note: Sample collected after carbon treatment.

NWS-EARLE  
 BIOSLURPER UNIT #1 AND #2  
 TPH REMOVED VIA VAPOR EXTRACTION

3/11/2003

<b>BIOSLURPER UNIT 1</b>	
OPERATED (hours):	39
AVERAGE FLOW RATE (cfm):	43
TPH CONCENTRATION (mg/m <sup>3</sup> ):	7300
(as per analytical)	9/30/2002
	45.87 =POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
OPERATED (hours):	27
AVERAGE FLOW RATE (cfm):	53
TPH CONCENTRATION (mg/m <sup>3</sup> ):	370
(as per analytical)	9/30/2002
	1.98 =POUNDS OF TPH

POUNDS OF TPH= \_\_\_\_\_  
**AVERAGE FLOW RATE** (cfm) \* 0.02832m<sup>3</sup>/ft<sup>3</sup> \* **TPH CONC**(mg/m<sup>3</sup>) \* 0.001g/mg \* 0.002205 lbs/g \* 60 min/hr \* **OPERATED** (hours)

NWS-EARLE  
 BIOSLURPER UNIT #1 AND #2  
 TPH REMOVED VIA VAPOR EXTRACTION

3/11/2003

<b>BIOSLURPER UNIT 1</b>	
OPERATED (hours):	49.5
AVERAGE FLOW RATE (cfm):	43
TPH CONCENTRATION (mg/m <sup>3</sup> ):	5800
(as per analytical)	10/29/2002
	46.25 = POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
OPERATED (hours):	0
AVERAGE FLOW RATE (cfm):	0
TPH CONCENTRATION (mg/m <sup>3</sup> ):	0
(as per analytical)	10/29/2002
	0.00 = POUNDS OF TPH

POUNDS OF TPH= \_\_\_\_\_  
**AVERAGE FLOW RATE** (cfm) \* 0.02832m<sup>3</sup>/ft<sup>3</sup> \* **TPH CONC**(mg/m<sup>3</sup>) \* 0.001g/mg \* 0.002205 lbs/g \* 60 min/hr \* **OPERATED** (hours)

<b>BIOSLURPER UNIT 1</b>	
OPERATED (hours):	16.5
AVERAGE FLOW RATE (cfm):	43
TPH CONCENTRATION (mg/m <sup>3</sup> ):	2900
(as per analytical)	11/26/2002
	7.71 =POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
OPERATED (hours):	47.5
AVERAGE FLOW RATE (cfm):	53
TPH CONCENTRATION (mg/m <sup>3</sup> ):	640
(as per analytical)	11/26/2002
	6.04 =POUNDS OF TPH

POUNDS OF TPH= \_\_\_\_\_  
**AVERAGE FLOW RATE** (cfm) \* 0.02832m<sup>3</sup>/ft<sup>3</sup> \* **TPH CONC**(mg/m<sup>3</sup>) \* 0.001g/mg \* 0.002205 lbs/g \* 60 min/hr \* **OPERATED** (hours)

**ECVP**

**Electronic Comprehensive  
Validation Package**

**WO# 0210011A**

**Air Toxics Ltd.**

180 Blue Ravine Road Ste. B

Folsom, CA 95630

Phone: 916/985-1000

Fax: 916/985-1020

eMail: [atl@airtoxics.com](mailto:atl@airtoxics.com)

[www.airtoxics.com](http://www.airtoxics.com)



**COMPREHENSIVE VALIDATION PACKAGE**

Modified TO-14

INVENTORY SHEET

Work Order #: 0210011A

	Page Nos.	
	From	To
1. Work Order Cover Page & Laboratory Narrative	--	--
2. Sample Results and Raw Data (Organized by Sample)	--	--
a. ATL Sample Results Form		
b. Target Compound Raw Data		
-Internal Standard Area and Retention Time Summary		
-Surrogate Recovery Summary (If Applicable)		
-Chromatogram(s) and Ion Profiles (If Applicable)		
3. QC Results and Raw Data		
a. Method Blank (Results+ Raw Data)	--	--
b. Surrogate Recover Summary Form (If Applicable)	--	--
c. Internal Standard Summary Form (If Applicable)	--	--
d. Duplicate Results Summary Sheet	--	--
e. Matrix Spike/Matrix Spike Duplicate (Results + Raw Data)	--	--
f. Initial Calibration Data (Summary Sheet + Raw Data)	--	--
g. MDL Study (If Applicable)	--	--
h. Continuing Calibration Verification Data (Summary Sheet)	--	--
i. Second Source LCS(Summary + Raw Data)	--	--
j. Extraction Logs	--	--
k. Instrument Run Logs/Software Verification	--	--
l. GC/MS Tune (Results + Raw Data)	--	--
4. Shipping/Receiving Documents		
a. Login Receipt Summary Sheet	--	--
b. Chain-of-Custody Records	--	--
c. Sample Log-In Sheet	--	--
d. Misc Shipping/Receiving Records (list of individual records)		
<u>Sample Receipt Discrepancy Report</u>	--	--
5. Other Records (describe or list)		
a. <u>Manual Spectral Defense</u>	--	--
b. <u>Manual Integrations</u>	--	--
c. <u>Canister Dilution Factors</u>	--	--
d. <u>Laboratory Corrective Action Request</u>	--	--
e. <u>CAS Number Reference</u>	--	--
f. <u>Variance Table</u>	--	--
g. <u>Canister Certification</u>	--	--
h. <u>Data Review Check Sheet</u>	--	--

Comments:

Completed by:

*Judy Lee*

(Signature)

Judy Lee / Document Control

( Print Name & Title)

10/9/02

(Date)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

## WORK ORDER #: 0210011A

### Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>		<b>P.O. #</b>	
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	228204919202 NWS EARLE
<b>DATE RECEIVED:</b>	10/1/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	10/4/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	16(B) VD-02-13	Modified TO-14	3.5 "Hg
02A	26-AS-34	Modified TO-14	1.2 psi
03A	26-AS-35	Modified TO-14	0.0 "Hg
04A	16(A) VD-02-29	Modified TO-14	0.5 "Hg
05A	16(A) VD-02-28	Modified TO-14	0.5 "Hg
06A	Lab Blank	Modified TO-14	NA
06B	Lab Blank	Modified TO-14	NA
07A	LCS	Modified TO-14	NA
07B	LCS	Modified TO-14	NA

CERTIFIED BY:

Laboratory Director

DATE: 10/04/02

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892, LA NELAP/LELAP- AI 30763  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified Method TO-14**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0210011A**

Three 6 Liter Silonite Canister and two 6 Liter Summa Canister samples were received on October 01, 2002. The laboratory performed analysis via modified EPA Method TO-14 using GC/MS in the full scan mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis. See the data sheets for the reporting limits for each compound.

During the five point calibration, two low-level standards are used. The low-level standard for TO-14 compounds is spiked at 0.5 ppbv and represents the reporting limit for these compounds. The low-level standard for the non-TO-14 compounds is spiked at 2.0 ppbv and represents the reporting limit for these compounds. The TO-14 compounds are present in both standards but are excluded from reporting in the 2.0 ppbv standard since a lower level is already included in the curve.

Method modifications taken to run these samples include:

<i>Requirement</i>	<i>TO-14</i>	<i>ATL Modifications</i>
Internal standard retention times.	Not specified.	Within 0.50 minutes of most recent daily CCV internal standards
Internal standard recoveries.	Not specified.	Within 40% of the daily CCV internal standard area for blanks and samples.
Initial calibration criteria.	Not specified.	RSD of 30% or less for standard compounds, 40% or less for non-standard and polar compounds
Continuing calibration verification criteria	Not specified.	70 - 130% for at least 90% of standard compounds, 60 - 140% for at least 80% of non-standard and polar compounds

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

The recovery of surrogate 4-Bromofluorobenzene in sample 16(B) VD-02-13 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicates as follows:

- B - Compound present in laboratory blank greater than reporting limit (background subtraction no performed).
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the reporting limit.
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Table 1**

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample	Sample Extract		Sample Condition
					Holding Time (Days)	Date Analyzed	Holding Time (Days)	
16(B) VD-02-13	0210011A-01A	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
26-AS-34	0210011A-02A	9/30/2002	10/ 1/2002	NA	4	10/ 4/2002	NA	Good
26-AS-35	0210011A-03A	9/30/2002	10/ 1/2002	NA	4	10/ 4/2002	NA	Good
16(A) VD-02-29	0210011A-04A	9/30/2002	10/ 1/2002	NA	4	10/ 4/2002	NA	Good
16(A) VD-02-28	0210011A-05A	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
Lab Blank	0210011A-06A	NA	NA	NA	NA	10/ 3/2002	NA	Good
Lab Blank	0210011A-06B	NA	NA	NA	NA	10/ 4/2002	NA	Good
LCS	0210011A-07A	NA	NA	NA	NA	10/ 3/2002	NA	Good
LCS	0210011A-07B	NA	NA	NA	NA	10/ 4/2002	NA	Good

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

SAMPLE NAME: 16(B) VD-02-13

ID#: 0210011A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100314	Date of Collection:	9/30/02
Dil. Factor:	12.2	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	6.1	31	Not Detected	Not Detected
Freon 114	6.1	43	Not Detected	Not Detected
Chloromethane	6.1	13	Not Detected	Not Detected
Vinyl Chloride	6.1	16	370	960
Bromomethane	6.1	24	Not Detected	Not Detected
Chloroethane	6.1	16	8.6	23
Freon 11	6.1	35	Not Detected	Not Detected
1,1-Dichloroethene	6.1	24	Not Detected	Not Detected
Freon 113	6.1	48	Not Detected	Not Detected
Methylene Chloride	6.1	22	Not Detected	Not Detected
1,1-Dichloroethane	6.1	25	Not Detected	Not Detected
cis-1,2-Dichloroethene	6.1	24	7.1	28
Chloroform	6.1	30	23	110
1,1,1-Trichloroethane	6.1	34	Not Detected	Not Detected
Carbon Tetrachloride	6.1	39	Not Detected	Not Detected
Benzene	6.1	20	13	42
1,2-Dichloroethane	6.1	25	Not Detected	Not Detected
Trichloroethene	6.1	33	Not Detected	Not Detected
1,2-Dichloropropane	6.1	29	Not Detected	Not Detected
cis-1,3-Dichloropropene	6.1	28	Not Detected	Not Detected
Toluene	6.1	23	9.3	35
trans-1,3-Dichloropropene	6.1	28	Not Detected	Not Detected
1,1,2-Trichloroethane	6.1	34	Not Detected	Not Detected
Tetrachloroethene	6.1	42	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	6.1	48	Not Detected	Not Detected
Chlorobenzene	6.1	28	Not Detected	Not Detected
Ethyl Benzene	6.1	27	200	900
m,p-Xylene	6.1	27	540	2400
o-Xylene	6.1	27	130	560
Styrene	6.1	26	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	6.1	42	Not Detected	Not Detected
1,3,5-Trimethylbenzene	6.1	30	460	2300
1,2,4-Trimethylbenzene	6.1	30	1600	8100
1,3-Dichlorobenzene	6.1	37	Not Detected	Not Detected
1,4-Dichlorobenzene	6.1	37	Not Detected	Not Detected
alpha-Chlorotoluene	6.1	32	Not Detected	Not Detected
1,2-Dichlorobenzene	6.1	37	Not Detected	Not Detected
1,2,4-Trichlorobenzene	24	180	Not Detected	Not Detected
Hexachlorobutadiene	24	260	Not Detected	Not Detected
Propylene	24	43	Not Detected	Not Detected
1,3-Butadiene	24	55	Not Detected	Not Detected
Acetone	24	59	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16(B) VD-02-13

ID#: 0210011A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100314	Date of Collection:	9/30/02
Dil. Factor:	12.2	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	24	77	Not Detected	Not Detected
2-Propanol	24	61	Not Detected	Not Detected
trans-1,2-Dichloroethene	24	98	Not Detected	Not Detected
Vinyl Acetate	24	87	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	24	73	Not Detected	Not Detected
Hexane	24	87	140	510
Tetrahydrofuran	24	73	Not Detected	Not Detected
Cyclohexane	24	85	190	670
1,4-Dioxane	24	89	Not Detected	Not Detected
Bromodichloromethane	24	170	Not Detected	Not Detected
4-Methyl-2-pentanone	24	100	Not Detected	Not Detected
2-Hexanone	24	100	Not Detected	Not Detected
Dibromochloromethane	24	210	Not Detected	Not Detected
Bromoform	24	260	Not Detected	Not Detected
4-Ethyltoluene	24	120	690	3400
Ethanol	24	47	Not Detected	Not Detected
Methyl tert-Butyl Ether	24	89	Not Detected	Not Detected
Heptane	24	100	230	970

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	194 Q	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-29

ID#: 0210011A-04A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100409	Date of Collection:	9/30/02
Dil. Factor:	1.36	Date of Analysis:	10/4/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	0.68	3.4	Not Detected	Not Detected
Freon 114	0.68	4.8	Not Detected	Not Detected
Chloromethane	0.68	1.4	Not Detected	Not Detected
Vinyl Chloride	0.68	1.8	Not Detected	Not Detected
Bromomethane	0.68	2.7	Not Detected	Not Detected
Chloroethane	0.68	1.8	Not Detected	Not Detected
Freon 11	0.68	3.9	Not Detected	Not Detected
1,1-Dichloroethene	0.68	2.7	Not Detected	Not Detected
Freon 113	0.68	5.3	Not Detected	Not Detected
Methylene Chloride	0.68	2.4	Not Detected	Not Detected
1,1-Dichloroethane	0.68	2.8	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.68	2.7	Not Detected	Not Detected
Chloroform	0.68	3.4	Not Detected	Not Detected
1,1,1-Trichloroethane	0.68	3.8	Not Detected	Not Detected
Carbon Tetrachloride	0.68	4.3	Not Detected	Not Detected
Benzene	0.68	2.2	Not Detected	Not Detected
1,2-Dichloroethane	0.68	2.8	Not Detected	Not Detected
Trichloroethene	0.68	3.7	Not Detected	Not Detected
1,2-Dichloropropane	0.68	3.2	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.68	3.1	Not Detected	Not Detected
Toluene	0.68	2.6	Not Detected	Not Detected
trans-1,3-Dichloropropene	0.68	3.1	Not Detected	Not Detected
1,1,2-Trichloroethane	0.68	3.8	Not Detected	Not Detected
Tetrachloroethene	0.68	4.7	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	0.68	5.3	Not Detected	Not Detected
Chlorobenzene	0.68	3.2	Not Detected	Not Detected
Ethyl Benzene	0.68	3.0	Not Detected	Not Detected
m,p-Xylene	0.68	3.0	Not Detected	Not Detected
o-Xylene	0.68	3.0	Not Detected	Not Detected
Styrene	0.68	2.9	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.68	4.7	Not Detected	Not Detected
1,3,5-Trimethylbenzene	0.68	3.4	Not Detected	Not Detected
1,2,4-Trimethylbenzene	0.68	3.4	Not Detected	Not Detected
1,3-Dichlorobenzene	0.68	4.2	Not Detected	Not Detected
1,4-Dichlorobenzene	0.68	4.2	Not Detected	Not Detected
alpha-Chlorotoluene	0.68	3.6	Not Detected	Not Detected
1,2-Dichlorobenzene	0.68	4.2	Not Detected	Not Detected
1,2,4-Trichlorobenzene	2.7	20	Not Detected	Not Detected
Hexachlorobutadiene	2.7	29	Not Detected	Not Detected
Propylene	2.7	4.8	Not Detected	Not Detected
1,3-Butadiene	2.7	6.1	Not Detected	Not Detected
Acetone	2.7	6.6	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-29

ID#: 0210011A-04A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100409	Date of Collection:	9/30/02
Dil. Factor:	1.36	Date of Analysis:	10/4/02

Compound	Rot. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	2.7	8.6	Not Detected	Not Detected
2-Propanol	2.7	6.8	Not Detected	Not Detected
trans-1,2-Dichloroethene	2.7	11	Not Detected	Not Detected
Vinyl Acetate	2.7	9.7	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.7	8.2	Not Detected	Not Detected
Hexane	2.7	9.7	Not Detected	Not Detected
Tetrahydrofuran	2.7	8.2	Not Detected	Not Detected
Cyclohexane	2.7	9.5	Not Detected	Not Detected
1,4-Dioxane	2.7	10	Not Detected	Not Detected
Bromodichloromethane	2.7	18	Not Detected	Not Detected
4-Methyl-2-pentanone	2.7	11	Not Detected	Not Detected
2-Hexanone	2.7	11	Not Detected	Not Detected
Dibromochloromethane	2.7	24	Not Detected	Not Detected
Bromoform	2.7	28	Not Detected	Not Detected
4-Ethyltoluene	2.7	14	Not Detected	Not Detected
Ethanol	2.7	5.2	Not Detected	Not Detected
Methyl tert-Butyl Ether	2.7	10	Not Detected	Not Detected
Heptane	2.7	11	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	107	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-28

ID#: 0210011A-05A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100315	Date of Collection:	9/30/02
Dil. Factor:	544	Date of Analysis:	10/3/02

Compound	Rot. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	270	1400	Not Detected	Not Detected
Freon 114	270	1900	Not Detected	Not Detected
Chloromethane	270	570	Not Detected	Not Detected
Vinyl Chloride	270	710	Not Detected	Not Detected
Bromomethane	270	1100	Not Detected	Not Detected
Chloroethane	270	730	Not Detected	Not Detected
Freon 11	270	1600	Not Detected	Not Detected
1,1-Dichloroethene	270	1100	Not Detected	Not Detected
Freon 113	270	2100	Not Detected	Not Detected
Methylene Chloride	270	960	Not Detected	Not Detected
1,1-Dichloroethane	270	1100	Not Detected	Not Detected
cis-1,2-Dichloroethene	270	1100	Not Detected	Not Detected
Chloroform	270	1300	Not Detected	Not Detected
1,1,1-Trichloroethane	270	1500	Not Detected	Not Detected
Carbon Tetrachloride	270	1700	Not Detected	Not Detected
Benzene	270	880	11000	37000
1,2-Dichloroethane	270	1100	Not Detected	Not Detected
Trichloroethene	270	1500	Not Detected	Not Detected
1,2-Dichloropropane	270	1300	Not Detected	Not Detected
cis-1,3-Dichloropropene	270	1200	Not Detected	Not Detected
Toluene	270	1000	1100	4400
trans-1,3-Dichloropropene	270	1200	Not Detected	Not Detected
1,1,2-Trichloroethane	270	1500	Not Detected	Not Detected
Tetrachloroethene	270	1900	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	270	2100	Not Detected	Not Detected
Chlorobenzene	270	1300	Not Detected	Not Detected
Ethyl Benzene	270	1200	5100	22000
m,p-Xylene	270	1200	16000	73000
o-Xylene	270	1200	3000	13000
Styrene	270	1200	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	270	1900	Not Detected	Not Detected
1,3,5-Trimethylbenzene	270	1400	2500	13000
1,2,4-Trimethylbenzene	270	1400	7400	37000
1,3-Dichlorobenzene	270	1700	Not Detected	Not Detected
1,4-Dichlorobenzene	270	1700	Not Detected	Not Detected
alpha-Chlorotoluene	270	1400	Not Detected	Not Detected
1,2-Dichlorobenzene	270	1700	Not Detected	Not Detected
1,2,4-Trichlorobenzene	1100	8200	Not Detected	Not Detected
Hexachlorobutadiene	1100	12000	Not Detected	Not Detected
Propylene	1100	1900	Not Detected	Not Detected
1,3-Butadiene	1100	2400	Not Detected	Not Detected
Acetone	1100	2600	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-28

ID#: 0210011A-05A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	r100315	Date of Collection:	9/30/02
Dil. Factor:	544	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	1100	3400	Not Detected	Not Detected
2-Propanol	1100	2700	Not Detected	Not Detected
trans-1,2-Dichloroethene	1100	4400	Not Detected	Not Detected
Vinyl Acetate	1100	3900	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1100	3300	Not Detected	Not Detected
Hexane	1100	3900	50000	180000
Tetrahydrofuran	1100	3300	Not Detected	Not Detected
Cyclohexane	1100	3800	9100	32000
1,4-Dioxane	1100	4000	Not Detected	Not Detected
Bromodichloromethane	1100	7400	Not Detected	Not Detected
4-Methyl-2-pentanone	1100	4500	Not Detected	Not Detected
2-Hexanone	1100	4500	Not Detected	Not Detected
Dibromochloromethane	1100	9400	Not Detected	Not Detected
Bromoform	1100	11000	Not Detected	Not Detected
4-Ethyltoluene	1100	5400	5300	26000
Ethanol	1100	2100	Not Detected	Not Detected
Methyl tert-Butyl Ether	1100	4000	Not Detected	Not Detected
Heptane	1100	4500	16000	65000

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	113	70-130

**eCVP**

**Electronic Comprehensive  
Validation Package**

**WO# 0210011B**

**Air Toxics Ltd.**

180 Blue Ravine Road Ste. B

Folsom, CA 95630

Phone: 916/985-1000

Fax: 916/985-1020

eMail: [atl@airtoxics.com](mailto:atl@airtoxics.com)

[www.airtoxics.com](http://www.airtoxics.com)



## COMPREHENSIVE VALIDATION PACKAGE

Modified TO-3

INVENTORY SHEET

Work Order #: 0210011B

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Comments:

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Completed by:

*Judy Lee*

(Signature)

Judy Lee / Document Control

( Print Name & Title)

10/9/02

(Date)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

## WORK ORDER #: 0210011B

### Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>		<b>P.O. #</b>	
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	228204919202 NWS EARLE
<b>DATE RECEIVED:</b>	10/1/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	10/4/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	16(B) VD-02-13	Modified TO-3	3.5 "Hg
04A	16(A) VD-02-29	Modified TO-3	0.5 "Hg
05A	16(A) VD-02-28	Modified TO-3	0.5 "Hg
05AA	16(A) VD-02-28 Duplicate	Modified TO-3	0.5 "Hg
06A	Lab Blank	Modified TO-3	NA
07A	LCS	Modified TO-3	NA

CERTIFIED BY:

Laboratory Director

DATE: 10/04/02

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892, LA NELAP/LELAP- AI 30763  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified TO-3**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0210011B**

Two 6 Liter Silonite Canister and one 6 Liter Summa Canister samples were received on October 01, 2002. The laboratory performed analysis via modified EPA Method TO-3 Total Petroleum Hydrocarbons (TPH). TPH was analyzed via GC/FID. The TPH results are calculated using the response of Gasoline. A molecular weight of 100 is used to convert the TPH ppmv result to ug/L. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. See the data sheets for the reporting limits for TPH.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

The recovery of surrogate Fluorobenzene in sample 16(A) VD-02-28 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

There were no other analytical discrepancies.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

**Table 1**

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample	Sample Extract		Sample Condition
					Holding Time (Days)	Date Analyzed	Holding Time (Days)	
16(B) VD-02-13	0210011B-01A	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
16(A) VD-02-29	0210011B-04A	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
16(A) VD-02-28	0210011B-05A	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
16(A) VD-02-28 Duplicate	0210011B-05AA	9/30/2002	10/ 1/2002	NA	3	10/ 3/2002	NA	Good
Lab Blank	0210011B-06A	NA	NA	NA	NA	10/ 3/2002	NA	Good
LCS	0210011B-07A	NA	NA	NA	NA	10/ 3/2002	NA	Good

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

SAMPLE NAME: 16(B) VD-02-13

ID#: 0210011B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d100318	Date of Collection:	9/30/02
Dil. Factor:	12.2	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.30	1.3	89	370

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-29

ID#: 0210011B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d100316	Date of Collection:	9/30/02
Dil. Factor:	1.36	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.034	0.14	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	100	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16(A) VD-02-28

ID#: 0210011B-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d100319	Date of Collection:	9/30/02
Dil. Factor:	388	Date of Analysis:	10/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	9.7	40	1800	7300

Q = Exceeds Quality Control limits, possibly due to matrix effects.

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	128 Q	75-125

**esolve**

**Electronic Comprehensive  
Validation Package**

**WO# 0210728A**

**Air Toxics Ltd.**

180 Blue Ravine Road Ste. B

Folsom, CA 95630

Phone: 916/985-1000

Fax: 916/985-1020

eMail: [atl@airtoxics.com](mailto:atl@airtoxics.com)

[www.airtoxics.com](http://www.airtoxics.com)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

## COMPREHENSIVE VALIDATION PACKAGE

Modified TO-14

### INVENTORY SHEET

Work Order #: 0210728A

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Comments:

Completed by:

Judy Lee

Judy Lee / Document Control

11/12/02

(Signature)

( Print Name & Title)

(Date)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

**WORK ORDER #: 0210728A**

### Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>	215-702-4000	<b>P.O. #</b>	044014
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	NWS EARLE
<b>DATE RECEIVED:</b>	10/31/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	11/5/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC/PRES.</u>
01A	16 (A) VD-02-30	Modified TO-14	0.2 psi
02A	16 (A) VD-02-31	Modified TO-14	0.2 psi
02AA	16 (A) VD-02-31 Duplicate	Modified TO-14	0.2 psi
03A	16 (B) VD-02-14	Modified TO-14	0.0 "Hg
03AA	16 (B) VD-02-14 Duplicate	Modified TO-14	0.0 "Hg
04A	Lab Blank	Modified TO-14	NA
05A	LCS	Modified TO-14	NA

CERTIFIED BY:

Laboratory Director

DATE: 11/05/02

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892, LA NELAP/LELAP- AI 30763  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified Method TO-14**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0210728A**

Three 6 Liter Summa Canister samples were received on October 31, 2002. The laboratory performed analysis via modified EPA Method TO-14 using GC/MS in the full scan mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

<i>Requirement</i>	<i>TO-14</i>	<i>ATL Modifications</i>
Internal standard retention times.	Not specified.	Within 0.50 minutes of most recent daily CCV internal standards
Internal standard recoveries.	Not specified.	Within 40% of the daily CCV internal standard area for blanks and samples.
Initial calibration criteria.	Not specified.	RSD of 30% or less for standard compounds, 40% or less for non-standard and polar compounds
Continuing calibration verification criteria	Not specified.	70 - 130% for at least 90% of standard compounds, 60 - 140% for at least 80% of non-standard and polar compounds

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

Dilution was performed on sample 16 (B) VD-02-14 due to the presence of high level non-target species.

The recovery of surrogate 4-Bromofluorobenzene in sample(s) 16 (B) VD-02-14 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Table 1**

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample	Sample Extract		Sample Condition
					Holding Time (Days)	Date Analyzed	Holding Time (Days)	
16 (A) VD-02-30	0210728A-01A	10/29/2002	10/31/2002	NA	4	11/ 2/2002	NA	Good
16 (A) VD-02-31	0210728A-02A	10/29/2002	10/31/2002	NA	4	11/ 2/2002	NA	Good
16 (A) VD-02-31 Duplicate	0210728A-02AA	10/29/2002	10/31/2002	NA	4	11/ 2/2002	NA	Good
16 (B) VD-02-14	0210728A-03A	10/29/2002	10/31/2002	NA	4	11/ 2/2002	NA	Good
16 (B) VD-02-14 Duplicate	0210728A-03AA	10/29/2002	10/31/2002	NA	4	11/ 2/2002	NA	Good
Lab Blank	0210728A-04A	NA	NA	NA	NA	11/ 2/2002	NA	Good
LCS	0210728A-05A	NA	NA	NA	NA	11/ 2/2002	NA	Good

## Sample Results and Raw Data

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-30

ID#: 0210728A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110211	Date of Collection:	10/29/02
Dil. Factor:	264	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	130	660	Not Detected	Not Detected
Freon 114	130	940	Not Detected	Not Detected
Chloromethane	130	280	Not Detected	Not Detected
Vinyl Chloride	130	340	Not Detected	Not Detected
Bromomethane	130	520	Not Detected	Not Detected
Chloroethane	130	350	Not Detected	Not Detected
Freon 11	130	750	Not Detected	Not Detected
1,1-Dichloroethene	130	530	Not Detected	Not Detected
Freon 113	130	1000	Not Detected	Not Detected
Methylene Chloride	130	470	Not Detected	Not Detected
1,1-Dichloroethane	130	540	Not Detected	Not Detected
cis-1,2-Dichloroethene	130	530	Not Detected	Not Detected
Chloroform	130	660	Not Detected	Not Detected
1,1,1-Trichloroethane	130	730	Not Detected	Not Detected
Carbon Tetrachloride	130	840	Not Detected	Not Detected
Benzene	130	430	10000	32000
1,2-Dichloroethane	130	540	Not Detected	Not Detected
Trichloroethene	130	720	Not Detected	Not Detected
1,2-Dichloropropane	130	620	Not Detected	Not Detected
cis-1,3-Dichloropropene	130	610	Not Detected	Not Detected
Toluene	130	500	1100	4100
trans-1,3-Dichloropropene	130	610	Not Detected	Not Detected
1,1,2-Trichloroethane	130	730	Not Detected	Not Detected
Tetrachloroethene	130	910	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	130	1000	Not Detected	Not Detected
Chlorobenzene	130	620	Not Detected	Not Detected
Ethyl Benzene	130	580	4400	19000
m,p-Xylene	130	580	13000	59000
o-Xylene	130	580	3000	13000
Styrene	130	570	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	130	920	Not Detected	Not Detected
1,3,5-Trimethylbenzene	130	660	2300	11000
1,2,4-Trimethylbenzene	130	660	6900	35000
1,3-Dichlorobenzene	130	810	Not Detected	Not Detected
1,4-Dichlorobenzene	130	810	Not Detected	Not Detected
alpha-Chlorotoluene	130	690	Not Detected	Not Detected
1,2-Dichlorobenzene	130	810	Not Detected	Not Detected
1,2,4-Trichlorobenzene	530	4000	Not Detected	Not Detected
Hexachlorobutadiene	530	5700	Not Detected	Not Detected
Propylene	530	920	Not Detected	Not Detected
1,3-Butadiene	530	1200	Not Detected	Not Detected
Acetone	530	1300	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-30

ID#: 0210728A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110211	Date of Collection:	10/29/02
Dil. Factor:	264	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	530	1700	Not Detected	Not Detected
2-Propanol	530	1300	Not Detected	Not Detected
trans-1,2-Dichloroethene	530	2100	Not Detected	Not Detected
Vinyl Acetate	530	1900	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	530	1600	Not Detected	Not Detected
Hexane	530	1900	42000	150000
Tetrahydrofuran	530	1600	Not Detected	Not Detected
Cyclohexane	530	1800	6200	22000
1,4-Dioxane	530	1900	Not Detected	Not Detected
Bromodichloromethane	530	3600	Not Detected	Not Detected
4-Methyl-2-pentanone	530	2200	Not Detected	Not Detected
2-Hexanone	530	2200	Not Detected	Not Detected
Dibromochloromethane	530	4600	Not Detected	Not Detected
Bromoform	530	5500	Not Detected	Not Detected
4-Ethyltoluene	530	2600	4800	24000
Ethanol	530	1000	Not Detected	Not Detected
Methyl tert-Butyl Ether	530	1900	Not Detected	Not Detected
Heptane	530	2200	13000	54000

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	118	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-31

ID#: 0210728A-02A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110212	Date of Collection:	10/29/02
Dil. Factor:	1.32	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	0.66	3.3	Not Detected	Not Detected
Freon 114	0.66	4.7	Not Detected	Not Detected
Chloromethane	0.66	1.4	Not Detected	Not Detected
Vinyl Chloride	0.66	1.7	Not Detected	Not Detected
Bromomethane	0.66	2.6	Not Detected	Not Detected
Chloroethane	0.66	1.8	Not Detected	Not Detected
Freon 11	0.66	3.8	Not Detected	Not Detected
1,1-Dichloroethene	0.66	2.7	Not Detected	Not Detected
Freon 113	0.66	5.1	Not Detected	Not Detected
Methylene Chloride	0.66	2.3	1.6	5.5
1,1-Dichloroethane	0.66	2.7	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.66	2.6	Not Detected	Not Detected
Chloroform	0.66	3.3	Not Detected	Not Detected
1,1,1-Trichloroethane	0.66	3.7	Not Detected	Not Detected
Carbon Tetrachloride	0.66	4.2	Not Detected	Not Detected
Benzene	0.66	2.1	Not Detected	Not Detected
1,2-Dichloroethane	0.66	2.7	Not Detected	Not Detected
Trichloroethene	0.66	3.6	Not Detected	Not Detected
1,2-Dichloropropane	0.66	3.1	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.66	3.0	Not Detected	Not Detected
Toluene	0.66	2.5	Not Detected	Not Detected
trans-1,3-Dichloropropene	0.66	3.0	Not Detected	Not Detected
1,1,2-Trichloroethane	0.66	3.7	Not Detected	Not Detected
Tetrachloroethene	0.66	4.6	2.3	16
1,2-Dibromoethane (EDB)	0.66	5.2	Not Detected	Not Detected
Chlorobenzene	0.66	3.1	Not Detected	Not Detected
Ethyl Benzene	0.66	2.9	Not Detected	Not Detected
m,p-Xylene	0.66	2.9	Not Detected	Not Detected
o-Xylene	0.66	2.9	Not Detected	Not Detected
Styrene	0.66	2.8	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.66	4.6	Not Detected	Not Detected
1,3,5-Trimethylbenzene	0.66	3.3	Not Detected	Not Detected
1,2,4-Trimethylbenzene	0.66	3.3	Not Detected	Not Detected
1,3-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
1,4-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
alpha-Chlorotoluene	0.66	3.5	Not Detected	Not Detected
1,2-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
1,2,4-Trichlorobenzene	2.6	20	Not Detected	Not Detected
Hexachlorobutadiene	2.6	29	Not Detected	Not Detected
Propylene	2.6	4.6	Not Detected	Not Detected
1,3-Butadiene	2.6	5.9	Not Detected	Not Detected
Acetone	2.6	6.4	5.7	14

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-31

ID#: 0210728A-02A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110212	Date of Collection:	10/29/02
Dil. Factor:	1.32	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	2.6	8.4	Not Detected	Not Detected
2-Propanol	2.6	6.6	Not Detected	Not Detected
trans-1,2-Dichloroethene	2.6	11	Not Detected	Not Detected
Vinyl Acetate	2.6	9.4	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.6	7.9	Not Detected	Not Detected
Hexane	2.6	9.4	Not Detected	Not Detected
Tetrahydrofuran	2.6	7.9	Not Detected	Not Detected
Cyclohexane	2.6	9.2	Not Detected	Not Detected
1,4-Dioxane	2.6	9.7	Not Detected	Not Detected
Bromodichloromethane	2.6	18	Not Detected	Not Detected
4-Methyl-2-pentanone	2.6	11	Not Detected	Not Detected
2-Hexanone	2.6	11	Not Detected	Not Detected
Dibromochloromethane	2.6	23	Not Detected	Not Detected
Bromoform	2.6	28	Not Detected	Not Detected
4-Ethyltoluene	2.6	13	Not Detected	Not Detected
Ethanol	2.6	5.0	Not Detected	Not Detected
Methyl tert-Butyl Ether	2.6	9.7	Not Detected	Not Detected
Heptane	2.6	11	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	90	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	114	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-31 Duplicate

ID#: 0210728A-02AA

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	1110213	Date of Collection:	10/29/02
Dil. Factor:	1.32	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	0.66	3.3	Not Detected	Not Detected
Freon 114	0.66	4.7	Not Detected	Not Detected
Chloromethane	0.66	1.4	Not Detected	Not Detected
Vinyl Chloride	0.66	1.7	Not Detected	Not Detected
Bromomethane	0.66	2.6	Not Detected	Not Detected
Chloroethane	0.66	1.8	Not Detected	Not Detected
Freon 11	0.66	3.8	Not Detected	Not Detected
1,1-Dichloroethene	0.66	2.7	Not Detected	Not Detected
Freon 113	0.66	5.1	Not Detected	Not Detected
Methylene Chloride	0.66	2.3	1.4	4.8
1,1-Dichloroethane	0.66	2.7	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.66	2.6	Not Detected	Not Detected
Chloroform	0.66	3.3	Not Detected	Not Detected
1,1,1-Trichloroethane	0.66	3.7	Not Detected	Not Detected
Carbon Tetrachloride	0.66	4.2	Not Detected	Not Detected
Benzene	0.66	2.1	Not Detected	Not Detected
1,2-Dichloroethane	0.66	2.7	Not Detected	Not Detected
Trichloroethene	0.66	3.6	Not Detected	Not Detected
1,2-Dichloropropane	0.66	3.1	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.66	3.0	Not Detected	Not Detected
Toluene	0.66	2.5	Not Detected	Not Detected
trans-1,3-Dichloropropene	0.66	3.0	Not Detected	Not Detected
1,1,2-Trichloroethane	0.66	3.7	Not Detected	Not Detected
Tetrachloroethene	0.66	4.6	2.4	16
1,2-Dibromoethane (EDB)	0.66	5.2	Not Detected	Not Detected
Chlorobenzene	0.66	3.1	Not Detected	Not Detected
Ethyl Benzene	0.66	2.9	Not Detected	Not Detected
m,p-Xylene	0.66	2.9	Not Detected	Not Detected
o-Xylene	0.66	2.9	Not Detected	Not Detected
Styrene	0.66	2.8	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.66	4.6	Not Detected	Not Detected
1,3,5-Trimethylbenzene	0.66	3.3	Not Detected	Not Detected
1,2,4-Trimethylbenzene	0.66	3.3	Not Detected	Not Detected
1,3-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
1,4-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
alpha-Chlorotoluene	0.66	3.5	Not Detected	Not Detected
1,2-Dichlorobenzene	0.66	4.0	Not Detected	Not Detected
1,2,4-Trichlorobenzene	2.6	20	Not Detected	Not Detected
Hexachlorobutadiene	2.6	29	Not Detected	Not Detected
Propylene	2.6	4.6	Not Detected	Not Detected
1,3-Butadiene	2.6	5.9	Not Detected	Not Detected
Acetone	2.6	6.4	5.5	13

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-31 Duplicate

ID#: 0210728A-02AA

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110213	Date of Collection:	10/29/02
Dil. Factor:	1.32	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	2.6	8.4	Not Detected	Not Detected
2-Propanol	2.6	6.6	Not Detected	Not Detected
trans-1,2-Dichloroethene	2.6	11	Not Detected	Not Detected
Vinyl Acetate	2.6	9.4	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.6	7.9	Not Detected	Not Detected
Hexane	2.6	9.4	Not Detected	Not Detected
Tetrahydrofuran	2.6	7.9	Not Detected	Not Detected
Cyclohexane	2.6	9.2	Not Detected	Not Detected
1,4-Dioxane	2.6	9.7	Not Detected	Not Detected
Bromodichloromethane	2.6	18	Not Detected	Not Detected
4-Methyl-2-pentanone	2.6	11	Not Detected	Not Detected
2-Hexanone	2.6	11	Not Detected	Not Detected
Dibromochloromethane	2.6	23	Not Detected	Not Detected
Bromoform	2.6	28	Not Detected	Not Detected
4-Ethyltoluene	2.6	13	Not Detected	Not Detected
Ethanol	2.6	5.0	Not Detected	Not Detected
Methyl tert-Butyl Ether	2.6	9.7	Not Detected	Not Detected
Heptane	2.6	11	Not Detected	Not Detected

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	99	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16 (B) VD-02-14

ID#: 0210728A-03A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110214	Date of Collection:	10/29/02
Dil. Factor:	35.7	Date of Analysis:	11/2/02

Compound	Rot. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	18	90	Not Detected	Not Detected
Freon 114	18	130	Not Detected	Not Detected
Chloromethane	18	37	Not Detected	Not Detected
Vinyl Chloride	18	46	64	160
Bromomethane	18	70	Not Detected	Not Detected
Chloroethane	18	48	Not Detected	Not Detected
Freon 11	18	100	Not Detected	Not Detected
1,1-Dichloroethene	18	72	Not Detected	Not Detected
Freon 113	18	140	Not Detected	Not Detected
Methylene Chloride	18	63	Not Detected	Not Detected
1,1-Dichloroethane	18	73	Not Detected	Not Detected
cis-1,2-Dichloroethene	18	72	Not Detected	Not Detected
Chloroform	18	88	Not Detected	Not Detected
1,1,1-Trichloroethane	18	99	Not Detected	Not Detected
Carbon Tetrachloride	18	110	Not Detected	Not Detected
Benzene	18	58	46	150
1,2-Dichloroethane	18	73	Not Detected	Not Detected
Trichloroethene	18	98	Not Detected	Not Detected
1,2-Dichloropropane	18	84	Not Detected	Not Detected
cis-1,3-Dichloropropene	18	82	Not Detected	Not Detected
Toluene	18	68	18	69
trans-1,3-Dichloropropene	18	82	Not Detected	Not Detected
1,1,2-Trichloroethane	18	99	Not Detected	Not Detected
Tetrachloroethene	18	120	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	18	140	Not Detected	Not Detected
Chlorobenzene	18	84	Not Detected	Not Detected
Ethyl Benzene	18	79	360	1600
m,p-Xylene	18	79	870	3800
o-Xylene	18	79	160	690
Styrene	18	77	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	18	120	Not Detected	Not Detected
1,3,5-Trimethylbenzene	18	89	360	1800
1,2,4-Trimethylbenzene	18	89	1400	7200
1,3-Dichlorobenzene	18	110	Not Detected	Not Detected
1,4-Dichlorobenzene	18	110	Not Detected	Not Detected
alpha-Chlorotoluene	18	94	Not Detected	Not Detected
1,2-Dichlorobenzene	18	110	Not Detected	Not Detected
1,2,4-Trichlorobenzene	71	540	Not Detected	Not Detected
Hexachlorobutadiene	71	770	Not Detected	Not Detected
Propylene	71	120	Not Detected	Not Detected
1,3-Butadiene	71	160	Not Detected	Not Detected
Acetone	71	170	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16 (B) VD-02-14

ID#: 0210728A-03A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110214	Date of Collection:	10/29/02
Dil. Factor:	35.7	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	71	220	Not Detected	Not Detected
2-Propanol	71	180	Not Detected	Not Detected
trans-1,2-Dichloroethene	71	290	Not Detected	Not Detected
Vinyl Acetate	71	260	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	71	210	Not Detected	Not Detected
Hexane	71	260	290	1000
Tetrahydrofuran	71	210	Not Detected	Not Detected
Cyclohexane	71	250	290	1000
1,4-Dioxane	71	260	Not Detected	Not Detected
Bromodichloromethane	71	490	Not Detected	Not Detected
4-Methyl-2-pentanone	71	300	Not Detected	Not Detected
2-Hexanone	71	300	Not Detected	Not Detected
Dibromochloromethane	71	620	Not Detected	Not Detected
Bromoform	71	750	Not Detected	Not Detected
4-Ethyltoluene	71	360	670	3300
Ethanol	71	140	Not Detected	Not Detected
Methyl tert-Butyl Ether	71	260	Not Detected	Not Detected
Heptane	71	300	370	1500

Q = Exceeds Quality Control limits.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	138 Q	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16 (B) VD-02-14 Duplicate

ID#: 0210728A-03AA

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110215	Date of Collection:	10/29/02
Dil. Factor:	35.7	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	18	90	Not Detected	Not Detected
Freon 114	18	130	Not Detected	Not Detected
Chloromethane	18	37	Not Detected	Not Detected
Vinyl Chloride	18	46	60	160
Bromomethane	18	70	Not Detected	Not Detected
Chloroethane	18	48	Not Detected	Not Detected
Freon 11	18	100	Not Detected	Not Detected
1,1-Dichloroethene	18	72	Not Detected	Not Detected
Freon 113	18	140	Not Detected	Not Detected
Methylene Chloride	18	63	Not Detected	Not Detected
1,1-Dichloroethane	18	73	Not Detected	Not Detected
cis-1,2-Dichloroethene	18	72	Not Detected	Not Detected
Chloroform	18	88	Not Detected	Not Detected
1,1,1-Trichloroethane	18	99	Not Detected	Not Detected
Carbon Tetrachloride	18	110	Not Detected	Not Detected
Benzene	18	58	47	150
1,2-Dichloroethane	18	73	Not Detected	Not Detected
Trichloroethene	18	98	Not Detected	Not Detected
1,2-Dichloropropane	18	84	Not Detected	Not Detected
cis-1,3-Dichloropropene	18	82	Not Detected	Not Detected
Toluene	18	68	18	69
trans-1,3-Dichloropropene	18	82	Not Detected	Not Detected
1,1,2-Trichloroethane	18	99	Not Detected	Not Detected
Tetrachloroethene	18	120	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	18	140	Not Detected	Not Detected
Chlorobenzene	18	84	Not Detected	Not Detected
Ethyl Benzene	18	79	360	1600
m,p-Xylene	18	79	870	3800
o-Xylene	18	79	150	670
Styrene	18	77	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	18	120	Not Detected	Not Detected
1,3,5-Trimethylbenzene	18	89	360	1800
1,2,4-Trimethylbenzene	18	89	1500	7400
1,3-Dichlorobenzene	18	110	Not Detected	Not Detected
1,4-Dichlorobenzene	18	110	Not Detected	Not Detected
alpha-Chlorotoluene	18	94	Not Detected	Not Detected
1,2-Dichlorobenzene	18	110	Not Detected	Not Detected
1,2,4-Trichlorobenzene	71	540	Not Detected	Not Detected
Hexachlorobutadiene	71	770	Not Detected	Not Detected
Propylene	71	120	Not Detected	Not Detected
1,3-Butadiene	71	160	Not Detected	Not Detected
Acetone	71	170	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16 (B) VD-02-14 Duplicate

ID#: 0210728A-03AA

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	t110215	Date of Collection:	10/29/02
Dil. Factor:	35.7	Date of Analysis:	11/2/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	71	220	Not Detected	Not Detected
2-Propanol	71	180	Not Detected	Not Detected
trans-1,2-Dichloroethene	71	290	Not Detected	Not Detected
Vinyl Acetate	71	260	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	71	210	Not Detected	Not Detected
Hexane	71	260	310	1100
Tetrahydrofuran	71	210	Not Detected	Not Detected
Cyclohexane	71	250	300	1000
1,4-Dioxane	71	260	Not Detected	Not Detected
Bromodichloromethane	71	490	Not Detected	Not Detected
4-Methyl-2-pentanone	71	300	Not Detected	Not Detected
2-Hexanone	71	300	Not Detected	Not Detected
Dibromochloromethane	71	620	Not Detected	Not Detected
Bromoform	71	750	Not Detected	Not Detected
4-Ethyltoluene	71	360	690	3400
Ethanol	71	140	Not Detected	Not Detected
Methyl tert-Butyl Ether	71	260	Not Detected	Not Detected
Heptane	71	300	370	1500

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	129	70-130



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

**WORK ORDER #: 0210728B**

## Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>	215-702-4000	<b>P.O. #</b>	044014
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	NWS EARLE
<b>DATE RECEIVED:</b>	10/31/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	11/5/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	16 (A) VD-02-30	Modified TO-3	0.2 psi
02A	16 (A) VD-02-31	Modified TO-3	0.2 psi
03A	16 (B) VD-02-14	Modified TO-3	0.0 "Hg
04A	Lab Blank	Modified TO-3	NA
05A	LCS	Modified TO-3	NA

CERTIFIED BY: *Linda J. Freeman*

DATE: 11/05/02

Laboratory Director

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892, LA NELAP/LELAP- AI 30763  
 Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,  
 Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified TO-3**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0210728B**

Three 6 Liter Summa Canister samples were received on October 31, 2002. The laboratory performed analysis via modified EPA Method TO-3 for Total Petroleum Hydrocarbons (TPH). TPH was analyzed via GC/FID. The TPH results are calculated using the response of Gasoline. A molecular weight of 100 is used to convert the TPH ppmv result to ug/L. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. See the data sheets for the reporting limits for each compound.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

The recovery of surrogate Fluorobenzene in sample 16 (A) VD-02-30 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

There were no other analytical discrepancies.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-30

ID#: 0210728B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d110115	Date of Collection:	10/29/02
Dil. Factor:	330	Date of Analysis:	11/1/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	8.2	34	1400	5800

Q = Exceeds Quality Control limits, possibly due to matrix effects.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	126 Q	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16 (A) VD-02-31

ID#: 0210728B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d110118	Date of Collection:	10/29/02
Dil. Factor:	1.32	Date of Analysis:	11/1/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.033	0.14	0.089	0.37

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	101	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16 (B) VD-02-14

ID#: 0210728B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d110117	Date of Collection:	10/29/02
Dil. Factor:	191	Date of Analysis:	11/1/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	4.8	20	520	2200

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	103	75-125

# AIR TOXICS LTD.

SAMPLE NAME: Lab Blank

ID#: 0210728B-04A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d110106	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/1/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.025	0.10	Not Detected	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	102	75-125

# AIR TOXICS LTD.

SAMPLE NAME: LCS

ID#: 0210728B-05A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	d110122	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	11/1/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	%Recovery
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.025	0.10	87

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	117	75-125

**eCVP**

**Electronic Comprehensive  
Validation Package**

**WO# 0211667A**



## **Air Toxics Ltd.**

180 Blue Ravine Road Ste. B

Folsom, CA 95630

Phone: 916/985-1000

Fax: 916/985-1020

eMail: [atl@airtoxics.com](mailto:atl@airtoxics.com)

[www.airtoxics.com](http://www.airtoxics.com)



## COMPREHENSIVE VALIDATION PACKAGE

Modified TO-14

### INVENTORY SHEET

Work Order #: 0211667A

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Comments:

Completed by:

*Judy Lee*

(Signature)

Judy Lee / Document Control

( Print Name & Title)

12/9/02

(Date)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

**WORK ORDER #: 0211667A**

## Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>	215-702-4000	<b>P.O. #</b>	
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	2282.0491.9202 NWS EARLE
<b>DATE RECEIVED:</b>	11/27/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	12/4/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	16AVD02-33	Modified TO-14	0.0 "Hg
02A	16AVD02-32	Modified TO-14	0.0 "Hg
03A	16BVD02-15	Modified TO-14	1.5 "Hg
04A(cancelled)	26AS35	Modified TO-14	25.0 "Hg
05A	26AS36	Modified TO-14	0.2 psi
06A	Lab Blank	Modified TO-14	NA
06B	Lab Blank	Modified TO-14	NA
07A	LCS	Modified TO-14	NA
07B	LCS	Modified TO-14	NA

CERTIFIED BY: *Sinda J. Freeman*

DATE: 12/04/02

Laboratory Director

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892,  
LA NELAP/LELAP- AI 30763, AR DEQ

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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**LABORATORY NARRATIVE**  
**Modified Method TO-14**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0211667A**

Two 6 Liter Silonite Canister and three 6 Liter Summa Canister samples were received on November 27, 2002. The laboratory performed analysis via modified EPA Method TO-14 using GC/MS in the full scan mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis. See the data sheets for the reporting limits for each compound.

Method modifications taken to run these samples include:

<i>Requirement</i>	<i>TO-14</i>	<i>ATL Modifications</i>
Internal standard retention times.	Not specified.	Within 0.33 minutes of most recent daily CCV internal standards
Internal standard recoveries.	Not specified.	Within 40% of the daily CCV internal standard area for blanks and samples.
Initial calibration criteria.	Not specified.	RSD of 30% or less for standard compounds, 40% or less for non-standard and polar compounds

**Receiving Notes**

Sample 26AS35 was received with significant vacuum remaining in the canister. The client was notified and the sample was cancelled per client's request.

**Analytical Notes**

The recovery of surrogate 4-Bromofluorobenzene in samples 16AVD02-32 and 16BVD02-15 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction no performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

**Table 1**

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample	Date Analyzed	Sample Extract	Sample Condition
					Holding Time (Days)		Holding Time (Days)	
16AVD02-33	0211667A-01A	11/26/2002	11/27/2002	NA	8	12/ 4/2002	NA	Good
16AVD02-32	0211667A-02A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good
16BVD02-15	0211667A-03A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good
26AS36	0211667A-05A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good
Lab Blank	0211667A-06A	NA	NA	NA	NA	12/ 2/2002	NA	Good
Lab Blank	0211667A-06B	NA	NA	NA	NA	12/ 3/2002	NA	Good
LCS	0211667A-07A	NA	NA	NA	NA	12/ 2/2002	NA	Good
LCS	0211667A-07B	NA	NA	NA	NA	12/ 3/2002	NA	Good

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-33

ID#: 0211667A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	f120321	Date of Collection:	11/26/02
Dil. Factor:	1.34	Date of Analysis:	12/4/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	0.67	3.4	Not Detected	Not Detected
Freon 114	0.67	4.8	Not Detected	Not Detected
Chloromethane	0.67	1.4	Not Detected	Not Detected
Vinyl Chloride	0.67	1.7	Not Detected	Not Detected
Bromomethane	0.67	2.6	Not Detected	Not Detected
Chloroethane	0.67	1.8	Not Detected	Not Detected
Freon 11	0.67	3.8	Not Detected	Not Detected
1,1-Dichloroethene	0.67	2.7	Not Detected	Not Detected
Freon 113	0.67	5.2	Not Detected	Not Detected
Methylene Chloride	0.67	2.4	Not Detected	Not Detected
1,1-Dichloroethane	0.67	2.8	Not Detected	Not Detected
cis-1,2-Dichloroethene	0.67	2.7	Not Detected	Not Detected
Chloroform	0.67	3.3	Not Detected	Not Detected
1,1,1-Trichloroethane	0.67	3.7	Not Detected	Not Detected
Carbon Tetrachloride	0.67	4.3	Not Detected	Not Detected
Benzene	0.67	2.2	Not Detected	Not Detected
1,2-Dichloroethane	0.67	2.8	Not Detected	Not Detected
Trichloroethene	0.67	3.6	Not Detected	Not Detected
1,2-Dichloropropane	0.67	3.1	Not Detected	Not Detected
cis-1,3-Dichloropropene	0.67	3.1	Not Detected	Not Detected
Toluene	0.67	2.6	Not Detected	Not Detected
trans-1,3-Dichloropropene	0.67	3.1	Not Detected	Not Detected
1,1,2-Trichloroethane	0.67	3.7	Not Detected	Not Detected
Tetrachloroethene	0.67	4.6	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	0.67	5.2	Not Detected	Not Detected
Chlorobenzene	0.67	3.1	Not Detected	Not Detected
Ethyl Benzene	0.67	3.0	Not Detected	Not Detected
m,p-Xylene	0.67	3.0	Not Detected	Not Detected
o-Xylene	0.67	3.0	Not Detected	Not Detected
Styrene	0.67	2.9	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	0.67	4.7	Not Detected	Not Detected
1,3,5-Trimethylbenzene	0.67	3.3	Not Detected	Not Detected
1,2,4-Trimethylbenzene	0.67	3.3	Not Detected	Not Detected
1,3-Dichlorobenzene	0.67	4.1	Not Detected	Not Detected
1,4-Dichlorobenzene	0.67	4.1	Not Detected	Not Detected
alpha-Chlorotoluene	0.67	3.5	Not Detected	Not Detected
1,2-Dichlorobenzene	0.67	4.1	Not Detected	Not Detected
1,2,4-Trichlorobenzene	2.7	20	Not Detected	Not Detected
Hexachlorobutadiene	2.7	29	Not Detected	Not Detected
Propylene	2.7	4.7	Not Detected	Not Detected
1,3-Butadiene	2.7	6.0	Not Detected	Not Detected
Acetone	2.7	6.5	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-33

ID#: 0211667A-01A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	f120321	Date of Collection:	11/26/02
Dil. Factor:	1.34	Date of Analysis:	12/4/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	2.7	8.5	Not Detected	Not Detected
2-Propanol	2.7	6.7	Not Detected	Not Detected
trans-1,2-Dichloroethene	2.7	11	Not Detected	Not Detected
Vinyl Acetate	2.7	9.6	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.7	8.0	Not Detected	Not Detected
Hexane	2.7	9.6	Not Detected	Not Detected
Tetrahydrofuran	2.7	8.0	Not Detected	Not Detected
Cyclohexane	2.7	9.4	Not Detected	Not Detected
1,4-Dioxane	2.7	9.8	Not Detected	Not Detected
Bromodichloromethane	2.7	18	Not Detected	Not Detected
4-Methyl-2-pentanone	2.7	11	Not Detected	Not Detected
2-Hexanone	2.7	11	Not Detected	Not Detected
Dibromochloromethane	2.7	23	Not Detected	Not Detected
Bromoform	2.7	28	Not Detected	Not Detected
4-Ethyltoluene	2.7	13	Not Detected	Not Detected
Ethanol	2.7	5.1	Not Detected	Not Detected
Methyl tert-Butyl Ether	2.7	9.8	Not Detected	Not Detected
Heptane	2.7	11	Not Detected	Not Detected

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	81	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-32

ID#: 0211667A-02A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	1120225	Date of Collection:	11/26/02
Dil. Factor:	53.6	Date of Analysis:	12/3/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	27	130	Not Detected	Not Detected
Freon 114	27	190	Not Detected	Not Detected
Chloromethane	27	56	Not Detected	Not Detected
Vinyl Chloride	27	70	Not Detected	Not Detected
Bromomethane	27	100	Not Detected	Not Detected
Chloroethane	27	72	Not Detected	Not Detected
Freon 11	27	150	Not Detected	Not Detected
1,1-Dichloroethene	27	110	Not Detected	Not Detected
Freon 113	27	210	Not Detected	Not Detected
Methylene Chloride	27	95	Not Detected	Not Detected
1,1-Dichloroethane	27	110	Not Detected	Not Detected
cis-1,2-Dichloroethene	27	110	Not Detected	Not Detected
Chloroform	27	130	Not Detected	Not Detected
1,1,1-Trichloroethane	27	150	Not Detected	Not Detected
Carbon Tetrachloride	27	170	Not Detected	Not Detected
Benzene	27	87	4400	14000
1,2-Dichloroethane	27	110	Not Detected	Not Detected
Trichloroethene	27	150	Not Detected	Not Detected
1,2-Dichloropropane	27	120	Not Detected	Not Detected
cis-1,3-Dichloropropene	27	120	Not Detected	Not Detected
Toluene	27	100	490	1900
trans-1,3-Dichloropropene	27	120	Not Detected	Not Detected
1,1,2-Trichloroethane	27	150	Not Detected	Not Detected
Tetrachloroethene	27	180	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	27	210	Not Detected	Not Detected
Chlorobenzene	27	120	Not Detected	Not Detected
Ethyl Benzene	27	120	3000	13000
m,p-Xylene	27	120	9400	42000
o-Xylene	27	120	2300	10000
Styrene	27	120	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	27	190	Not Detected	Not Detected
1,3,5-Trimethylbenzene	27	130	1900	9700
1,2,4-Trimethylbenzene	27	130	6000	30000
1,3-Dichlorobenzene	27	160	Not Detected	Not Detected
1,4-Dichlorobenzene	27	160	Not Detected	Not Detected
alpha-Chlorotoluene	27	140	Not Detected	Not Detected
1,2-Dichlorobenzene	27	160	Not Detected	Not Detected
1,2,4-Trichlorobenzene	110	810	Not Detected	Not Detected
Hexachlorobutadiene	110	1200	Not Detected	Not Detected
Propylene	110	190	Not Detected	Not Detected
1,3-Butadiene	110	240	Not Detected	Not Detected
Acetone	110	260	Not Detected	Not Detected

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-32

ID#: 0211667A-02A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	f120225	Date of Collection: 11/26/02
Dil. Factor:	53.6	Date of Analysis: 12/3/02

Compound	Rot. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	110	340	Not Detected	Not Detected
2-Propanol	110	270	Not Detected	Not Detected
trans-1,2-Dichloroethene	110	430	Not Detected	Not Detected
Vinyl Acetate	110	380	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	110	320	Not Detected	Not Detected
Hexane	110	380	13000 E	47000 E
Tetrahydrofuran	110	320	Not Detected	Not Detected
Cyclohexane	110	380	2600	9300
1,4-Dioxane	110	390	Not Detected	Not Detected
Bromodichloromethane	110	730	Not Detected	Not Detected
4-Methyl-2-pentanone	110	450	Not Detected	Not Detected
2-Hexanone	110	450	Not Detected	Not Detected
Dibromochloromethane	110	930	Not Detected	Not Detected
Bromoform	110	1100	Not Detected	Not Detected
4-Ethyltoluene	110	540	4000	20000
Ethanol	110	200	Not Detected	Not Detected
Methyl tert-Butyl Ether	110	390	Not Detected	Not Detected
Heptane	110	450	5700	24000

E = Exceeds instrument calibration range.

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	111	70-130
4-Bromofluorobenzene	196 Q	70-130

# AIR TOXICS LTD.

SAMPLE NAME: 16BVD02-15

ID#: 0211667A-03A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	f120224	Date of Collection:	11/26/02
Dil. Factor:	14.1	Date of Analysis:	12/3/02

Compound	Rot. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Freon 12	7.0	35	Not Detected	Not Detected
Freon 114	7.0	50	Not Detected	Not Detected
Chloromethane	7.0	15	Not Detected	Not Detected
Vinyl Chloride	7.0	18	7.4	19
Bromomethane	7.0	28	Not Detected	Not Detected
Chloroethane	7.0	19	Not Detected	Not Detected
Freon 11	7.0	40	Not Detected	Not Detected
1,1-Dichloroethene	7.0	28	Not Detected	Not Detected
Freon 113	7.0	55	Not Detected	Not Detected
Methylene Chloride	7.0	25	Not Detected	Not Detected
1,1-Dichloroethane	7.0	29	Not Detected	Not Detected
cis-1,2-Dichloroethene	7.0	28	Not Detected	Not Detected
Chloroform	7.0	35	Not Detected	Not Detected
1,1,1-Trichloroethane	7.0	39	Not Detected	Not Detected
Carbon Tetrachloride	7.0	45	Not Detected	Not Detected
Benzene	7.0	23	36	120
1,2-Dichloroethane	7.0	29	Not Detected	Not Detected
Trichloroethene	7.0	38	Not Detected	Not Detected
1,2-Dichloropropane	7.0	33	Not Detected	Not Detected
cis-1,3-Dichloropropene	7.0	32	Not Detected	Not Detected
Toluene	7.0	27	19	73
trans-1,3-Dichloropropene	7.0	32	Not Detected	Not Detected
1,1,2-Trichloroethane	7.0	39	Not Detected	Not Detected
Tetrachloroethene	7.0	49	Not Detected	Not Detected
1,2-Dibromoethane (EDB)	7.0	55	Not Detected	Not Detected
Chlorobenzene	7.0	33	Not Detected	Not Detected
Ethyl Benzene	7.0	31	600	2700
m,p-Xylene	7.0	31	2000	8900
o-Xylene	7.0	31	420	1900
Styrene	7.0	30	Not Detected	Not Detected
1,1,2,2-Tetrachloroethane	7.0	49	Not Detected	Not Detected
1,3,5-Trimethylbenzene	7.0	35	700	3500
1,2,4-Trimethylbenzene	7.0	35	2300	12000
1,3-Dichlorobenzene	7.0	43	Not Detected	Not Detected
1,4-Dichlorobenzene	7.0	43	Not Detected	Not Detected
alpha-Chlorotoluene	7.0	37	Not Detected	Not Detected
1,2-Dichlorobenzene	7.0	43	Not Detected	Not Detected
1,2,4-Trichlorobenzene	28	210	Not Detected	Not Detected
Hexachlorobutadiene	28	300	Not Detected	Not Detected
Propylene	28	49	Not Detected	Not Detected
1,3-Butadiene	28	63	Not Detected	Not Detected
Acetone	28	68	29	70

# AIR TOXICS LTD.

SAMPLE NAME: 16BVD02-15

ID#: 0211667A-03A

MODIFIED EPA METHOD TO-14 GC/MS FULL SCAN

File Name:	F120224	Date of Collection:	11/26/02
Dil. Factor:	14.1	Date of Analysis:	12/3/02

Compound	Rpt. Limit (ppbv)	Rpt. Limit (uG/m3)	Amount (ppbv)	Amount (uG/m3)
Carbon Disulfide	28	89	Not Detected	Not Detected
2-Propanol	28	70	Not Detected	Not Detected
trans-1,2-Dichloroethene	28	110	Not Detected	Not Detected
Vinyl Acetate	28	100	Not Detected	Not Detected
2-Butanone (Methyl Ethyl Ketone)	28	84	Not Detected	Not Detected
Hexane	28	100	51	180
Tetrahydrofuran	28	84	Not Detected	Not Detected
Cyclohexane	28	99	70	240
1,4-Dioxane	28	100	Not Detected	Not Detected
Bromodichloromethane	28	190	Not Detected	Not Detected
4-Methyl-2-pentanone	28	120	Not Detected	Not Detected
2-Hexanone	28	120	Not Detected	Not Detected
Dibromochloromethane	28	240	Not Detected	Not Detected
Bromoform	28	300	Not Detected	Not Detected
4-Ethyltoluene	28	140	1400	6900
Ethanol	28	54	Not Detected	Not Detected
Methyl tert-Butyl Ether	28	100	Not Detected	Not Detected
Heptane	28	120	130	550

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	93	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	226 Q	70-130

**ECVP**

**Electronic Comprehensive  
Validation Package**

**WO# 0211667B**

**Air Toxics Ltd.**

180 Blue Ravine Road Ste. B  
Folsom, CA 95630  
Phone: 916/985-1000  
Fax: 916/985-1020  
eMail: [atl@airtoxics.com](mailto:atl@airtoxics.com)  
[www.airtoxics.com](http://www.airtoxics.com)



**COMPREHENSIVE VALIDATION PACKAGE**

Modified TO-3

INVENTORY SHEET

Work Order #: 0211667B

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-Internal Standard Area and Retention Time Summary		
-Surrogate Recovery Summary (If Applicable)		
-Chromatogram(s) and Ion Profiles (If Applicable)		
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Comments:

Completed by:

*Judy Lee*

Judy Lee / Document Control

12/5/02

(Signature)

( Print Name & Title)

(Date)



# AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

## WORK ORDER #: 0211667B

### Work Order Summary

<b>CLIENT:</b>	Mr. Mike Heffron Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway Langhorne, PA 19047 215-702-4000	<b>BILL TO:</b>	Ms. Sonya Staten Foster Wheeler Environmental Corporation 1 Oxford Valley #200 2300 Lincoln Highway
<b>PHONE:</b>		<b>P.O. #</b>	
<b>FAX:</b>	215-702-4045	<b>PROJECT #</b>	2282.0491.9202 NWS EARLE
<b>DATE RECEIVED:</b>	11/27/2002	<b>CONTACT:</b>	Betty Chu
<b>DATE COMPLETED:</b>	12/4/2002		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>
01A	16AVD02-33	Modified TO-3	0.0 "Hg
02A	16AVD02-32	Modified TO-3	0.0 "Hg
03A	16BVD02-15	Modified TO-3	1.5 "Hg
04A	Lab Blank	Modified TO-3	NA
05A	LCS	Modified TO-3	NA

CERTIFIED BY:

Laboratory Director

DATE: 12/04/02

Certification numbers: CA NELAP - 02110CA, NY NELAP - 11291, UT NELAP - 9166389892,  
LA NELAP/LELAP- AI 30763, AR DEQ

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/02, Expiration date: 06/30/03

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified TO-3**  
**Foster Wheeler Environmental Corporation**  
**Workorder# 0211667B**

One 6 Liter Silonite Canister and Two 6 Liter Summa Canister samples were received on November 27, 2002. The laboratory performed analysis via modified EPA Method TO-3 for Total Petroleum Hydrocarbons (TPH). TPH was analyzed via GC/FID. The TPH results are calculated using the response of Gasoline. A molecular weight of 100 is used to convert the TPH ppmv result to ug/L. The method involves concentrating up to 200 mL of sample. The concentrated aliquot is then dry purged to remove water vapor prior to entering the chromatographic system. See the data sheets for the reporting limits for each compound.

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

There were no analytical discrepancies.

**Definition of Data Qualifying Flags**

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

- B - Compound present in laboratory blank greater than reporting limit.
- J - Estimated value.
- E - Exceeds instrument calibration range.
- S - Saturated peak.
- Q - Exceeds quality control limits.
- U - Compound analyzed for but not detected above the detection limit.
- M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue

**Table 1**

Client Sample ID	Lab Sample ID	Date Collected	Date Received	Date Extracted	Sample		Sample Extract		Sample Condition
					Holding Time (Days)	Date Analyzed	Holding Time (Days)		
16AVD02-33	0211667B-01A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good	
16AVD02-32	0211667B-02A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good	
16BVD02-15	0211667B-03A	11/26/2002	11/27/2002	NA	7	12/ 3/2002	NA	Good	
Lab Blank	0211667B-04A	NA	NA	NA	NA	12/ 3/2002	NA	Good	
LCS	0211667B-05A	NA	NA	NA	NA	12/ 3/2002	NA	Good	

## **Sample Results and Raw Data**

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-33

ID#: 0211667B-01A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	6120304	Date of Collection:	11/26/02
Dil. Factor:	1.34	Date of Analysis:	12/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.034	0.14	0.79	3.3

Container Type: 6 Liter Silonite Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	83	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16AVD02-32

ID#: 0211667B-02A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	6120306	Date of Collection:	11/26/02
Dil. Factor:	107	Date of Analysis:	12/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	2.7	11	690	2900

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	120	75-125

# AIR TOXICS LTD.

SAMPLE NAME: 16BVD02-15

ID#: 0211667B-03A

MODIFIED EPA METHOD TO-3 GC/FID

File Name:	6120309	Date of Collection:	11/26/02
Dil. Factor:	17.8	Date of Analysis:	12/3/02

Compound	Rpt. Limit (ppmv)	Rpt. Limit (uG/L)	Amount (ppmv)	Amount (uG/L)
TPH (C2+ Hydrocarbons) ref. to Gasoline	0.44	1.8	150	640

Container Type: 6 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Fluorobenzene (FID)	81	75-125

APPENDIX D  
ANALYTICAL RESULTS FOR EFFLUENT SAMPLES

NWS-EARLE  
 BIOSLURPER UNIT #1 AND #2  
 TPH EXTRACTED VIA GROUNDWATER TREATMENT

3/11/2003

<b>BIOSLURPER UNIT 1</b>	
TPH INFLUENT* (mg/L):	790
TPH EFFLUENT* (mg/L):	1.09
GALLONS GROUNDWATER TREATED:	10390
* as per analytical average if more than one sample	9/30/2002
	68.41 =POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
TPH INFLUENT* (mg/L):	8.8
TPH EFFLUENT* (mg/L):	0.5
GALLONS GROUNDWATER TREATED:	289
* as per analytical average if more than one sample	9/30/2002
	0.02 =POUNDS OF TPH

POUNDS OF TPH=  

$$\text{Gallons Groundwater Treated} * (3.785 \text{ L/gal}) * (\text{TPH INFLUENT (mg/L)} - \text{TPH EFFLUENT (mg/l)}) * 0.001\text{g/mg} * 0.002205 \text{ pounds/g}$$

NWS-EARLE  
 BIOSLURPER UNIT #1 AND #2  
 TPH EXTRACTED VIA GROUNDWATER TREATMENT

3/11/2003

<b>BIOSLURPER UNIT 1</b>	
TPH INFLUENT* (mg/L):	124
TPH EFFLUENT* (mg/L):	1.57
GALLONS GROUNDWATER TREATED:	19562
* as per analytical average if more than one sample	10/29/2002
	19.99 = POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
TPH INFLUENT* (mg/L):	97
TPH EFFLUENT* (mg/L):	3.12
GALLONS GROUNDWATER TREATED:	0
* as per analytical average if more than one sample	10/29/2002
	0.00 = POUNDS OF TPH

POUNDS OF TPH =  

$$\text{Gallons Groundwater Treated} * (3.785 \text{ L/gal}) * (\text{TPH INFLUENT (mg/L)} - \text{TPH EFFLUENT (mg/l)}) * 0.001 \text{g/mg} * 0.002205 \text{ pounds/g}$$

NWS-EARLE  
 BIOSLURPER UNIT #1 AND #2  
 TPH EXTRACTED VIA GROUNDWATER TREATMENT

3/11/2003

<b>BIOSLURPER UNIT 1</b>	
TPH INFLUENT* (mg/L):	56
TPH EFFLUENT* (mg/L):	0
GALLONS GROUNDWATER TREATED:	4854
* as per analytical average if more than one sample	11/30/2002
	2.27 =POUNDS OF TPH

<b>BIOSLURPER UNIT 2</b>	
TPH INFLUENT* (mg/L):	36
TPH EFFLUENT* (mg/L):	0
GALLONS GROUNDWATER TREATED:	4771
* as per analytical average if more than one sample	11/30/2001
	1.43 =POUNDS OF TPH

POUNDS OF TPH=  

$$\text{Gallons Groundwater Treated} * (3.785 \text{ L/gal}) * (\text{TPH INFLUENT (mg/L)} - \text{TPH EFFLUENT (mg/l)}) * 0.001\text{g/mg} * 0.002205 \text{ pounds/g}$$



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Page # 2  
Sample # 218216-1

October 4, 2002

TEST/PARAMETER	PRESERVATIVE	TECH	ANALYSIS	
			DATE	TIME
TPH - Diesel Range Organics	See Chain of Custody	JJH	10/03/02	19:00
Petroleum Hydrocarbon Extractn		NCG	10/02/02	14:35
ELECTRONIC DATA DELIVERABLES		VAL	10/03/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 218216-1

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 11:10 AM
Location	: 16 (A) EW-02-53	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Grab	
		Discard Date	: 10/18/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	790	mg/l	84	8015M

### DATA PACKAGES

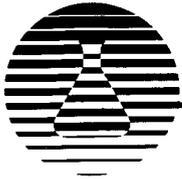
ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

Due to the level of analyte present, the surrogate could not be determined for the DRO analysis.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 218216-2

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 11:15 AM
Location	: 16 (A) EW-02-53	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Discard Date	: 10/18/02
	Grab		

TEST/PARAMETER	RESULT	UNITS	REPORTING LIMIT	METHOD
GAS CHROMATOGRAPH MASS SPEC.				
VOLATILE ORGANICS BY GC/MS				
Acetone	N.D.	ug/l	80	8260B
Benzene	133	ug/l	20	8260B
Bromochloromethane	N.D.	ug/l	20	8260B
Bromodichloromethane	N.D.	ug/l	20	8260B
Bromoform	N.D.	ug/l	20	8260B
Bromomethane	N.D.	ug/l	40	8260B
2-Butanone	N.D.	ug/l	80	8260B
Carbon Disulfide	N.D.	ug/l	20	8260B
Carbon Tetrachloride	N.D.	ug/l	20	8260B
Chlorobenzene	N.D.	ug/l	20	8260B
Chlorodibromomethane	N.D.	ug/l	20	8260B
Chloroethane	N.D.	ug/l	20	8260B
Chloroform	N.D.	ug/l	20	8260B
Chloromethane	N.D.	ug/l	20	8260B
1,2-Dibromo-3-Chloropropane	N.D.	ug/l	40	8260B
1,2-Dibromoethane	N.D.	ug/l	20	8260B
1,1-Dichloroethane	N.D.	ug/l	20	8260B
1,2-Dichloroethane	N.D.	ug/l	20	8260B
1,1-Dichloroethene	N.D.	ug/l	20	8260B

\*\*\*\* Continued \*\*\*\*



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 2  
Sample # 218216-2

October 4, 2002

TEST/PARAMETER	RESULT	UNITS	REPORTING	
			LIMIT	METHOD
cis-1,2-Dichloroethene	N.D.	ug/l	20	8260B
trans-1,2-Dichloroethene	N.D.	ug/l	20	8260B
1,2-Dichloropropane	N.D.	ug/l	20	8260B
cis-1,3-Dichloropropene	N.D.	ug/l	20	8260B
trans-1,3-Dichloropropene	N.D.	ug/l	20	8260B
Ethylbenzene	81	ug/l	20	8260B
2-Hexanone	N.D.	ug/l	80	8260B
Methylene Chloride	N.D.	ug/l	40	8260B
4-Methyl-2-pentanone	N.D.	ug/l	80	8260B
Styrene	N.D.	ug/l	20	8260B
1,1,2,2-Tetrachloroethane	N.D.	ug/l	20	8260B
Tetrachloroethene	N.D.	ug/l	20	8260B
Toluene	N.D.	ug/l	20	8260B
1,1,1-Trichloroethane	N.D.	ug/l	20	8260B
1,1,2-Trichloroethane	N.D.	ug/l	20	8260B
Trichloroethene	N.D.	ug/l	20	8260B
Vinyl Chloride	N.D.	ug/l	40	8260B
Xylenes, total	372	ug/l	60	8260B

## DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

The GCMS volatile analysis was performed at a dilution due to the level of target compounds.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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LABORATORY SERVICES, INC.**

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Page # 3  
Sample # 218216-2

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH MASS SPEC.

VOLATILE ORGANICS BY GC/MS

4-Bromofluorobenzene	107	% Recovery	Surrogate
Dibromofluoromethane	96	% Recovery	Surrogate
1,2-Dichloroethane-d4	87	% Recovery	Surrogate
Toluene-d8	107	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

VOLATILE ORGANICS BY GC/MS  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

CAY 10/03/02 10:27  
VAL 10/03/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

Environmental ♦ Industrial Hygiene ♦ Food Science

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Page # 1  
Sample # 218216-3

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 11:22 AM
Location	: 16 (A) EW-02-54	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Grab	
		Discard Date	: 10/18/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	1.09	mg/l	0.16	8015M

### DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 2  
Sample # 218216-3

October 4, 2002

## QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

Diesel Range Organics	1.02	mg/l	Duplicate
ortho-terphenyl	111	% Recovery	Surrogate
ortho-terphenyl	105	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics	See Chain of Custody	JJH	10/03/02	15:14
Petroleum Hydrocarbon Extractn		NCG	10/02/02	14:35
ELECTRONIC DATA DELIVERABLES		VAL	10/03/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 218216-4

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 11:21 AM
Location	: 16 (A) EW-02-54	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Discard Date	: 10/19/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH MASS SPEC.

#### VOLATILE ORGANICS BY GC/MS

Acetone	N.D.	ug/l	4	8260B
Benzene	70	ug/l	1	8260B
Bromochloromethane	N.D.	ug/l	1	8260B
Bromodichloromethane	N.D.	ug/l	1	8260B
Bromoform	N.D.	ug/l	1	8260B
Bromomethane	N.D.	ug/l	2	8260B
2-Butanone	N.D.	ug/l	4	8260B
Carbon Disulfide	N.D.	ug/l	1	8260B
Carbon Tetrachloride	N.D.	ug/l	1	8260B
Chlorobenzene	N.D.	ug/l	1	8260B
Chlorodibromomethane	N.D.	ug/l	1	8260B
Chloroethane	N.D.	ug/l	1	8260B
Chloroform	N.D.	ug/l	1	8260B
Chloromethane	N.D.	ug/l	1	8260B
1,2-Dibromo-3-Chloropropane	N.D.	ug/l	2	8260B
1,2-Dibromoethane	N.D.	ug/l	1	8260B
1,1-Dichloroethane	N.D.	ug/l	1	8260B
1,2-Dichloroethane	N.D.	ug/l	1	8260B
1,1-Dichloroethene	N.D.	ug/l	1	8260B

\*\*\*\* Continued \*\*\*\*



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 2  
Sample # 218216-4

October 4, 2002

TEST/PARAMETER	RESULT	UNITS	REPORTING LIMIT	METHOD
cis-1,2-Dichloroethene	N.D.	ug/l	1	8260B
trans-1,2-Dichloroethene	N.D.	ug/l	1	8260B
1,2-Dichloropropane	N.D.	ug/l	1	8260B
cis-1,3-Dichloropropene	N.D.	ug/l	1	8260B
trans-1,3-Dichloropropene	N.D.	ug/l	1	8260B
Ethylbenzene	1.3	ug/l	1	8260B
2-Hexanone	N.D.	ug/l	4	8260B
Methylene Chloride	N.D.	ug/l	2	8260B
4-Methyl-2-pentanone	N.D.	ug/l	4	8260B
Styrene	N.D.	ug/l	1	8260B
1,1,2,2-Tetrachloroethane	N.D.	ug/l	1	8260B
Tetrachloroethene	N.D.	ug/l	1	8260B
Toluene	2.4	ug/l	1	8260B
1,1,1-Trichloroethane	N.D.	ug/l	1	8260B
1,1,2-Trichloroethane	N.D.	ug/l	1	8260B
Trichloroethene	N.D.	ug/l	1	8260B
Vinyl Chloride	N.D.	ug/l	2	8260B
Xylenes, total	6.1	ug/l	3	8260B

## DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 3  
Sample # 218216-4

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH MASS SPEC.

VOLATILE ORGANICS BY GC/MS

4-Bromofluorobenzene	96	% Recovery	Surrogate
Dibromofluoromethane	107	% Recovery	Surrogate
1,2-Dichloroethane-d4	112	% Recovery	Surrogate
Toluene-d8	95	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS  
DATE TIME

VOLATILE ORGANICS BY GC/MS  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

TMH 10/04/02 12:48  
VAL 10/03/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 218216-5

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 11:55 AM
Location	: 16 (B) EW-02-25	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Discard Date	: 10/18/02
	Grab		

TEST/PARAMETER	RESULT	UNITS	REPORTING LIMIT	METHOD
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### GAS CHROMATOGRAPH MASS SPEC.

#### VOLATILE ORGANICS BY GC/MS

Acetone	16	ug/l	4	8260B
Benzene	N.D.	ug/l	1	8260B
Bromochloromethane	N.D.	ug/l	1	8260B
Bromodichloromethane	N.D.	ug/l	1	8260B
Bromoform	N.D.	ug/l	1	8260B
Bromomethane	N.D.	ug/l	2	8260B
2-Butanone	9.3	ug/l	4	8260B
Carbon Disulfide	N.D.	ug/l	1	8260B
Carbon Tetrachloride	N.D.	ug/l	1	8260B
Chlorobenzene	N.D.	ug/l	1	8260B
Chlorodibromomethane	N.D.	ug/l	1	8260B
Chloroethane	N.D.	ug/l	1	8260B
Chloroform	N.D.	ug/l	1	8260B
Chloromethane	N.D.	ug/l	1	8260B
1,2-Dibromo-3-Chloropropane	N.D.	ug/l	2	8260B
1,2-Dibromoethane	N.D.	ug/l	1	8260B
1,1-Dichloroethane	N.D.	ug/l	1	8260B
1,2-Dichloroethane	N.D.	ug/l	1	8260B
1,1-Dichloroethene	N.D.	ug/l	1	8260B

\*\*\*\* Continued \*\*\*\*



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Page # 2  
Sample # 218216-5

October 4, 2002

TEST/PARAMETER	RESULT	UNITS	REPORTING	
			LIMIT	METHOD
cis-1,2-Dichloroethene	N.D.	ug/l	1	8260B
trans-1,2-Dichloroethene	N.D.	ug/l	1	8260B
1,2-Dichloropropane	N.D.	ug/l	1	8260B
cis-1,3-Dichloropropene	N.D.	ug/l	1	8260B
trans-1,3-Dichloropropene	N.D.	ug/l	1	8260B
Ethylbenzene	5.7	ug/l	1	8260B
2-Hexanone	N.D.	ug/l	4	8260B
Methylene Chloride	N.D.	ug/l	2	8260B
4-Methyl-2-pentanone	N.D.	ug/l	4	8260B
Styrene	N.D.	ug/l	1	8260B
1,1,2,2-Tetrachloroethane	N.D.	ug/l	1	8260B
Tetrachloroethene	N.D.	ug/l	1	8260B
Toluene	2.4	ug/l	1	8260B
1,1,1-Trichloroethane	N.D.	ug/l	1	8260B
1,1,2-Trichloroethane	N.D.	ug/l	1	8260B
Trichloroethene	N.D.	ug/l	1	8260B
Vinyl Chloride	N.D.	ug/l	2	8260B
Xylenes, total	15	ug/l	3	8260B

DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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Page # 3  
Sample # 218216-5

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH MASS SPEC.

VOLATILE ORGANICS BY GC/MS

4-Bromofluorobenzene	103	% Recovery	Surrogate
Dibromofluoromethane	94	% Recovery	Surrogate
1,2-Dichloroethane-d4	88	% Recovery	Surrogate
Toluene-d8	110	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

VOLATILE ORGANICS BY GC/MS

See Chain of Custody

CAY

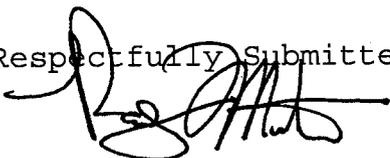
10/03/02 08:34

ELECTRONIC DATA DELIVERABLES

VAL

10/03/02

Respectfully Submitted,

  
Raymond J. Martrano  
Laboratory Manager



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 1  
Sample # 218216-6

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 12:00 PM
Location	: 16(B)EW-02-25	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Grab	Discard Date : 10/18/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	8.8	mg/l	1.6	8015M

DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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Page # 2  
Sample # 218216-6

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

ortho-terphenyl

106

% Recovery Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics  
Petroleum Hydrocarbon Extractn  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

JJH

10/03/02 20:02

NCG

10/02/02 14:35

VAL

10/03/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 218216-7

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 12:05 PM
Location	: 16 (B) EW-02-26	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Discard Date	: 10/17/02

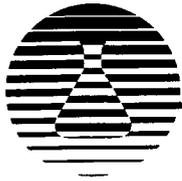
<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH MASS SPEC.

#### VOLATILE ORGANICS BY GC/MS

Acetone	82	ug/l	4	8260B
Benzene	N.D.	ug/l	1	8260B
Bromochloromethane	N.D.	ug/l	1	8260B
Bromodichloromethane	N.D.	ug/l	1	8260B
Bromoform	N.D.	ug/l	1	8260B
Bromomethane	N.D.	ug/l	2	8260B
2-Butanone	N.D.	ug/l	4	8260B
Carbon Disulfide	N.D.	ug/l	1	8260B
Carbon Tetrachloride	N.D.	ug/l	1	8260B
Chlorobenzene	N.D.	ug/l	1	8260B
Chlorodibromomethane	N.D.	ug/l	1	8260B
Chloroethane	N.D.	ug/l	1	8260B
Chloroform	N.D.	ug/l	1	8260B
Chloromethane	N.D.	ug/l	1	8260B
1,2-Dibromo-3-Chloropropane	N.D.	ug/l	2	8260B
1,2-Dibromoethane	N.D.	ug/l	1	8260B
1,1-Dichloroethane	N.D.	ug/l	1	8260B
1,2-Dichloroethane	N.D.	ug/l	1	8260B
1,1-Dichloroethene	N.D.	ug/l	1	8260B

\*\*\*\* Continued \*\*\*\*



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Page # 2  
Sample # 218216-7

October 4, 2002

TEST/PARAMETER	RESULT	UNITS	REPORTING	
			LIMIT	METHOD
cis-1,2-Dichloroethene	N.D.	ug/l	1	8260B
trans-1,2-Dichloroethene	N.D.	ug/l	1	8260B
1,2-Dichloropropane	N.D.	ug/l	1	8260B
cis-1,3-Dichloropropene	N.D.	ug/l	1	8260B
trans-1,3-Dichloropropene	N.D.	ug/l	1	8260B
Ethylbenzene	N.D.	ug/l	1	8260B
2-Hexanone	N.D.	ug/l	4	8260B
Methylene Chloride	N.D.	ug/l	2	8260B
4-Methyl-2-pentanone	N.D.	ug/l	4	8260B
Styrene	N.D.	ug/l	1	8260B
1,1,2,2-Tetrachloroethane	N.D.	ug/l	1	8260B
Tetrachloroethene	N.D.	ug/l	1	8260B
Toluene	N.D.	ug/l	1	8260B
1,1,1-Trichloroethane	N.D.	ug/l	1	8260B
1,1,2-Trichloroethane	N.D.	ug/l	1	8260B
Trichloroethene	N.D.	ug/l	1	8260B
Vinyl Chloride	N.D.	ug/l	2	8260B
Xylenes, total	N.D.	ug/l	3	8260B

DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
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Environmental ♦ Industrial Hygiene ♦ Food Science

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Page # 3  
Sample # 218216-7

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH MASS SPEC.

VOLATILE ORGANICS BY GC/MS

4-Bromofluorobenzene	96	% Recovery	Surrogate
Dibromofluoromethane	98	% Recovery	Surrogate
1,2-Dichloroethane-d4	93	% Recovery	Surrogate
Toluene-d8	115	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

VOLATILE ORGANICS BY GC/MS

See Chain of Custody

CAY 10/02/02 04:21

ELECTRONIC DATA DELIVERABLES

VAL 10/03/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

Environmental ♦ Industrial Hygiene ♦ Food Science

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Page # 1  
Sample # 218216-8

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

October 4, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 09/30/02 12:03 PM
Location	: 16(B)EW-02-26	Date Received	: 10/01/02
Sample State	: Water	Date Approved	: 10/04/02
Collector	: TCB	Discard Date	: 10/18/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
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### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	0.50	mg/l	0.16	8015M

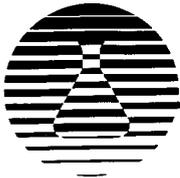
### DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
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Page # 2  
Sample # 218216-8

October 4, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

ortho-terphenyl

97

% Recovery Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics  
Petroleum Hydrocarbon Extractn  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

JJH

10/03/02 21:04

NCG

10/02/02 14:35

VAL

10/03/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



34 Dogwood Lane  
Middletown, PA 17057  
TEL: 717-944-5541  
FAX: 717-944-1430

**CHAIN OF CUSTODY/  
REQUEST FOR ANALYSIS**

Please print. See back of COC for directions

COC #: 218216

Sample Date: 09 1 30 102

Client Name: Foster Wheeler Env. Corp  
Address: 1 OXFORD VALLEY SUITE 200  
LANGHORNE, PA 19047  
Contact: MIKE HEFFRON  
Phone #: 215-702-4015  
Project Name#: NAVAL STATION - EARLE  
Quote/PO #:  
TAT: Normal  \*Rush  \*Rush TAT subject to approval and surcharges  
Date Required: 10/1/02  
Approved by:  
Fax Results?  or N # 215-702-4045

ANALYSES REQUESTED										
VOCs	TPH - GLO	VOCs	AS RECEIVED	TPH BRO						

RECEIVING INFO  
(Lab use only)

COOLER TEMP: \_\_\_\_\_

COC SEAL INTACT:  
Y or N

SHIPPING CARRIER:  
\_\_\_\_\_

SHIPPING NO:  
\_\_\_\_\_

SAMPLE DESCRIPTION//LOCATION	G/C	TIME 00:00	MATRIX	NO. OF CONTAINERS PER ANALYSIS REQUESTED							COMMENTS/FIELD DATA
				1	2	3	4	5	6	7	
1 1G(A) EW-02-53	G	11:16	Water	2					2		
2 1G(A) EW-02-53	G	11:15	Water	2				2			
3 1G(A) EW-02-54	G	11:22	Water		2				2		
4 1G(A) EW-02-54	G	11:21	Water		2			2			
5 1G(B) EW-02-25	G	11:55	Water	2				2			
6 1G(B) EW-02-25	G	12:00	Water		2				2		
7 1G(B) EW-02-26	G	12:05	Water	2				2			
8 1G(B) EW-02-20	G	12:03	Water		2				2		
9											
10											
11											
12											

Print Name and Company	Signature	Date/Time	Remarks:
Sampled by: <u>T. GIFFISH BROWNELL</u>	<u>[Signature]</u>	<u>09/30/02 2:00</u>	<u>[Signature]</u> 10/1/02
Received by: <u>G. Kandy ASI</u>	<u>[Signature]</u>	<u>10-01-02 1150</u>	
Relinquished by:			<b>METHOD PROTOCOL:</b> SW846 <input type="checkbox"/> CFR136 <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> OTHER: _____ <b>REPORTING REQUIREMENTS:</b> PADEP <input type="checkbox"/> OTHER: _____ PWSID: _____
Received by:			
Relinquished by:			
Received by:			



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 1  
Sample # 220480-1

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

November 1, 2002

LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 10/29/02 02:00 PM
Location	: 16(A) EW-02-55	Date Received	: 10/29/02
Sample State	: Water	Date Approved	: 11/01/02
Collector	: WG	Discard Date	: 11/16/02
			Grab

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	124	mg/l	32	8015M

DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

Due to the level of analyte present, the surrogate could not be determined for the DRO analysis.

Precision between the sample and sample duplicate in the 8015 diesel range organics analysis of this sample was outside laboratory control limits. AJL 11/1/02

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
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Page # 2  
Sample # 220480-1

November 1, 2002

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

QUALITY ASSURANCE REPORT

<u>Q/A PARAMETER</u>	<u>RESULT</u>		
GAS CHROMATOGRAPH ANALYSES			
TPH - Diesel Range Organics			
Diesel Range Organics	237	mg/l	Duplicate

<u>TEST/PARAMETER</u>	<u>PRESERVATIVE</u>	<u>TECH</u>	<u>ANALYSIS</u>	
			<u>DATE</u>	<u>TIME</u>
TPH - Diesel Range Organics	See Chain of Custody	JJH	11/01/02	06:24
Petroleum Hydrocarbon Extractn		JDW	10/30/02	11:45
ELECTRONIC DATA DELIVERABLES		VAL	11/01/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

Environmental ♦ Industrial Hygiene ♦ Food Science

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Page # 1  
Sample # 220480-2

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

November 1, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 10/29/02 02:00 PM
Location	: 16(A) EW-02-56	Date Received	: 10/29/02
Sample State	: Water	Date Approved	: 11/01/02
Collector	: WG	Discard Date	: 11/15/02
	Grab		

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	1.57	mg/l	0.16	8015M

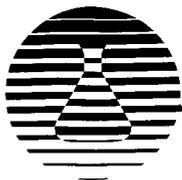
### DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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LABORATORY SERVICES, INC.**

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Page # 2  
Sample # 220480-2

November 1, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

ortho-terphenyl	80	% Recovery	Surrogate
ortho-terphenyl	77	% Recovery	Surrogate
Diesel Range Organics	88	% Recovery	Spike

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics  
Petroleum Hydrocarbon Extractn  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

JJH	10/31/02	17:12
JDW	10/30/02	11:45
VAL	11/01/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

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Page # 1  
Sample # 220480-3

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

November 1, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 10/29/02 02:10 PM
Location	: 16(B) EW-02-27	Date Received	: 10/29/02
Sample State	: Water	Date Approved	: 11/01/02
Collector	: WG	Discard Date	: 11/16/02
		Grab	

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	97	mg/l	16	8015M

### DATA PACKAGES

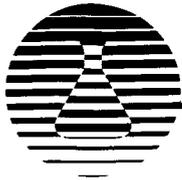
ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

Due to the level of analyte present, the surrogate could not be determined for the DRO analysis.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 2  
Sample # 220480-3

November 1, 2002

<u>TEST/PARAMETER</u>	<u>PRESERVATIVE</u>	<u>TECH</u>	<u>ANALYSIS</u>	
			<u>DATE</u>	<u>TIME</u>
TPH - Diesel Range Organics	See Chain of Custody	JJH	11/01/02	08:29
Petroleum Hydrocarbon Extractn		JDW	10/30/02	11:45
ELECTRONIC DATA DELIVERABLES		VAL	11/01/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 1  
Sample # 220480-4

ATTN: Mr. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
1 OXFORD VALLEY  
SUITE 200  
LANGHORNE PA 19047

November 1, 2002

LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 10/29/02 02:10 PM
Location	: 16(B) EW-02-28	Date Received	: 10/29/02
Sample State	: Water	Date Approved	: 11/01/02
Collector	: WG	Discard Date	: 11/16/02

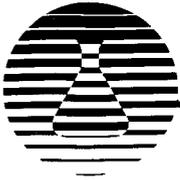
<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
GAS CHROMATOGRAPH ANALYSES				
TPH - Diesel Range Organics				
Diesel Range Organics	3.12	mg/l	0.81	8015M

DATA PACKAGES  
ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
LABORATORY SERVICES, INC.**

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Page # 2  
Sample # 220480-4

November 1, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

ortho-terphenyl

90

% Recovery Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics  
Petroleum Hydrocarbon Extractn  
ELECTRONIC DATA DELIVERABLES

See Chain of Custody

JJH 11/01/02 09:31  
JDW 10/30/02 11:45  
VAL 11/01/02

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



**ANALYTICAL  
LABORATORY SERVICES, INC.**  
Environmental + Industrial Hygiene + Food Science

34 Dogwood Lane  
Middletown, PA 17057  
TEL: 717-944-5541  
FAX: 717-944-1430

# CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for directions

COC #:

220680

Sample Date:

10 129 102

Client Name: <u>FOSTER WHEELER ENV. CORP</u> Address: <u>1 OXFORD VALLEY SUITE 200</u> Contact: <u>M. HEFFRON</u> Phone #: <u>215-702-4015</u> Project Name/#: Quote/PO #: TAT: Normal <input checked="" type="checkbox"/> *Rush <input checked="" type="checkbox"/> *Rush TAT subject to approval and surcharges Date Required: <u>11/10/02</u> Approved by: <u>[Signature]</u> Fax Results? Y or N #:	ANALYSES REQUESTED										RECEIVING INFO (Lab use only)		
	TPH-DRO										COOLER TEMP: _____ COC SEAL INTACT: Y or N SHIPPING CARRIER: SHIPPING NO:		
												Container Type Preservative	

SAMPLE DESCRIPTION//LOCATION	G/C	TIME 00:00	MATRIX	NO. OF CONTAINERS PER ANALYSIS REQUESTED						COMMENTS
				1	2	3	4	5	6	
1 1G(A) EW-02-55	G	2:00	water	2	✓					
2 1G(A) EW-02-56	G	2:00	water	2	✓					
3 1G(B) EW-02-27	G	2:10	water	2	✓					
4 1G(B) EW-02-28	G	2:10	water	2	✓					
5										
6										
7										
8										
9										
10										
11										
12										

Print Name and Company	Signature	Date/Time	Remarks:
Sampled by: <u>William Geigin</u>	<u>[Signature]</u>	10/29/02 2:30	
Received by: <u>CHAD RANSOM</u>	<u>[Signature]</u>	10-29-02 16:18	
Relinquished by: <u>CHAD RANSOM</u>	<u>[Signature]</u>	10-29-02	
Received by: <u>[Signature]</u>	<u>[Signature]</u>	10/29/02 17:36	
Relinquished by: <u>[Signature]</u>	<u>[Signature]</u>	10/29/02 2:00	
Received by: <u>[Signature]</u>	<u>[Signature]</u>	10/29/02 2:00	

METHOD PROTOCOL: SW846  CFR136   
 DRINKING WATER  OTHER: \_\_\_\_\_  
 REPORTING REQUIREMENTS: PADEP   
 OTHER: PWSID: \_\_\_\_\_

\* G=Grab, C=Composite; \*\* Matrix - SD=Soil, SD=Solid, DW=Drinking Water, WW=Wastewater, GW=Groundwater, SL=Sludge, OL=Oil



# **ANALYTICAL LABORATORY SERVICES, INC.**

*Environmental ♦ Industrial Hygiene ♦ Field Services*

[www.analyticallab.com](http://www.analyticallab.com)

Page # 1  
Sample # 222912-1

ATTN: Ms. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
2300 E. LINCOLN HIGHWAY  
SUITE 200  
LANGHORNE PA 19047

December 5, 2002

### LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 11/26/02 10:50 AM
Location	: 16AEW02-57	Date Received	: 11/27/02
Sample State	: Water	Date Approved	: 12/05/02
Collector	: CLT	Discard Date	: 12/20/02
	Grab		

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

#### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	56	mg/l	16	8015M

#### DATA PACKAGES

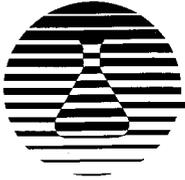
ELECTRONIC DATA DELIVERABLES NJAC

All testing performed on this sample conforms to 40 CFR part 136.

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

Due to the level of analyte present, the surrogate could not be determined for the DRO analysis.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
LABORATORY SERVICES, INC.**

Environmental ♦ Industrial Hygiene ♦ Field Services

www.analyticallab.com

Page # 2  
Sample # 222912-1

December 5, 2002

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

<u>TEST/PARAMETER</u>	<u>PRESERVATIVE</u>	<u>TECH</u>	<u>ANALYSIS</u>	
			<u>DATE</u>	<u>TIME</u>
TPH - Diesel Range Organics	See Chain of Custody	JJH	12/05/02	00:02
Petroleum Hydrocarbon Extractn		CJP	12/02/02	14:05
ELECTRONIC DATA DELIVERABLES		VAL	12/04/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# **ANALYTICAL LABORATORY SERVICES, INC.**

*Environmental ♦ Industrial Hygiene ♦ Field Services*

www.analyticallab.com

Page # 1  
Sample # 222912-2

ATTN: Ms. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
2300 E. LINCOLN HIGHWAY  
SUITE 200  
LANGHORNE PA 19047

December 5, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 11/26/02 11:00 AM
Location	: 16AEW02-58	Date Received	: 11/27/02
Sample State	: Water	Date Approved	: 12/05/02
Collector	: CLT	Grab	Discard Date : 12/19/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	N.D.	mg/l	0.16	8015M

### DATA PACKAGES

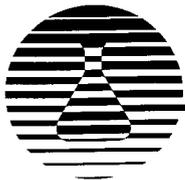
ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



**ANALYTICAL  
LABORATORY SERVICES, INC.**

Environmental ♦ Industrial Hygiene ♦ Field Services

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Page # 2  
Sample # 222912-2

December 5, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

ortho-terphenyl	86	% Recovery	Surrogate
ortho-terphenyl	96	% Recovery	Surrogate
Diesel Range Organics	91	% Recovery	Spike

TEST/PARAMETER

PRESERVATIVE

TECH

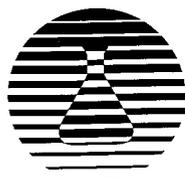
ANALYSIS

DATE TIME

TPH - Diesel Range Organics	See Chain of Custody	CGS	12/04/02	11:40
Petroleum Hydrocarbon Extractn		CJP	12/02/02	14:05
ELECTRONIC DATA DELIVERABLES		VAL	12/04/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



**ANALYTICAL  
LABORATORY SERVICES, INC.**

Environmental ♦ Industrial Hygiene ♦ Field Services

www.analyticallab.com

Page # 1  
Sample # 222912-3

ATTN: Ms. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
2300 E. LINCOLN HIGHWAY  
SUITE 200  
LANGHORNE PA 19047

December 5, 2002

LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 11/26/02 10:30 AM
Location	: 16BEW02-29	Date Received	: 11/27/02
Sample State	: Water	Date Approved	: 12/05/02
Collector	: CLT	Discard Date	: 12/20/02
	Grab		

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	36	mg/l	16	8015M

DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

Due to the level of analyte present, the surrogate could not be determined for the DRO analysis.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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Page # 2  
Sample # 222912-3

December 5, 2002

TEST/PARAMETER	PRESERVATIVE	TECH	ANALYSIS	
			DATE	TIME
TPH - Diesel Range Organics	See Chain of Custody	JJH	12/05/02	01:05
Petroleum Hydrocarbon Extractn		CJP	12/02/02	14:05
ELECTRONIC DATA DELIVERABLES		VAL	12/04/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



# ANALYTICAL LABORATORY SERVICES, INC.

Environmental ♦ Industrial Hygiene ♦ Field Services

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Page # 1  
Sample # 222912-4

ATTN: Ms. Cris Joblon  
FOSTER WHEELER ENVIRONMENTAL  
2300 E. LINCOLN HIGHWAY  
SUITE 200  
LANGHORNE PA 19047

December 5, 2002

## LAB ANALYSIS REPORT

Job Name	: Foster Wheeler	Customer PO#	: 043498
Job Number	: F3937-CJ-MC	Date Sampled	: 11/26/02 10:40 AM
Location	: 16BEW02-30	Date Received	: 11/27/02
Sample State	: Water	Date Approved	: 12/05/02
Collector	: CLT	Discard Date	: 12/19/02

<u>TEST/PARAMETER</u>	<u>RESULT</u>	<u>UNITS</u>	<u>REPORTING LIMIT</u>	<u>METHOD</u>
-----------------------	---------------	--------------	----------------------------	---------------

### GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics				
Diesel Range Organics	N.D.	mg/l	0.17	8015M

### DATA PACKAGES

ELECTRONIC DATA DELIVERABLES NJAC

N.D. - Not Detected

The DRO value reported is for petroleum hydrocarbons eluting between n-C10 and n-C28.

This report relates only to the samples as received by the laboratory, and may only be reproduced in full. If you have any questions in reference to this analysis please contact your ALSI coordinator or the laboratory manager listed at the bottom of this report at 717-944-5541.

\*\*\*\* Continued \*\*\*\*



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Page # 2  
Sample # 222912-4

December 5, 2002

QUALITY ASSURANCE REPORT

Q/A PARAMETER

RESULT

GAS CHROMATOGRAPH ANALYSES

TPH - Diesel Range Organics

Diesel Range Organics	N.D.	mg/l	Duplicate
ortho-terphenyl	88	% Recovery	Surrogate
ortho-terphenyl	83	% Recovery	Surrogate

TEST/PARAMETER

PRESERVATIVE

TECH

ANALYSIS

DATE TIME

TPH - Diesel Range Organics	See Chain of Custody	CGS	12/04/02	13:45
Petroleum Hydrocarbon Extractn		CJP	12/02/02	14:05
ELECTRONIC DATA DELIVERABLES		VAL	12/04/02	

Respectfully Submitted,

Raymond J. Martrano  
Laboratory Manager



**ANALYTICAL  
LABORATORY SERVICES, INC.**  
Environmental + Industrial Hygiene + Food Science

34 Dogwood Lane  
Middletown, PA 17057  
TEL: 717-944-5541  
FAX: 717-944-1430

**CHAIN OF CUSTODY/  
REQUEST FOR ANALYSIS**

Please print. See back of COC for directions

COC #: **222912**

Sample Date: **11/26/02**

Client Name: Foster Wheeler  
Address: One Oxford Valley  
Site 200  
Contact: Mike Hoffman  
Phone #: (215) 702-4015  
Project Name#: N.W.S. Ende  
Quote/PO #: 043498  
TAT: Normal  \*Rush  \*Rush TAT subject to approval and surcharges  
Date Required: \_\_\_\_\_  
Approved by: \_\_\_\_\_  
Fax Results? Y or N #: 215 702 4015

ANALYSES REQUESTED									
TPH DRO									

RECEIVING INFO  
(Lab use only)

COOLER TEMP: \_\_\_\_\_

COC SEAL INTACT:  
Y or N

SHIPPING CARRIER:  
\_\_\_\_\_

SHIPPING NO:  
\_\_\_\_\_

Container Type  
Preservative

SAMPLE DESCRIPTION/LOCATION	G/C	TIME 00:00	MATRIX **	NO. OF CONTAINERS PER ANALYSIS REQUESTED							COMMENTS/FIELD DATA
1 16A EW 02-57		1050	H <sub>2</sub> O	2							
2 16A EW 02-58		1100	H <sub>2</sub> O	2							
3 16B EW 02-29		1030	H <sub>2</sub> O	2							
4 16B EW 02-30		1040	H <sub>2</sub> O	2							
5											
6											
7											
8											
9											
10											
11											
12											

Print Name and Company	Signature	Date/Time	Remarks:
Sampled by:			
Received by:			
Relinquished by: <u>William Geiger</u>	<u>William Geiger</u>	<u>11/27/02 0830</u>	<b>METHOD PROTOCOL:</b> SW846 <input type="checkbox"/> CFR136 <input type="checkbox"/>
Received by: <u>John Santora Jr.</u>	<u>John Santora Jr.</u>	<u>11/27/02 1250</u>	DRINKING WATER <input type="checkbox"/> OTHER: _____
Relinquished by: <u>John Santora Jr.</u>	<u>John Santora Jr.</u>	<u>11/27/02</u>	<b>REPORTING REQUIREMENTS:</b> PADEP <input type="checkbox"/>
Received by: <u>Mike Hoffman</u>	<u>Mike Hoffman</u>	<u>11/27/02 1900</u>	OTHER: _____ PWSID: _____