N60478.AR.000516
NWS EARLE
5090.3a

Prepare in quintuplicate (original and 4 copies)
CONTROL NO. 21

CONTRACTOR DRAWINGS & INFORMATION SUBMITTAL
NORTHNAVFACENGCOM 4335/3 (Rev. 6/80)

CONTRACT NO.	DELIVERY ORDER	ACTIVITY LOCATION
N62472-94-D-0398	0017	Naval Weapons Station Earle, Colts Neck, NJ

PROJECT TITLE:
BIOSLURPER

FROM:	DATE
Foster Wheeler Environmental Corp. - Program QCM: Mark Miller	April 15, 1999
TO: S. LEHMAN (3 COPIES) / B. FAULTMAN	DATE April 15, 1999

1. THE CONTRACTOR SUBMITTALS LISTED BELOW ARE FORWARDED FOR YOUR REVIEW AND RECOMMENDATIONS.
   (a) APPLY APPROPRIATE STAMP IMPRINT TO EACH SUBMITTAL AND INDICATE REVIEW COMMENTS, AS REQUIRED.
   (b) RETAIN ONE (1) COPY OF THIS TRANSMITTAL FORM AND RETURN REMAINING COPIES WITH REVIEWED SUBMITTALS TO ROICC.
2. THESE SUBMITTALS SHOULD BE RETURNED TO THIS OFFICE BY _____
3. _____

COPY TO:

[x] ROICC T. Dunn (1 copy) [x] ENVIR. COORD G. Goepfert (2 copies)... J. Kolicius (1 copy) [x] NORTHDIV

Mark Miller 4-15-99
SIGNATURE AND DATE

FROM: DESIGNER	DATE
TO: ROICC	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE RETURNED, WITH ACTION TAKEN AS INDICATED.
2. _____

COPY TO:

[ ] ROICC [ ] DESIGNER

SIGNATURE AND DATE

FROM: ROICC	DATE
TO: CONTRACTOR	DATE

1. THE SUBMITTALS LISTED BELOW HAVE BEEN REVIEWED AND ARE APPROVED/DISAPPROVED AS SHOWN BELOW AND ON EACH STAMP IMPRINT.

COPY TO:
[ ] ROICC [ ] OTHER

FOR COMMANDING OFFICER, NORTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND — DATE

ITEM NO.	SUBMITTAL DESCRIPTION	PREPARED/ SUBMITTED BY	APPROVED	DISAPPROVED	REMARKS
21	SD-18, Records: Biosluper Status Report for Dec. '98 through March '99	M. Miller			

MISC\96-184.DOC

BIOSLURPER STATUS REPORT
FOR DECEMBER 1998 THROUGH MARCH 1999
NAVAL WEAPONS STATION - EARLE
COLTS NECK, NEW JERSEY

Issued:

April 1999

Prepared for:

Naval Facilities Engineering Command
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 N62472-94-D-0398
DELIVERY ORDER NO. 0017

BIOSLURPER STATUS REPORT
DECEMBER 1998 THROUGH MARCH 1999
NAVAL WEAPONS STATION - EARLE
COLTS NECK, NEW JERSEY

TABLE OF CONTENTS

SECTION		PAGE
1.0	INTRODUCTION	1
2.0	SYSTEM OPERATIONS AND DIFFICULTIES ENCOUNTERED	1
	DECEMBER 1998	1
	JANUARY 1999	1
	FEBRUARY 1999	3
	MARCH 1999	3
3.0	EVALUATION OF SITE CONDITIONS	3
4.0	PRODUCT RECOVERY DATA	4
5.0	EFFLUENT AND AIR ANALYSIS	4
5.0	CONCLUSIONS	5

FIGURES

FIGURE	PAGE
FIGURE 1: RECOVERY WELL/SYSTEM LAYOUT	2

TABLES

TABLE 1: OIL EXTRACTED TO DATE	6
TABLE 2: GROUNDWATER EXTRACTED TO DATE	7
TABLE 3: TPH REMOVED VIA GROUNDWATER TREATMENT	8
TABLE 4: TPH REMOVED VIA AIR EXTRACTION	9
TABLE 5: BIOSLURPER UNIT NO.1 TPH EFFLUENT CONCENTRATIONS	10, 11
TABLE 6: BIOSLURPER UNIT NO.2 TPH EFFLUENT CONCENTRATIONS	12, 13

BIOSLURPER STATUS REPORT
DECEMBER 1998 THROUGH MARCH 1999
NAVAL WEAPONS STATION - EARLE
COLTS NECK, NEW JERSEY

TABLE OF CONTENTS

APPENDICES

APPENDIX A:	GRAPHS OF OIL/WATER EXTRACTED TO DATE
APPENDIX B:	GRAPHS OF WATER LEVELS AND PRODUCT THICKNESS DATA FROM EXTRACTION WELLS
APPENDIX C:	ANALYTICAL SUMMARY TABLES FOR AIR DISCHARGES AND ASSOCIATED DATA
APPENDIX D:	EFFLUENT ANALYTICAL RESULTS
APPENDIX E:	AIR RESULTS OF RECOVERY WELLS

1.0 INTRODUCTION

This report summarizes the December 1998 and the first quarter results for the ongoing bioslurper operations at Site 16 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 December 1, 1998 to March 31, 1999, however, the recovery numbers for the entire operational time are summarized in the report.

Bioslurper Unit #1 (located adjacent to Building C-16) recovers product from the following product extraction wells: 16MW-13, 16MW-14, 16MW-15, MW16-04, and vapor extraction wells: 16MW-22 and 16MW-23. Bioslurper Unit #2 (located north of Building C-50) extracts from 16MW-20, 16MW-16, C17/20MW-07, 16MW-17 and 16MW-19. Figure 1 depicts the locations of the extraction wells and bioslurping systems.

2.0 OPERATIONS AND DIFFICULTIES ENCOUNTERED

Appendix A provides a graphical representation of the amount of oil/groundwater extracted, and the operational hours for each Unit.

DECEMBER 1998

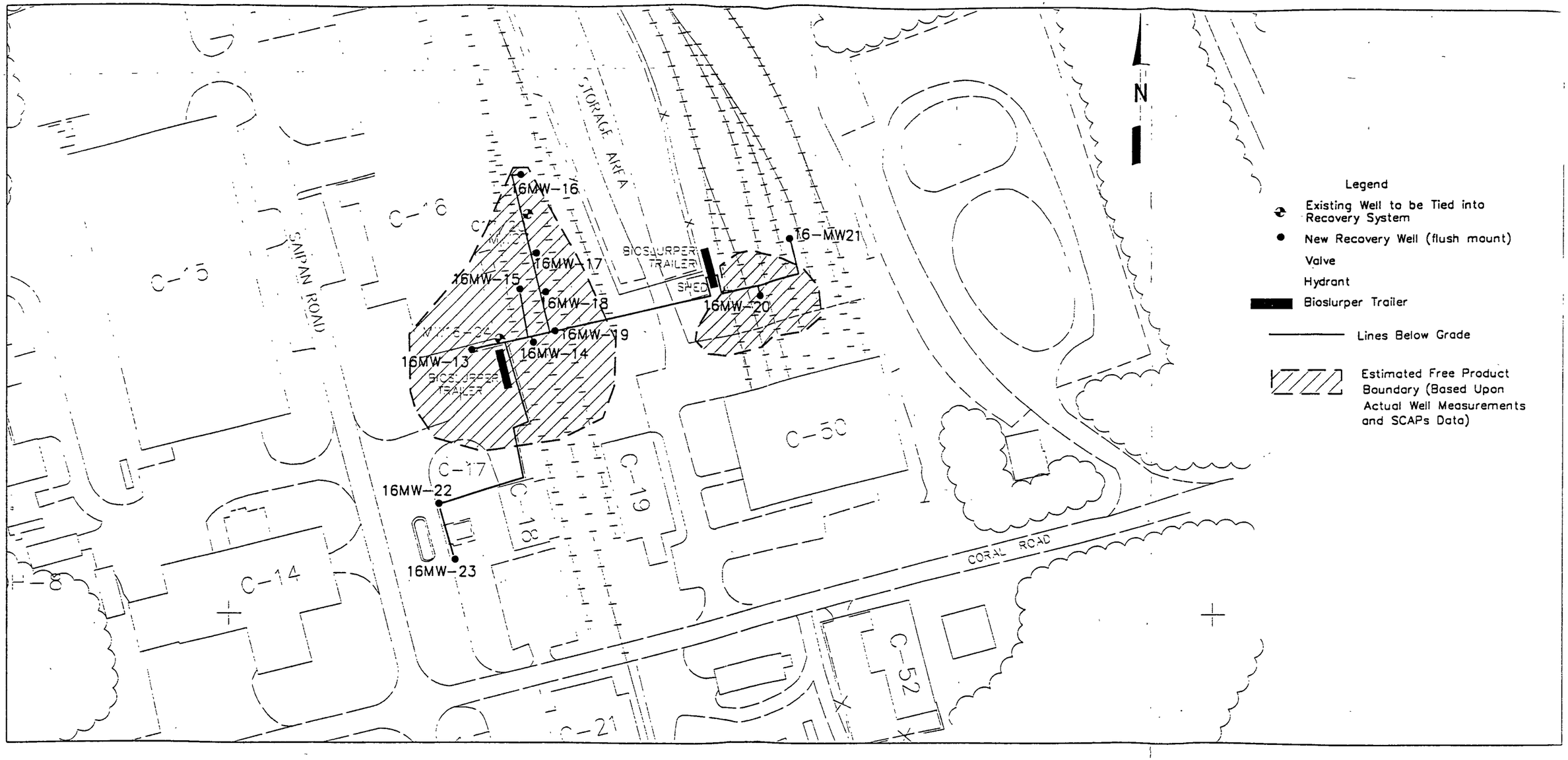
Bioslurper Unit #1 was operated for a total of 117 hours between December 1, 1998 and December 31, 1998, and Bioslurper Unit #2 was operated for a total of 32.5 hours. The total amount of groundwater extracted during this time period was 49,752 gallons, with approximately 255 gallons of free-phase oil removed.

Bioslurper Unit #1 was shut down for a total duration of one week due to O&M problems. The first problem was excessive back-pressure, which was eventually traced to a clogged diffuser in a clay groundwater treatment unit. The second problem was loss of vacuum in the liquid ring pump. Gaskets and strainers on the feed line to the liquid ring pump were replaced to correct the problem.

JANUARY 1999

Bioslurper Unit #1 was operated for a total of 93 hours between January 1, 1999 and January 31, 1999, and Bioslurper Unit #2 was operated for a total of 21 hours. The total amount of groundwater extracted during this time period was 43,921 gallons, with approximately 240 gallons of free-phase oil removed.

Bioslurper Unit #1 was down from January 1 through January 5, 1999 to fix damaged lines outside the unit due to freezing. Bioslurper Unit #2 was down from January 1 through January 12, 1999 to fix damaged lines outside the unit due to freezing. All damaged lines were replaced and re-wrapped with heat trace. Illuminated indicator lights were also connected to the heat trace and placed on the outside of the units in order to visually check to ensure the heat trace was operational.



U.S. Navy RAC
Naval Weapons Station - Earle

Recovery Well /System Layout

FOSTER WHEELER ENVIRONMENTAL CORPORATION

SCALE	NO.	DATE	DESCRIPTION	PREP	CHECK	APPROVED	DRAWING NO.	DRAWN BY	APPROVED
1"=100'			Issued for Construction				Figure 1		C. Tippmann

SITEPLN1

FEBRUARY 1999

Bioslurper Unit #1 was operated for a total of 14 hours from February 1, 1999 through February 28, 1999, and Bioslurper Unit #2 was operated for a total of 15 hours. The total amount of groundwater extracted during February was 7,072 gallons, with approximately 65 gallons of free-phase oil also removed.

Bioslurper Unit 1 was down from February 3 through February 9, 1999 to evaluate and then fix piping and replace heat exchanger associated with the liquid ring pump assembly. Iron deposits inside the piping assembly reduced the flow of seal water to the liquid ring pump causing the low level seal water alarm to activate. Upon investigation, it was discovered that the heat exchanger was clogged beyond repair. A new heat exchanger was ordered and installed. A spare heat exchanger was also purchased to decrease the down time if the problem re-occurs.

Bioslurper Unit No. 1 was down from February 15 through February 23, 1999 due to a damaged pressure transducer. There is a pressure transducer on the effluent side of the bag filter that measures pressure associated with the treatment vessels. The pressure transducer relays a signal to the control panel to shut the unit down in the event the pressure exceeds 100 psi. The pressure transducer was somehow damaged and needed to be replaced. A new pressure transducer was ordered and shipped, but the wrong unit was sent and had to be re-ordered, causing the delay in the installation.

MARCH 1999

Bioslurper Unit #1 was operated for a total of 103 hours from March 1, 1999 through March 31, 1999, and Bioslurper Unit #2 was operated for a total of 28 hours. The total amount of groundwater extracted during March was 62,790 gallons, with approximately 140 gallons of free-phase oil also removed.

The NJDEP sent back Revised Draft Air Permits for the bioslurper units, but the discharge requirements did not match what was in the Permit Application. A meeting was conducted between Greg Goepfert (NWS-Earle), John Kolicius (Northern Division), Mike Heffron and Dennis Sinauskas (FWENC), and NJDEP to discuss the air permit applications and the revisions. An agreement was met on the monitoring and discharge limits to be set, and NJDEP will re-issue the Draft Air Permits for review.

3.0 EVALUATION OF SITE CONDITIONS

Water level and product thickness measurements have been obtained periodically from the extraction wells since August 1997 to establish product thickness and groundwater elevation trends. Appendix B provides a graphical representation of the water levels and product thickness in the extraction wells. All of the product extraction wells contained measurable product, with the exception of 16MW-18 and 16MW-21. As expected, the

vapor extraction wells (16MW-22 and 16MW-23) located near the former gas station, did not contain measurable free-product.

As depicted on the graphs in Appendix C, groundwater levels have been rising since November due to seasonal changes.

The systems are being operated during working hours using the telemetry systems of the units. Bioslurper Unit #1 is being operated 7 to 9 hours a day, and Bioslurper Unit #2 is being operated 1 to 2 hours a day. As indicated on the graphs in Appendix A, increased system run times do not greatly increase the amount of free product recovered. By cycling the systems during the days and turning them off at night, the wells are allowed to recharge, and the O&M and disposal costs of the groundwater filter media are reduced.

4.0 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 of the system. 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. Table 4 summarizes the volume of TPH removed via the air extraction component of bioslurper systems.

5.0 EFFLUENT AND AIR ANALYSIS

The effluent and the air discharges from the bioslurper units are routinely sampled to ensure discharges are in compliance with the NJDEP air discharge permit and the requirements set forth by the Navy Weapons Station-Earle Sewer Treatment Plant. The air discharge is sampled for total volatile organics (including benzene) and total petroleum hydrocarbons (TPH). Appendix C summarizes the analytical results of the air discharge samples and the permit limits. Tables 4 and 5 summarize the TPH analytical results for the groundwater effluent discharge samples collected from the bioslurper treatment units. Laboratory results of the effluent samples are provided in Appendix D.

The effluent from the bioslurpers is analyzed weekly for TPH in order to ensure the discharge is within the NWS-Earle Sewer Treatment Plant's NJPDES Permit. The effluent is not sampled the week of clay and carbon change-out due to past analytical which historically demonstrates that the effluent concentration is non-detect for TPH immediately after the groundwater filter media change-out. The effluent is also occasionally sampled for a full range of organics, metals, PCBs, and pesticides to document that no elevated levels are being discharged to the sewer treatment plant. **On** January 15, 1999, the effluent of Unit #1 (16(A)EW-99-W90) and Unit #2 (16(B)EW-99-W79) were analyzed for volatile organic compounds (VOCs), semi-volatile organic compound (S-VOCs), PCBs/pesticides, and metals. No VOCs, S-VOCs, PCBs or pesticides were detected in the effluent samples collected in January 1999. Low levels of

some metals were detected in the effluent, but none of the analytes are above discharge criteria.

As per the NJDEP Air Permits, the air discharge from the Bioslurper Units are sampled once a month and analyzed for volatile organics. The air discharge is also analyzed for TPH to evaluate the total TPH removed via the airstream. It should be noted that the January air samples were collected on February 1, 1999.

As indicated by the analytical results, both bioslurper units are operating within the permit requirements established for air and treated water discharge. The analytical results for the air samples are provided in Appendix C. The effluent analytical results are provided in Appendix D.

Air samples taken from the recovery wells indicated that oxygenation of the wells was continuing while the system is in operation and carbon dioxide and methane levels decrease with increased oxygen levels. It should be noted that although the oxygen levels increase during the operation of the recovery wells, the levels probably decrease again once the system is shut off due to the presence of free-phase oil and anaerobic conditions. Air samples prior to, and during system operation shall be obtained in order to evaluate the oxygen, carbon dioxide, and methane concentrations in the wells.

6.0 CONCLUSIONS

The bioslurper systems are continuing to operate within the design capabilities. The product recovery numbers have decreased over the duration of the systems operations. The decrease in the volume of oil recovered is a function of the volume of oil available within the radii of influence of the recovery wells. It should be noted that while the bioslurpers are removing the available product within the radii of influence of the recovery wells, the recovery well placements at this point in time do not provide sufficient coverage of the entire free-phase plume. As depicted in Appendix E, the product thickness' in the recovery wells increase if the systems are turned off for an extended time (2 months). The increase in the product thickness' in the recovery wells after the system is turned off indicates that additional free-phase product is migrating, under natural conditions, to those wells while the system is off. The recovery wells are situated on the downgradient portion of the free-phase plume such that the wells can eventually recover the free-phase product, but the duration of the system operation would be decreased if additional wells were to be installed. In accordance to the original scope-of-work, this evaluation shall be presented in more detail after the one year of systems operation is completed.

TABLE 1
NAVAL WEAPONS STATION-EARLE BIOSLURPER UNITS
OIL EXTRACTED TO DATE

1998	Free-Phase Oil Extracted February (gallons)	Free-Phase Oil Extracted March (gallons)	Free-Phase Oil Extracted April (gallons)	Free-Phase Oil Extracted May (gallons)	Free-Phase Oil Extracted August (gallons)	Free-Phase Oil Extracted September (gallons)	Free-Phase Oil Extracted October (gallons)	Free-Phase Oil Extracted November (gallons)	Free-Phase Oil Extracted December (gallons)
Bioslurper System #1	400	375	275	300	225	250	250	140	225
Bioslurper System #2	25	50	50	20	55	30	40	20	30
Total	**425**	**425**	**325**	**320**	**280**	**280**	**290**	**160**	**255**

1999	Free-Phase Oil Extracted January (gallons)	Free-Phase Oil Extracted February (gallons)	Free-Phase Oil Extracted March (gallons)	Total Free-Product Extracted to Date (gallons)
Bioslurper System #1	220	50	125	2835
Bioslurper System #2	20	15	15	370
Total	**240**	**65**	**140**	**3,205**

TABLE 2
NAVAL WEAPONS STATION-EARLE BIOSLURPER UNITS
GROUNDWATER EXTRACTED/TREATED TO DATE

1998	Ground-water Extracted February (gallons)	Ground-water Extracted March (gallons)	Ground-water Extracted April (gallons)	Ground-water Extracted May (gallons)	Ground-water Extracted August (gallons)	Ground-water Extracted September (gallons)	Ground-water Extracted October (gallons)	Ground-water Extracted November (gallons)	Ground-water Extracted December (gallons)
Bioslurper System #1	2,675	26,169	23,898	12,799	16,498	34,612	29,974	20,503	40,611
Bioslurper System #2	5,282	20,586	22,607	6,584	13,537	14,451	27,805	16,196	9,141
Total	**7,957**	**46,755**	**46,505**	**19,383**	**30,035**	**49,063**	**57,779**	**36,699**	**49,752**

1999	Ground-water Extracted January (gallons)	Ground-water Extracted February (gallons)	Ground-water Extracted March (gallons)	Total Ground-water Extracted/ Treated to Date (gallons)
Bioslurper System #1	35,078	6,536	49,834	299,187
Bioslurper System #2	8,843	536	12,956	158,524
Total	**43,921**	**7,072**	**62,790**	**457,711**

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

1998	TPH Extracted Ground-water Treatment February (pounds)	TPH Extracted Ground-water Treatment March (pounds)	TPH Extracted Ground-water Treatment April (pounds)	TPH Extracted Ground-water Treatment May (pounds)	TPH Extracted Ground-water Treatment August (pounds)	TPH Extracted Ground-water Treatment September (pounds)	TPH Extracted Ground-water Treatment October (pounds)	TPH Extracted Ground-water Treatment November (pounds)	TPH Extracted Ground-water Treatment December (pounds)
Bioslurper System #1	60.75	125.14	306.42	135.56	47.3	---	175.99	179.16	192.96
Bioslurper System #2	4.25	14.17	32.40	9.61	---	13.99	2.37	4.26	11.48
Total	**65.00**	**139.31**	**338.82**	**145.17**	**47.30**	**13.99**	**178.36**	**183.42**	**204.44**

1999	TPH Extracted Ground-water Treatment January (pounds)	TPH Extracted Ground-water Treatment February (pounds)	TPH Extracted Ground-water Treatment March (pounds)	Total TPH Extracted via Groundwater to Date (pounds)
Bioslurper System #1	60.48	56.18	394.28	1734.22
Bioslurper System #2	3.84	0.21	29.30	125.88
Total	**64.32**	**56.39**	**423.58**	**1,860.10**

TABLE 4
NAVAL WEAPONS STATION-EARLE BIOSLURPER UNITS
TOTAL PETROLEUM HYDROCARBONS (TPH) REMOVED VIA AIR EXTRACTION

1998	TPH Removed via Vapor Extraction February (pounds)	TPH Removed via Vapor Extraction March (pounds)	TPH Removed via Vapor Extraction April (pounds)	TPH Removed via Vapor Extraction May (pounds)	TPH Removed via Vapor Extraction August (pounds)	TPH Removed via Vapor Extraction September (pounds)*	TPH Removed via Vapor Extraction October (pounds)	TPH Removed via Vapor Extraction November (pounds)	TPH Removed via Vapor Extraction December (pounds)
Bioslurper System #1	22.4	16.95	36.73	34.37	24.79	0	5.54	201.95	45.52
Bioslurper System #2	4.5	7.7	20.74	9.96	18.89	32.4	16.71	0	2.79
Total	**26.9**	**24.65**	**57.47**	**44.33**	**43.68**	**32.4**	**22.25**	**201.95**	**48.31**

1999	TPH Removed via Vapor Extraction January (pounds)	TPH Removed via Vapor Extraction February (pounds)	TPH Removed via Vapor Extraction March (pounds)	Total TPH Removed via Vapor Extraction to Date (pounds)
Bioslurper System #1	0	0	0	388.24
Bioslurper System #2	2.60	1.53	1.09	118.91
Total	**2.60**	**1.53**		**507.15**

TABLE 5:
BIOSLURPER UNIT NO.1
TOTAL PETROLEUM HYDROCARBON (TPH) EFFLUENT CONCENTRATIONS

EFFLUENT SAMPLES December 4, 1998	TPH Concentration (ppm)	EFFLUENT SAMPLES December 11, 1998	TPH Concentration (ppm)	EFFLUENT SAMPLES January 6, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES January 15, 1999	TPH Concentration (ppm)
Untreated Effluent **16(A)EW-98-W109**	690	Untreated Effluent **16(A)EW-98-W115**	447	Untreated Effluent **16(A)EW-99-W01**	425	Untreated Effluent **16(A)EW-99-W07**	206
After 1st Clay Unit **16(A)EW-98-W110**	243	After 1st Clay Unit **16(A)EW-98-W116**	156	After 1st Clay Unit **16(A)EW-99-W02**	1980	After 1st Clay Unit **16(A)EW-99-W08**	208
After 2 Clay Units **16(A)EW-98-W111**	79.4	After 2 Clay Units **16(A)EW-98-W117**	88.5	After 2 Clay Units **16(A)EW-99-W03**	1580	After 2 Clay Units **16(A)EW-99-W09**	22.6
After 3 Clay Units **16(A)EW-98-W112**	1.13	After 3 Clay Units **16(A)EW-98-W118**	1.51	After 3 Clay Units **16(A)EW-99-W04**	1040	After 3 Clay Units **16(A)EW-99-W10**	1.67
After 2 Clay Units and 1 Carbon Unit **16(A)EW-98-W113**	ND	After 2 Clay Units and 1 Carbon Unit **16(A)EW-98-W119**	ND	After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W05**	25.6	After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W11**	ND
After 3 Clay Units and 2 Carbon Units **16(A)EW-98-W114**	ND	After 3 Clay Units and 2 Carbon Units **16(A)EW-98-W120**	ND	After 3 Clay Units and 2 Carbon Units **16(A)EW-99-W06**	ND	After 3 Clay Units and 2 Carbon Units **16(A)EW-99-W12**	ND

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.
ND-not detected above the laboratory detection limit

TABLE 5
(Page 2 of 2):
BIOSLURPER UNIT NO.1
TOTAL PETROLEUM HYDROCARBON (TPH) EFFLUENT CONCENTRATIONS

EFFLUENT SAMPLES January 26, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES February 25, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES March 11, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES March 18, 1999	TPH Concentration (ppm)
Untreated Effluent **16(A)EW-99-W13**	80	Untreated Effluent **16(A)EW-99-W25**	1030	Untreated Effluent **16(A)EW-99-W31**	1810	Untreated Effluent **16(A)EW-99-W37**	948
After 1st Clay Unit **16(A)EW-99-W14**	1450	After 1st Clay Unit **16(A)EW-99-W26**	258	After 1st Clay Unit **No Sample Taken***	---	After 1st Clay Unit **16(A)EW-99-W38**	264
After 2 Clay Units **16(A)EW-99-W15**	1130	After 2 Clay Units **16(A)EW-99-W27**	39	After 2 Clay Units **16(A)EW-99-W33**	646	After 2 Clay Units **16(A)EW-99-W39**	170
After 3 Clay Units **16(A)EW-99-W16**	151	After 3 Clay Units **16(A)EW-99-W28**	2.78	After 3 Clay Units **16(A)EW-99-W34**	438	After 3 Clay Units **16(A)EW-99-W40**	166
After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W17**	17.5	After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W29**	1.57	After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W35**	111	After 3 Clay Units and 1 Carbon Unit **16(A)EW-99-W41**	16.4
After 3 Clay Units and 2 Carbon Units **16(A)EW-99-W18**	ND	After 3 Clay Units and 2 Carbon Units **16(A)EW-99-W30**	ND	After 3 Clay Units and 2 Carbon Units **No Sample Taken***	---	After 3 Clay Units and 2 Carbon Units **16(A)EW-99-W42**	ND

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.
ND-not detected above the laboratory detection limit
Sample IDs 16(A)EW-99-19 through 16(A)EW-99-24, sequentially, do not exist.

*** Bottles broken in shipment.**

TABLE 6:
BIOSLURPER UNIT NO.2
TOTAL PETROLEUM HYDROCARBON (TPH) EFFLUENT CONCENTRATIONS

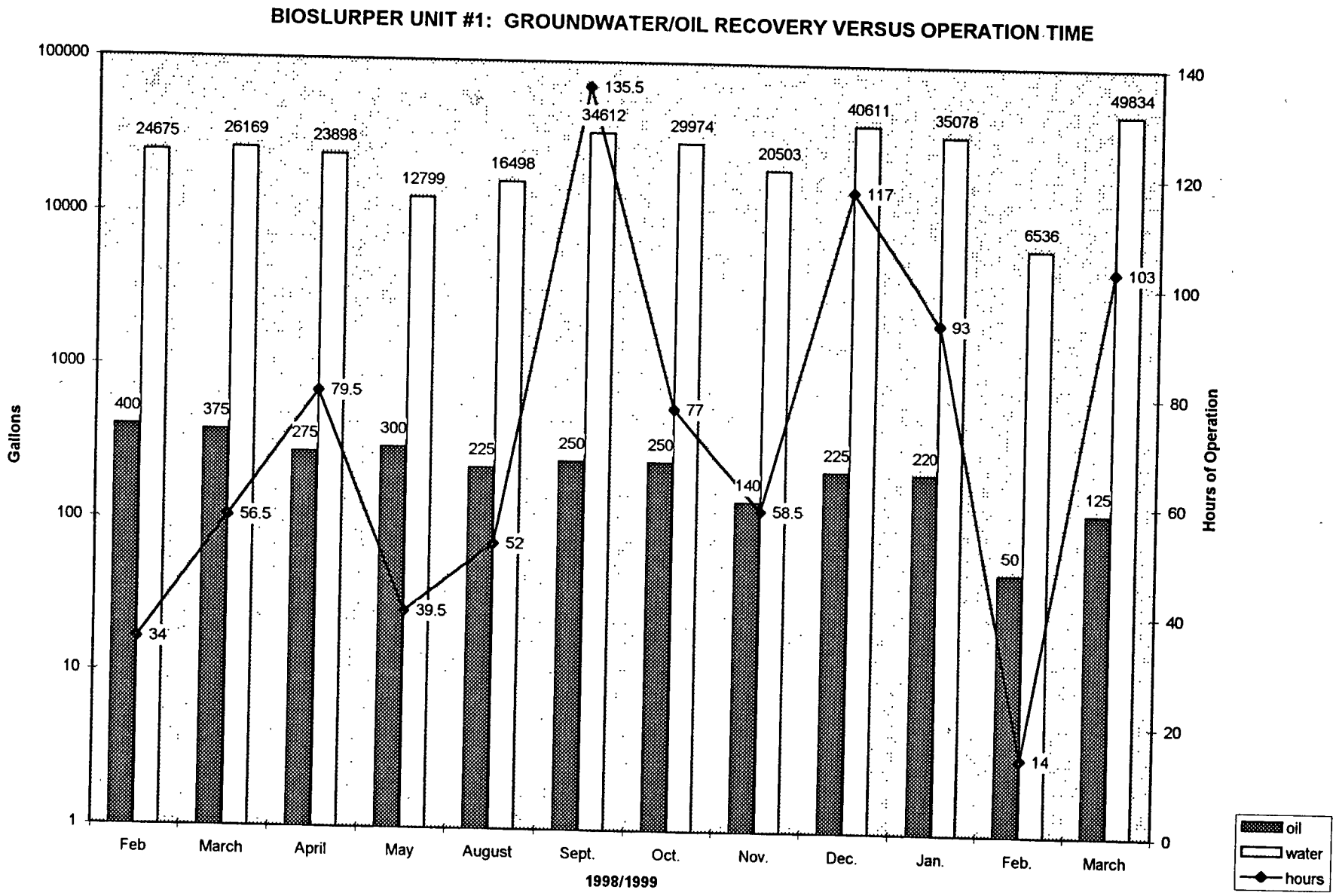
EFFLUENT SAMPLES December 4, 1998	**TPH Concentration (ppm)**	**EFFLUENT SAMPLES December 11, 1998**	**TPH Concentration (ppm)**	**EFFLUENT SAMPLES January 6, 1999**	**TPH Concentration (ppm)**	**EFFLUENT SAMPLES January 15, 1999**	**TPH Concentration (ppm)**
Untreated Effluent **16(B)EW-98-W92**	65.9	Untreated Effluent **16(B)EW-98-W97**	235	Untreated Effluent **16(B)EW-99-W01**	4.84	Untreated Effluent **16(B)EW-99-W06**	120
After 1st Clay Unit **16(B)EW-98-W93**	1.09	After 1st Clay Unit **16(B)EW-98-W98**	ND	After 1st Clay Unit **16(B)EW-99-W02**	ND	After 1st Clay Unit **16(B)EW-99-W07**	ND
After 2 Clay Units **16(B)EW-98-W94**	ND	After 2 Clay Units **16(B)EW-98-W99**	ND	After 2 Clay Units **16(B)EW-99-W03**	ND	After 2 Clay Units **16(B)EW-99-W08**	ND
After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---
After 2 Clay Units and 1 Carbon Unit **16(B)EW-98-W95**	ND	After 2 Clay Units and 1 Carbon Unit **16(B)EW-98-W100**	ND	After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W04**	ND	After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W09**	ND
After 3 Clay Units and 2 Carbon Units **16(B)EW-98-W96**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-98-W101**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W05**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W10**	ND

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.
ND-not detected above the laboratory detection limit

TABLE 6
(Page 2 of 2)
BIOSLURPER UNIT NO.2
TOTAL PETROLEUM HYDROCARBON (TPH) EFFLUENT CONCENTRATIONS

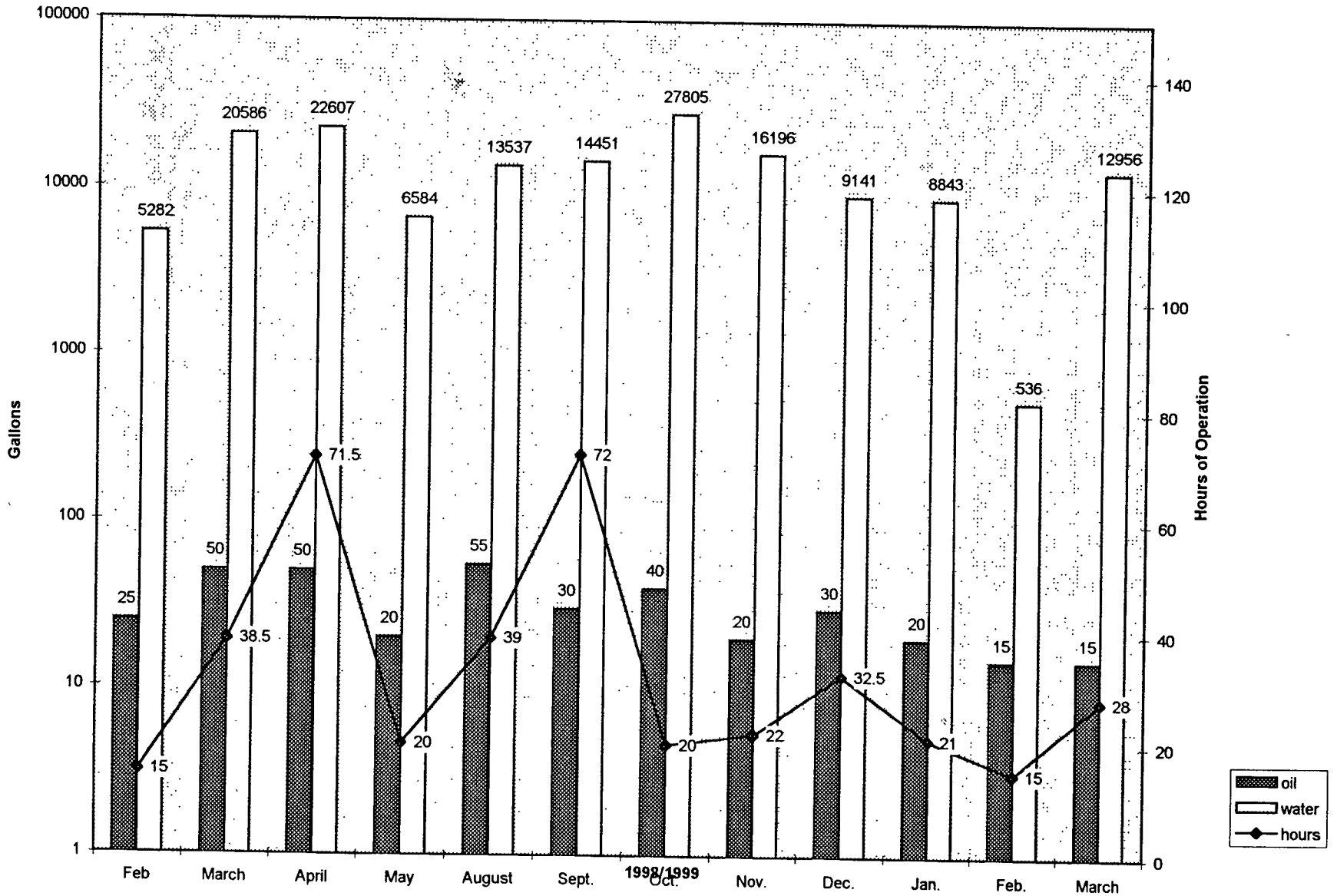
EFFLUENT SAMPLES January 26, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES February 25, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES March 11, 1999	TPH Concentration (ppm)	EFFLUENT SAMPLES March 18, 1999	TPH Concentration (ppm)
Untreated Effluent **16(B)EW-99-W11**	31.5	Untreated Effluent **16(B)EW-99-W16**	47.9	Untreated Effluent ***No Sample Taken**	---	Untreated Effluent **16(B)EW-99-W26**	271
After 1st Clay Unit **16(B)EW-99-W12**	1.48	After 1st Clay Unit **16(B)EW-99-W17**	92.8	After 1st Clay Unit **16(B)EW-99-W22**	135	After 1st Clay Unit **16(B)EW-99-W27**	109
After 2 Clay Units **16(B)EW-99-W13**	ND	After 2 Clay Units **16(B)EW-99-W18**	ND	After 2 Clay Units ***No Sample Taken**	---	After 2 Clay Units **16(B)EW-99-W28**	ND
After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---	After 3 Clay Units **No Sample Taken**	---
After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W14**	2.87	After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W19**	ND	After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W24**	ND	After 3 Clay Units and 1 Carbon Unit **16(B)EW-99-W29**	ND
After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W15**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W20**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W25**	ND	After 3 Clay Units and 2 Carbon Units **16(B)EW-99-W30**	ND

The NWS-Earle Sewer Treatment Plant NJPDES Permit Discharge Limit for TPH is 10 ppm.
ND-not detected above the laboratory detection limit
*** Bottles broken in shipment**



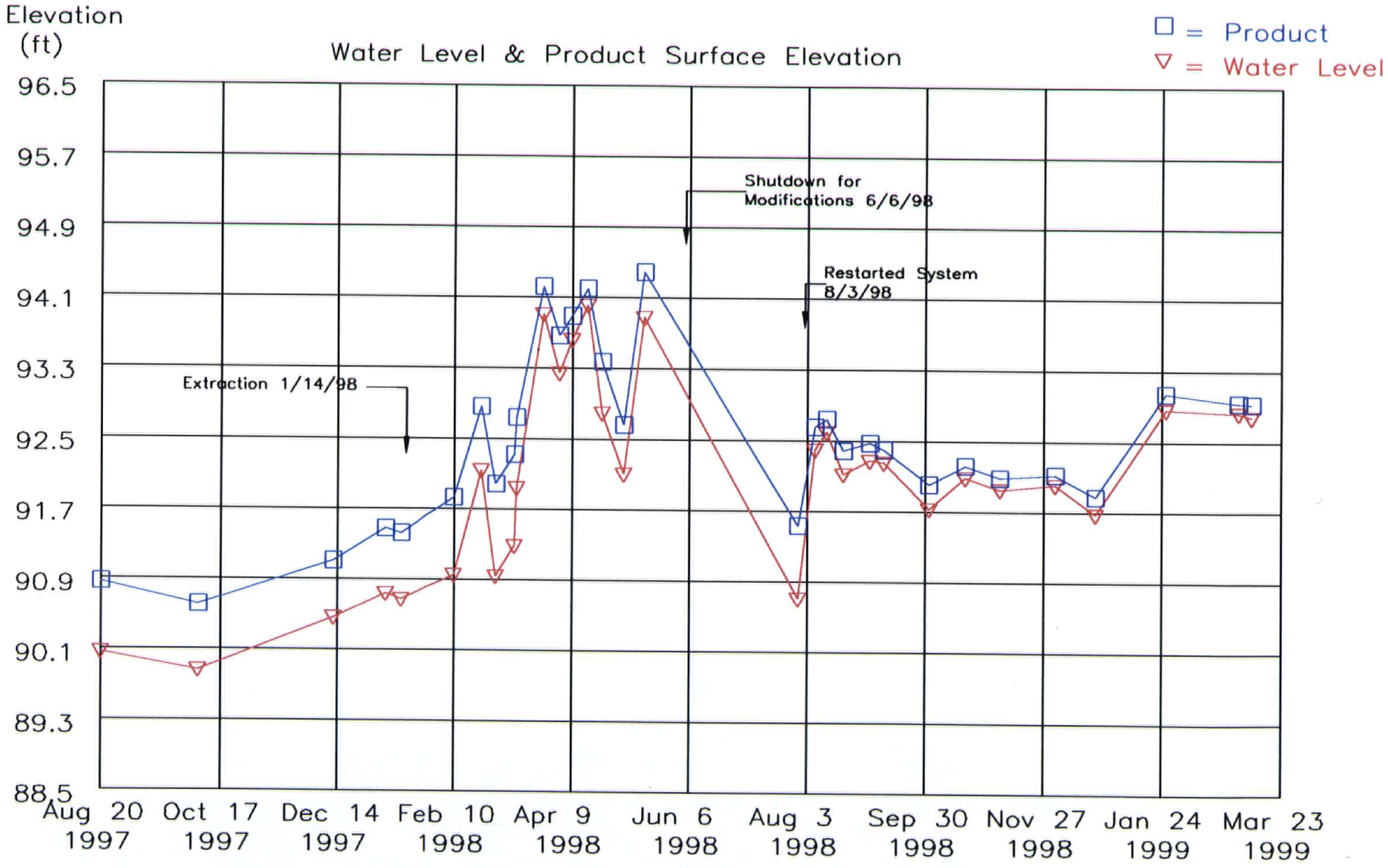
BIOSCHART 99.xls
BIOS 1 Chart 3

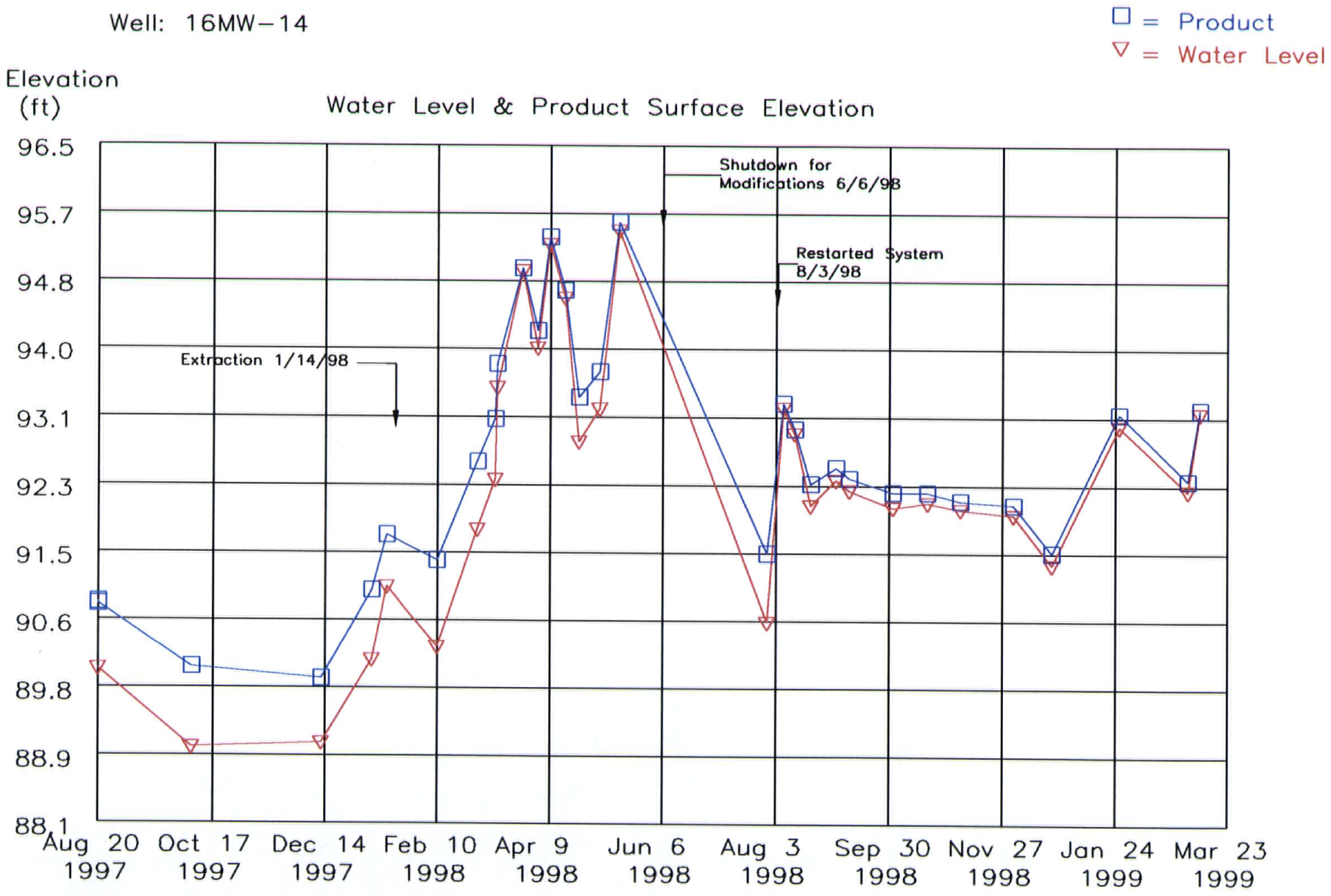
BIOSLURPER UNIT #2: GROUNDWATER/OIL RECOVERY VERSUS OPERATION TIME



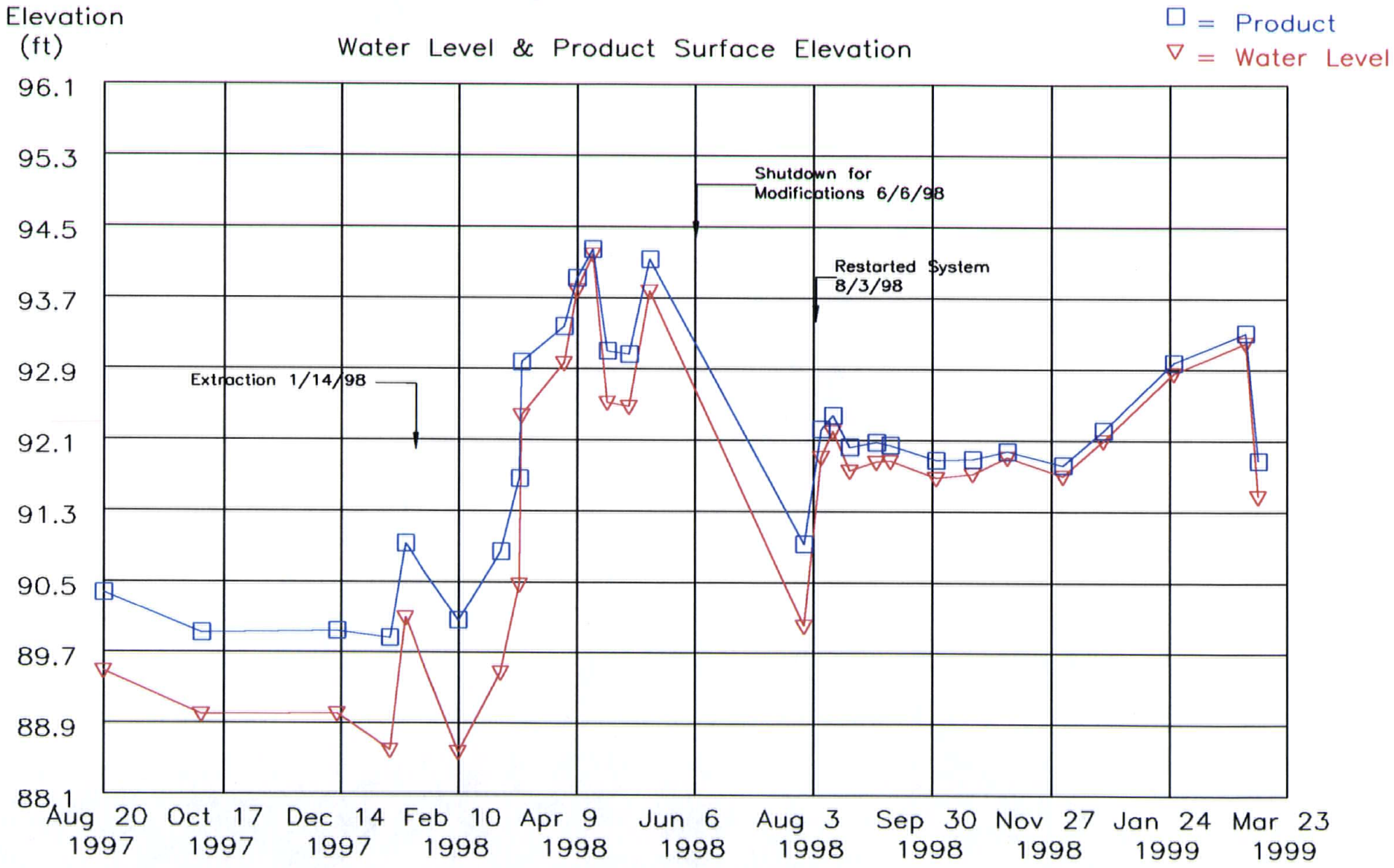
BIOSCHART 99.xls
BIOS 2 Chart 3

Well: 16MW-13

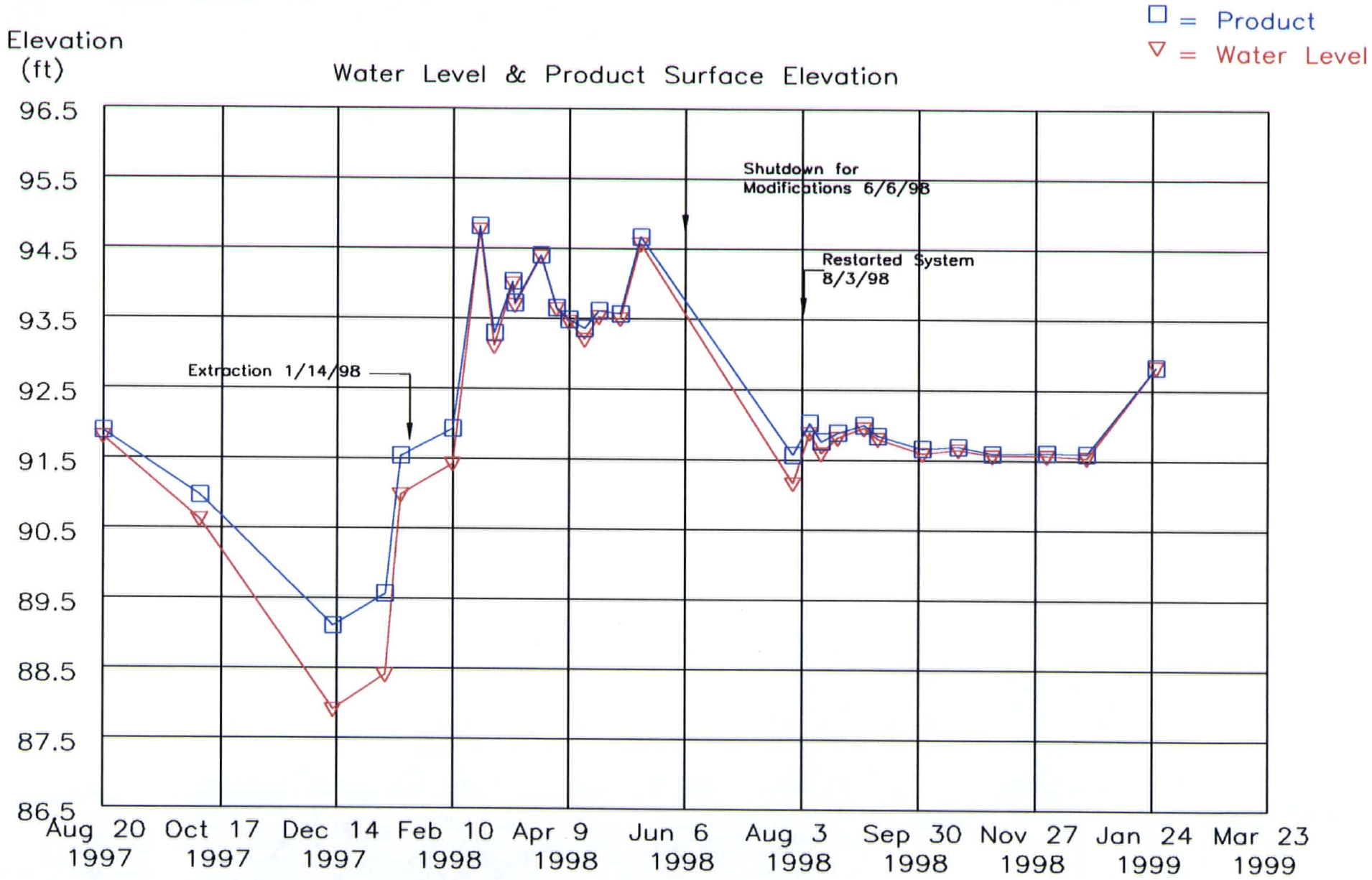

Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.5
95.7
94.9
94.1
93.3
92.5
91.7
90.9
90.1
89.3
88.5
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999


Well: 16MW-14
□ = Product
▽ = Water Level
Elevation (ft)
Water Level & Product Surface Elevation
96.5
95.7
94.8
94.0
93.1
92.3
91.5
90.6
89.8
88.9
88.1
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

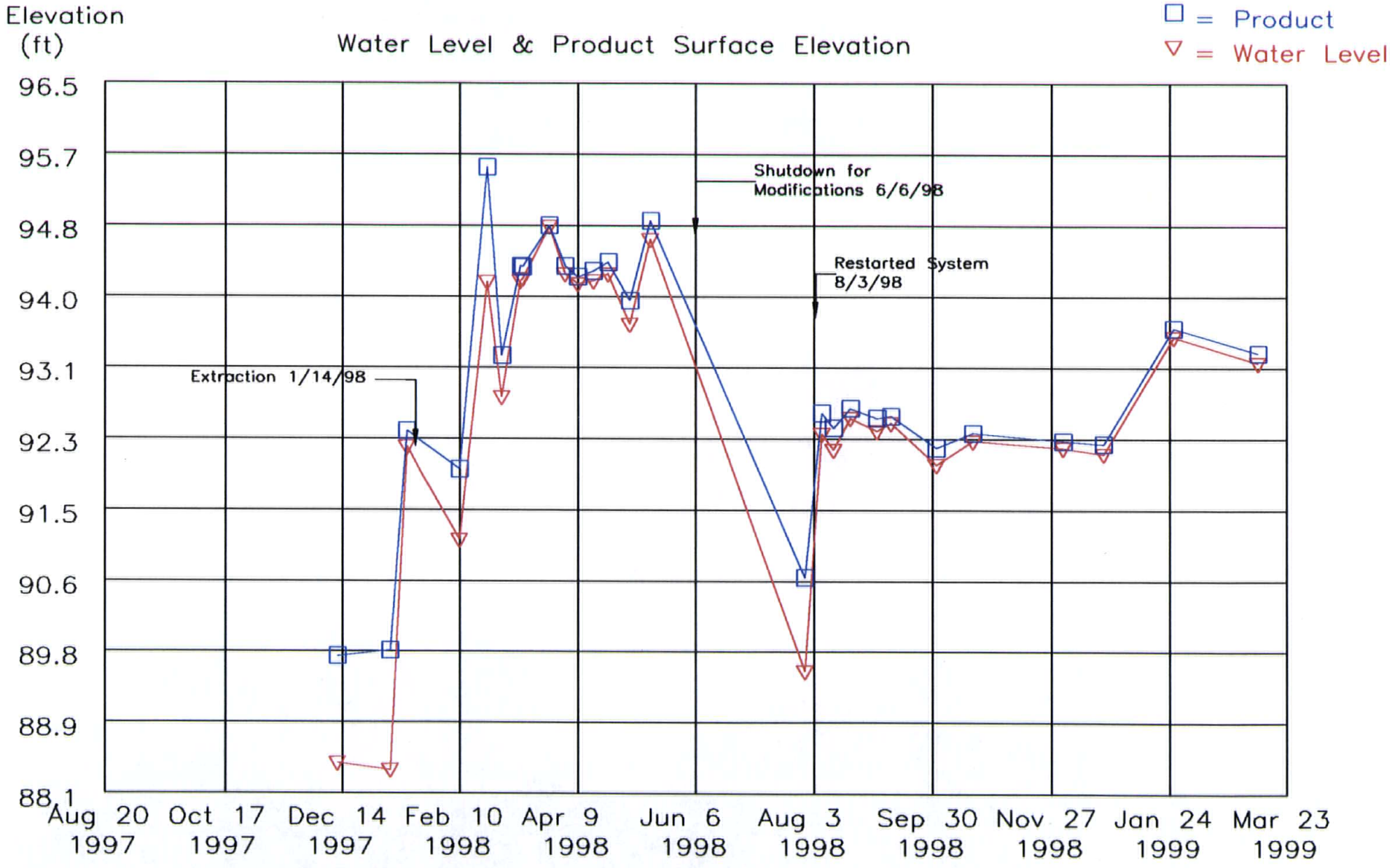
Well: 16MW-15


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.1
95.3
94.5
93.7
92.9
92.1
91.3
90.5
89.7
88.9
88.1
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

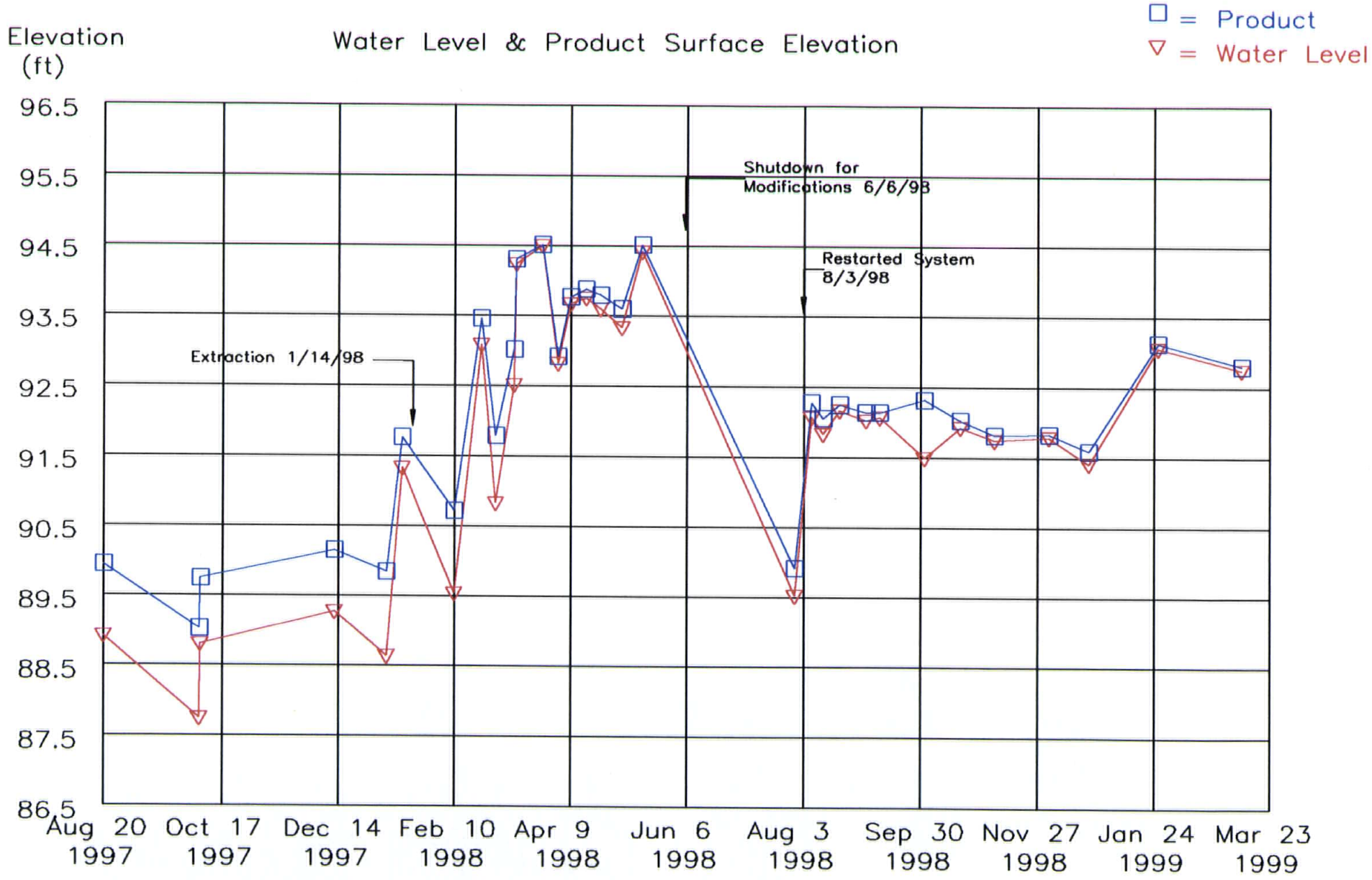
Well: 16MW-16


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.5
95.5
94.5
93.5
92.5
91.5
90.5
89.5
88.5
87.5
86.5
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

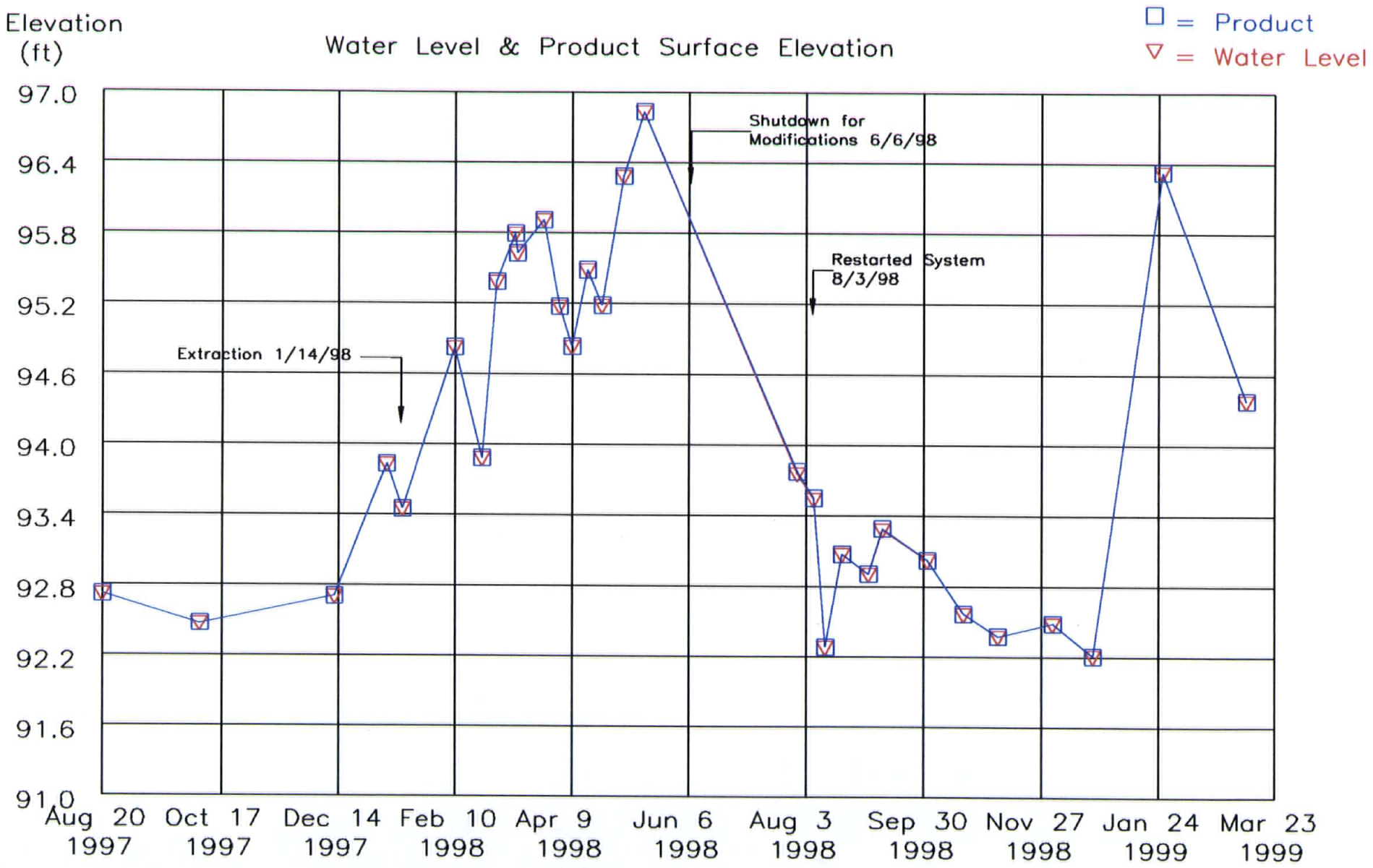
Well: C17MW-07

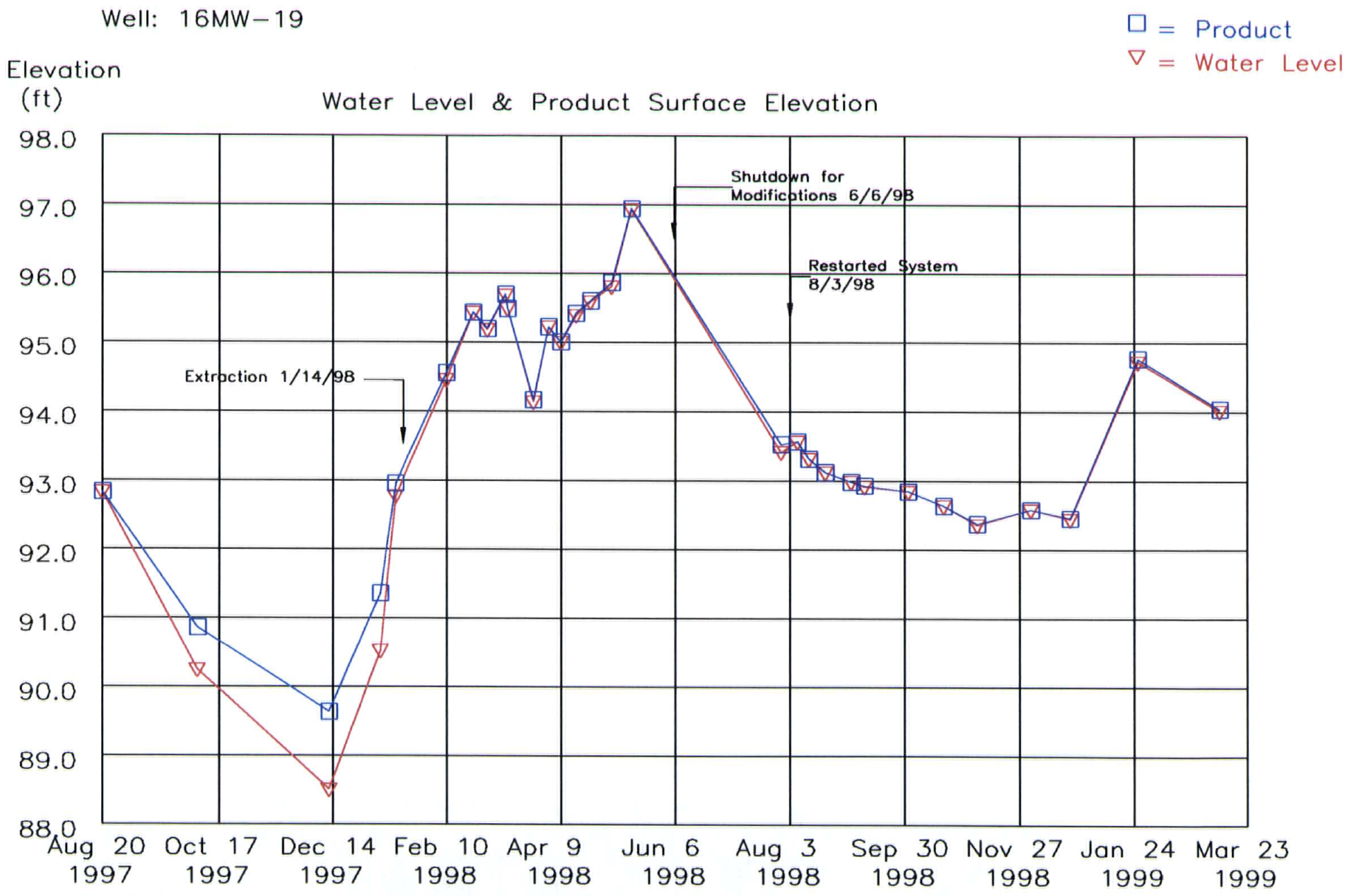


Well: 16MW-17

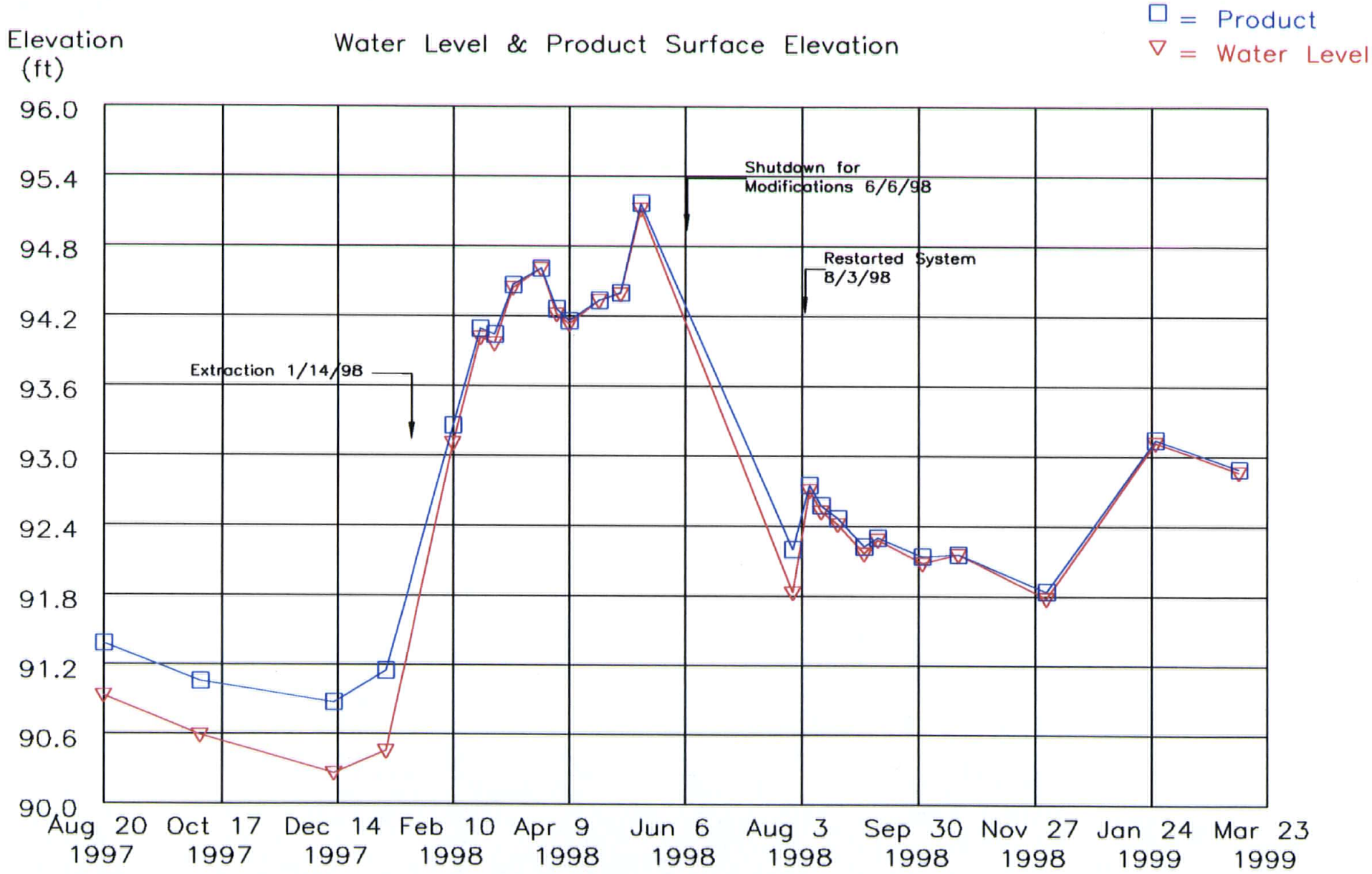

Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.5
95.5
94.5
93.5
92.5
91.5
90.5
89.5
88.5
87.5
86.5
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

Well: 16MW-18

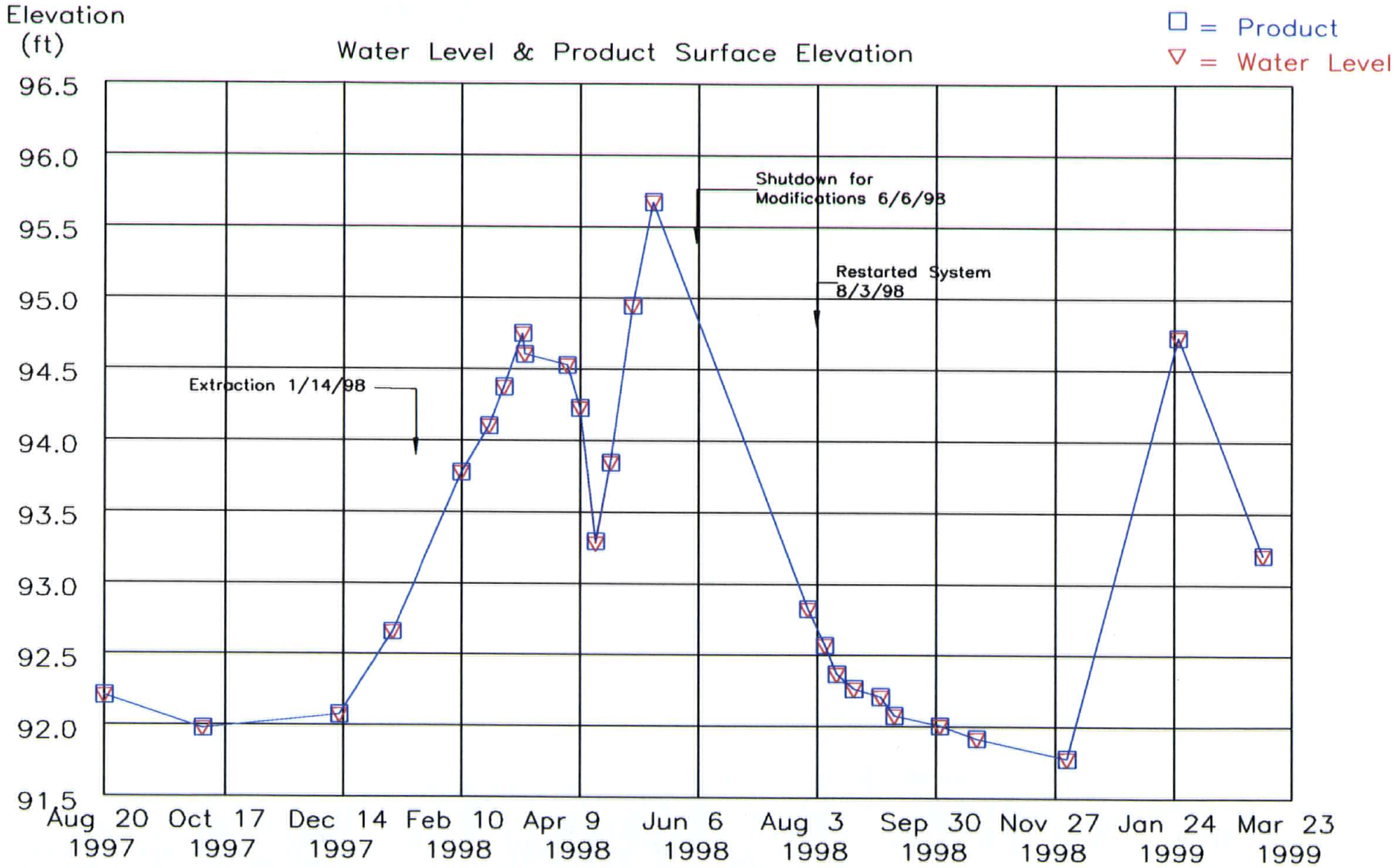

Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
97.0
96.4
95.8
95.2
94.6
94.0
93.4
92.8
92.2
91.6
91.0
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999


Well: 16MW-19
□ = Product
▽ = Water Level
Elevation (ft)
Water Level & Product Surface Elevation
98.0
97.0
96.0
95.0
94.0
93.0
92.0
91.0
90.0
89.0
88.0
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

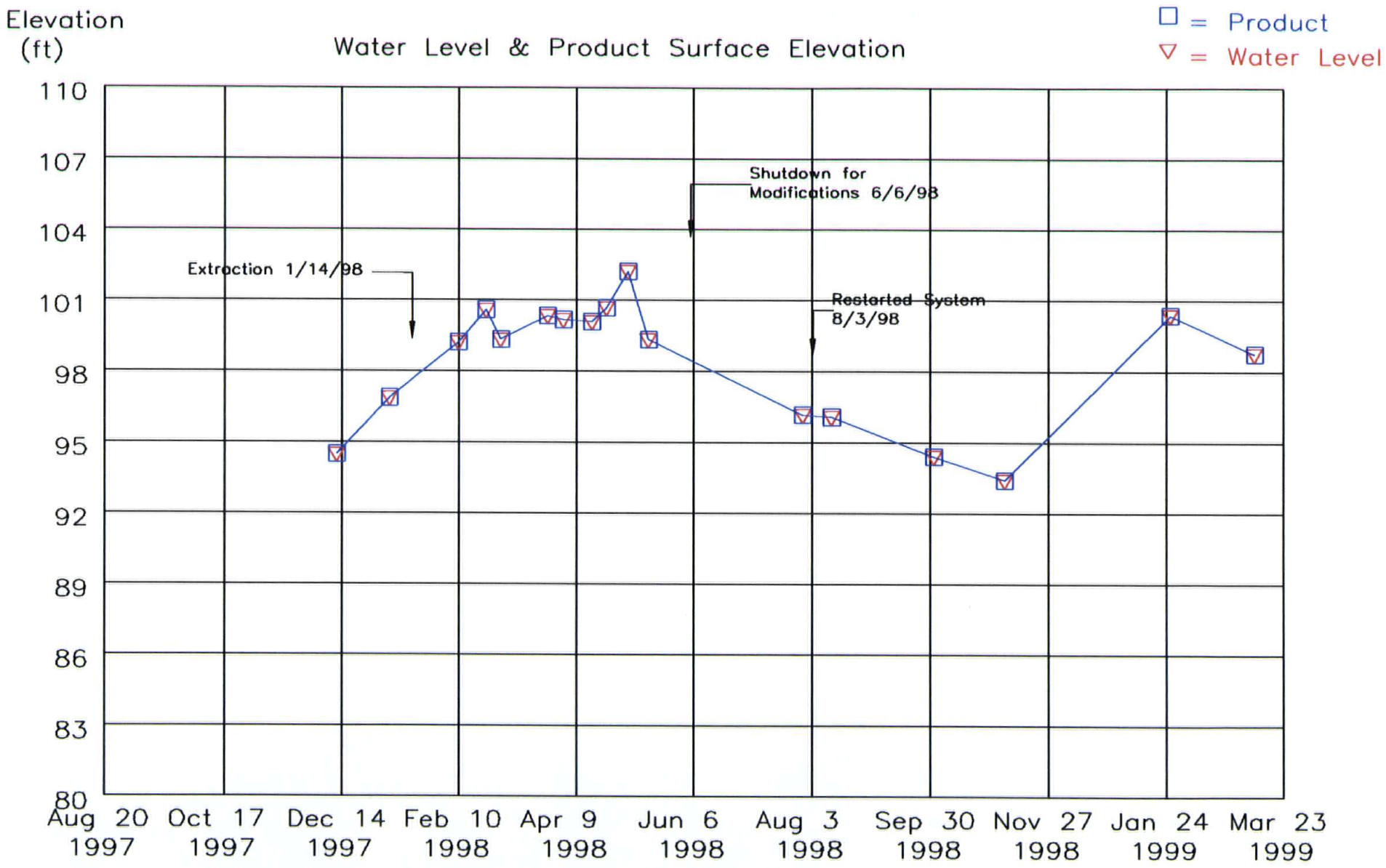
Well: 16MW-20


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.0
95.4
94.8
94.2
93.6
93.0
92.4
91.8
91.2
90.6
90.0
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

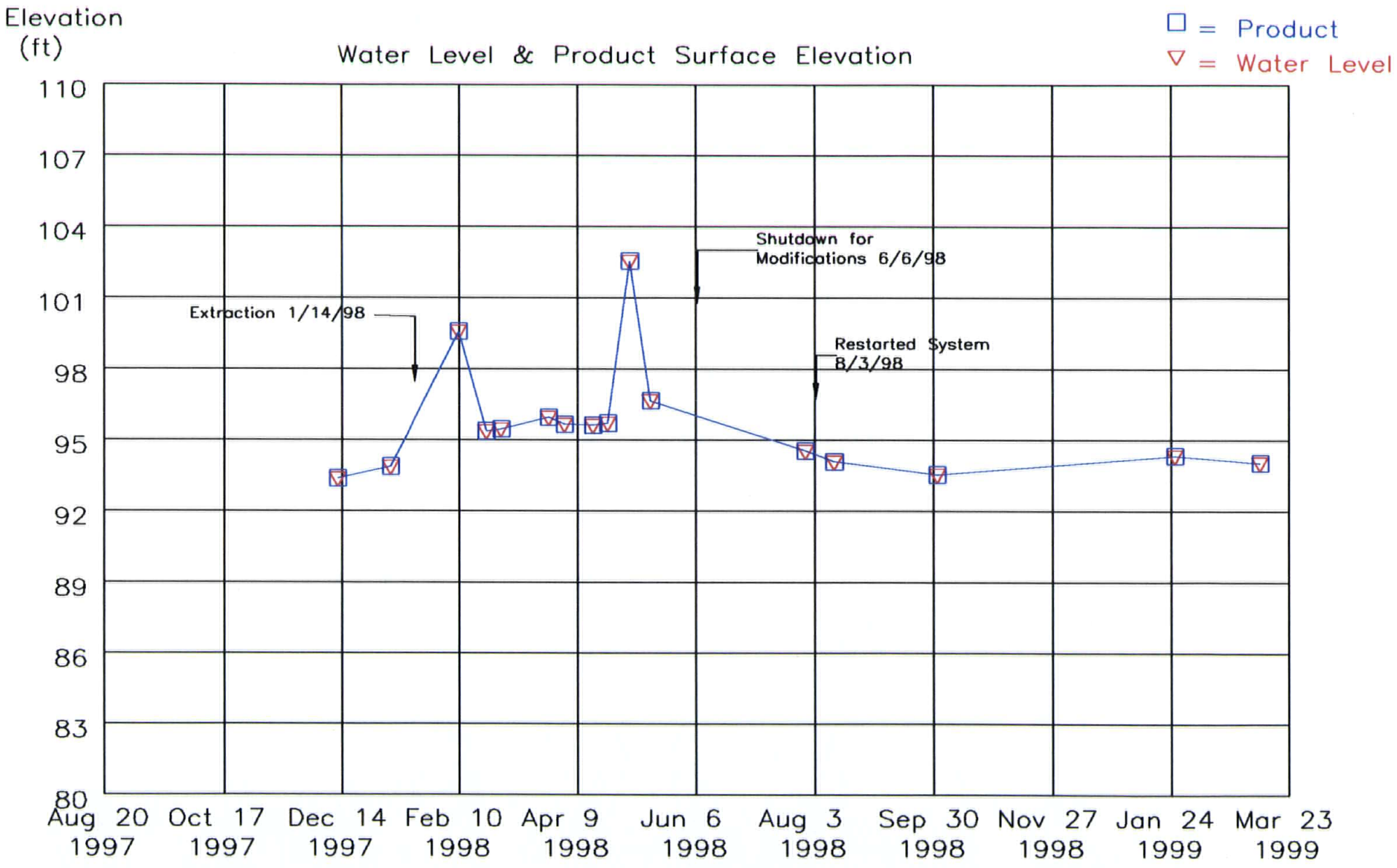
Well: 16MW-21


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
96.5
96.0
95.5
95.0
94.5
94.0
93.5
93.0
92.5
92.0
91.5
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

Well: 16MW-22


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
110
107
104
101
98
95
92
89
86
83
80
Shutdown for Modifications 6/6/98
Extraction 1/14/98
Restarted System 8/3/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

Well: 16MW-23


Elevation (ft)
Water Level & Product Surface Elevation
□ = Product
▽ = Water Level
110
107
104
101
98
95
92
89
86
83
80
Extraction 1/14/98
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999

Water Level Product Thickness Data

Date: 03/29/99

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-04	08/20/97	101.23000	11:34	13.65	0.57	87.58	NA	88.06
16MW-04	12/12/97	101.23000	00:00	11.55	0.78	89.68	2.10	90.35
16MW-04	01/07/98	101.23000	11:02	11.85	1.03	89.38	-0.30	90.26
16MW-04	02/10/98	101.23000	00:00	10.78	0.93	90.45	1.07	91.24
16MW-04	02/24/98	101.23000	00:00	8.78	0.56	92.45	2.00	92.93
16MW-04	03/03/98	101.23000	00:00	10.45	1.00	90.78	-1.67	91.63
16MW-04	03/12/98	101.23000	00:00	9.60	0.88	91.63	0.85	92.38
16MW-04	03/13/98	101.23000	00:00	9.15	0.71	92.08	0.45	92.69
16MW-04	03/26/98	101.23000	00:00	6.76	0.05	94.47	2.39	94.51
16MW-04	04/03/98	101.23000	00:00	8.40	0.44	92.83	-1.64	93.20
16MW-04	04/09/98	101.23000	00:00	6.90	0.01	94.33	1.50	94.34
16MW-04	04/17/98	101.23000	00:00	7.06	0.04	94.17	-0.16	94.20
16MW-04	04/24/98	101.23000	00:00	6.76	0.57	94.47	0.30	94.96
16MW-04	05/05/98	101.23000	00:00	8.40	0.48	92.83	-1.64	93.31
16MW-04	05/15/98	101.23000	00:00	8.20	0.65	93.03	0.20	93.58
16MW-04	07/30/98	101.23000	00:00	10.15	0.81	91.08	-1.95	91.77
16MW-04	08/07/98	101.23000	00:00	9.17	0.27	92.06	0.98	92.29
16MW-04	08/13/98	101.23000	00:00	8.50	0.02	92.73	0.67	92.74
16MW-04	08/21/98	101.23000	00:00	9.20	0.19	92.03	-0.70	92.19
16MW-04	09/03/98	101.23000	00:00	9.94	0.23	91.29	-0.74	91.48
16MW-04	09/10/98	101.23000	00:00	9.57	0.24	91.66	0.37	91.86
16MW-04	10/02/98	101.23000	00:00	9.65	0.20	91.58	-0.08	91.75
16MW-04	10/20/98	101.23000	00:00	9.85	0.26	91.38	-0.20	91.60
16MW-04	11/06/98	101.23000	00:00	9.66	0.16	91.57	0.19	91.70
16MW-04	12/03/98	101.23000	00:00	9.93	0.23	91.30	-0.27	91.50
16MW-04	12/23/98	101.23000	00:00	9.40	0.08	91.83	0.53	91.89
16MW-04	01/26/99	101.23000	00:00	8.26	0.07	92.97	1.14	93.03
16MW-04	03/03/99	101.23000	00:00	8.49	0.06	92.74	-0.23	92.79
16MW-04	03/09/99	101.23000	00:00	8.28	0.02	92.95	0.21	92.96
16MW-13	08/20/97	100.97000	00:00	10.90	0.80	90.07	NA	90.75
16MW-13	08/20/97	100.97000	08:45	10.90	0.80	90.07	0.00	90.75
16MW-13	10/06/97	100.97000	10:45	11.10	0.74	89.87	-0.20	90.50
16MW-13	12/12/97	100.97000	08:30	10.50	0.64	90.47	0.60	91.01
16MW-13	01/07/98	100.97000	09:35	10.22	0.73	90.75	0.28	91.37
16MW-13	01/15/98	100.97000	07:30	10.29	0.74	90.68	-0.07	91.31

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement

(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-13	02/10/98	100.97000	00:00	10.01	0.87	90.96	0.28	91.70
16MW-13	02/24/98	100.97000	00:00	8.82	0.71	92.15	1.19	92.76
16MW-13	03/03/98	100.97000	00:00	10.02	1.04	90.95	-1.20	91.83
16MW-13	03/12/98	100.97000	00:00	9.67	1.02	91.30	0.35	92.17
16MW-13	03/13/98	100.97000	00:00	9.02	0.80	91.95	0.65	92.63
16MW-13	03/26/98	100.97000	00:00	7.05	0.30	93.92	1.97	94.17
16MW-13	04/03/98	100.97000	00:00	7.72	0.41	93.25	-0.67	93.60
16MW-13	04/09/98	100.97000	00:00	7.34	0.26	93.63	0.38	93.85
16MW-13	04/17/98	100.97000	00:00	6.95	0.18	94.02	0.39	94.17
16MW-13	04/24/98	100.97000	00:00	8.16	0.57	92.81	-1.21	93.29
16MW-13	05/05/98	100.97000	00:00	8.85	0.55	92.12	-0.69	92.67
16MW-13	05/15/98	100.97000	00:00	7.09	0.51	93.88	1.76	94.39
16MW-13	07/30/98	100.97000	00:00	10.25	0.81	90.72	-3.16	91.41
16MW-13	08/07/98	100.97000	00:00	8.57	0.26	92.40	1.68	92.62
16MW-13	08/13/98	100.97000	00:00	8.36	0.14	92.61	0.21	92.72
16MW-13	08/21/98	100.97000	00:00	8.84	0.27	92.13	-0.48	92.36
16MW-13	09/03/98	100.97000	00:00	8.69	0.20	92.28	0.15	92.45
16MW-13	09/10/98	100.97000	00:00	8.71	0.15	92.26	-0.02	92.38
16MW-13	10/02/98	100.97000	00:00	9.23	0.27	91.74	-0.52	91.97
16MW-13	10/20/98	100.97000	00:00	8.88	0.14	92.09	0.35	92.20
16MW-13	11/06/98	100.97000	00:00	9.01	0.13	91.96	-0.13	92.07
16MW-13	12/03/98	100.97000	00:00	8.95	0.10	92.02	0.06	92.10
16MW-13	12/23/98	100.97000	00:00	9.29	0.20	91.68	-0.34	91.85
16MW-13	01/26/99	100.97000	00:00	8.10	0.18	92.87	1.19	93.02
16MW-13	03/03/99	100.97000	00:00	8.13	0.11	92.84	-0.03	92.93
16MW-13	03/09/99	100.97000	00:00	8.17	0.14	92.80	-0.04	92.92
16MW-14	08/20/97	100.66000	00:00	10.64	0.82	90.02	NA	90.72
16MW-14	08/20/97	100.66000	08:48	10.64	0.80	90.02	0.00	90.70
16MW-14	10/06/97	100.66000	10:45	11.61	0.99	89.05	-0.97	89.89
16MW-14	12/12/97	100.66000	08:30	11.55	0.79	89.11	0.06	89.78
16MW-14	01/07/98	100.66000	09:49	10.52	0.86	90.14	1.03	90.87
16MW-14	01/07/98	100.66000	09:56	10.52	0.86	90.14	0.00	90.87
16MW-14	01/15/98	100.66000	07:30	9.61	0.63	91.05	0.91	91.59
16MW-14	02/10/98	100.66000	00:00	10.36	1.07	90.30	-0.75	91.21
16MW-14	03/03/98	100.66000	00:00	8.90	0.83	91.76	1.46	92.47

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-14	03/12/98	100.66000	00:00	8.29	0.74	92.37	0.61	93.00
16MW-14	03/13/98	100.66000	00:00	7.15	0.28	93.51	1.14	93.75
16MW-14	03/26/98	100.66000	00:00	5.70	0.03	94.96	1.45	94.98
16MW-14	04/03/98	100.66000	00:00	6.66	0.20	94.00	-0.96	94.17
16MW-14	04/09/98	100.66000	00:00	5.38	0.09	95.28	1.28	95.35
16MW-14	04/17/98	100.66000	00:00	6.05	0.09	94.61	-0.67	94.69
16MW-14	04/24/98	100.66000	00:00	7.82	0.54	92.84	-1.77	93.30
16MW-14	05/05/98	100.66000	00:00	7.41	0.46	93.25	0.41	93.64
16MW-14	05/15/98	100.66000	00:00	5.20	0.10	95.46	2.21	95.54
16MW-14	07/30/98	100.66000	00:00	10.05	0.85	90.61	-4.85	91.33
16MW-14	08/07/98	100.66000	00:00	7.40	0.05	93.26	2.65	93.30
16MW-14	08/13/98	100.66000	00:00	7.71	0.05	92.95	-0.31	92.99
16MW-14	08/21/98	100.66000	00:00	8.60	0.27	92.06	-0.89	92.29
16MW-14	09/03/98	100.66000	00:00	8.29	0.16	92.37	0.31	92.50
16MW-14	09/10/98	100.66000	00:00	8.41	0.15	92.25	-0.12	92.37
16MW-14	10/02/98	100.66000	00:00	8.62	0.18	92.04	-0.21	92.19
16MW-14	10/20/98	100.66000	00:00	8.57	0.13	92.09	0.05	92.20
16MW-14	11/06/98	100.66000	00:00	8.65	0.11	92.01	-0.08	92.10
16MW-14	12/03/98	100.66000	00:00	8.71	0.12	91.95	-0.06	92.05
16MW-14	12/23/98	100.66000	00:00	9.33	0.14	91.33	-0.62	91.45
16MW-14	01/26/99	100.66000	00:00	7.62	0.15	93.04	1.71	93.16
16MW-14	03/03/99	100.66000	00:00	8.41	0.12	92.25	-0.79	92.35
16MW-14	03/09/99	100.66000	00:00	7.45	0.03	93.21	0.96	93.24
16MW-15	08/20/97	100.98000	00:00	11.49	0.89	89.49	NA	90.25
16MW-15	08/20/97	100.98000	08:55	11.49	0.89	89.49	0.00	90.25
16MW-15	08/20/97	100.98000	09:12	11.49	0.89	89.49	0.00	90.25
16MW-15	10/06/97	100.98000	10:45	11.98	0.93	89.00	-0.49	89.79
16MW-15	12/12/97	100.98000	08:30	11.96	0.92	89.02	0.02	89.80
16MW-15	01/07/98	100.98000	10:05	12.38	1.27	88.60	-0.42	89.68
16MW-15	01/15/98	100.98000	07:30	10.88	0.84	90.10	1.50	90.81
16MW-15	02/10/98	100.98000	00:00	12.40	1.49	88.58	-1.52	89.85
16MW-15	03/03/98	100.98000	00:00	11.50	1.37	89.48	0.90	90.65
16MW-15	03/12/98	100.98000	00:00	10.50	1.19	90.48	1.00	91.49
16MW-15	03/13/98	100.98000	00:00	8.60	0.60	92.38	1.90	92.89
16MW-15	04/03/98	100.98000	00:00	8.01	0.41	92.97	0.59	93.32

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement

(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-15	04/09/98	100.98000	00:00	7.19	0.13	93.79	0.82	93.90
16MW-15	04/17/98	100.98000	00:00	6.79	0.05	94.19	0.40	94.23
16MW-15	04/24/98	100.98000	00:00	8.45	0.57	92.53	-1.66	93.02
16MW-15	05/05/98	100.98000	00:00	8.50	0.59	92.48	-0.05	93.07
16MW-15	05/15/98	100.98000	00:00	7.20	0.36	93.78	1.30	94.08
16MW-15	07/30/98	100.98000	00:00	10.96	0.92	90.02	-3.76	90.80
16MW-15	08/07/98	100.98000	00:00	9.06	0.30	91.92	1.90	92.18
16MW-15	08/13/98	100.98000	00:00	8.77	0.17	92.21	0.29	92.35
16MW-15	08/21/98	100.98000	00:00	9.22	0.27	91.76	-0.45	91.99
16MW-15	09/03/98	100.98000	00:00	9.12	0.22	91.86	0.10	92.04
16MW-15	09/10/98	100.98000	00:00	9.11	0.17	91.87	0.01	92.01
16MW-15	10/02/98	100.98000	00:00	9.30	0.20	91.68	-0.19	91.85
16MW-15	10/20/98	100.98000	00:00	9.25	0.16	91.73	0.05	91.86
16MW-15	11/06/98	100.98000	00:00	9.06	0.06	91.92	0.19	91.97
16MW-15	12/03/98	100.98000	00:00	9.27	0.11	91.71	-0.21	91.80
16MW-15	12/23/98	100.98000	00:00	8.87	0.11	92.11	0.40	92.20
16MW-15	01/26/99	100.98000	00:00	8.12	0.12	92.86	0.75	92.96
16MW-15	03/03/99	100.98000	00:00	7.77	0.10	93.21	0.35	93.29
16MW-15	03/09/99	100.98000	00:00	9.50	0.40	91.48	-1.73	91.82
16MW-16	08/20/97	98.82000	00:00	7.01	0.08	91.81	NA	91.87
16MW-16	08/20/97	98.82000	09:12	7.01	0.08	91.81	0.00	91.87
16MW-16	10/06/97	98.82000	10:45	8.19	0.35	90.63	-1.18	90.93
16MW-16	12/12/97	98.82000	08:30	10.90	1.20	87.92	-2.71	88.94
16MW-16	01/07/98	98.82000	10:10	10.40	1.15	88.42	0.50	89.40
16MW-16	01/15/98	98.82000	07:30	7.83	0.56	90.99	2.57	91.46
16MW-16	02/10/98	98.82000	00:00	7.38	0.49	91.44	0.45	91.85
16MW-16	02/24/98	98.82000	00:00	4.05	0.05	94.77	3.33	94.81
16MW-16	03/03/98	98.82000	00:00	5.70	0.17	93.12	-1.65	93.26
16MW-16	03/12/98	98.82000	00:00	4.81	0.02	94.01	0.89	94.03
16MW-16	03/13/98	98.82000	00:00	5.12	0.02	93.70	-0.31	93.71
16MW-16	03/26/98	98.82000	00:00	4.42	0.01	94.40	0.70	94.40
16MW-16	04/03/98	98.82000	00:00	5.17	0.01	93.65	-0.75	93.66
16MW-16	04/09/98	98.82000	00:00	5.35	0.02	93.47	-0.18	93.48
16MW-16	04/17/98	98.82000	00:00	5.60	0.14	93.22	-0.25	93.34
16MW-16	04/24/98	98.82000	00:00	5.28	0.07	93.54	0.32	93.60

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-16	05/05/98	98.82000	00:00	5.32	0.07	93.50	-0.04	93.57
16MW-16	05/15/98	98.82000	00:00	4.25	0.10	94.57	1.07	94.66
16MW-16	07/30/98	98.82000	00:00	7.64	0.39	91.18	-3.39	91.51
16MW-16	08/07/98	98.82000	00:00	6.92	0.14	91.90	0.72	92.01
16MW-16	08/13/98	98.82000	00:00	7.22	0.17	91.60	-0.30	91.74
16MW-16	08/21/98	98.82000	00:00	6.99	0.07	91.83	0.23	91.89
16MW-16	09/03/98	98.82000	00:00	6.86	0.04	91.96	0.13	91.99
16MW-16	09/10/98	98.82000	00:00	7.01	0.04	91.81	-0.15	91.84
16MW-16	10/02/98	98.82000	00:00	7.22	0.08	91.60	-0.21	91.66
16MW-16	10/20/98	98.82000	00:00	7.16	0.04	91.66	0.06	91.69
16MW-16	11/06/98	98.82000	00:00	7.25	0.03	91.57	-0.09	91.59
16MW-16	12/03/98	98.82000	00:00	7.24	0.03	91.58	0.01	91.60
16MW-16	12/23/98	98.82000	00:00	7.27	0.06	91.55	-0.03	91.60
16MW-16	01/26/99	98.82000	00:00	5.98	0.00	92.84	1.29	92.84
16MW-17	08/20/97	99.79000	00:00	10.87	1.03	88.92	NA	89.80
16MW-17	08/20/97	99.79000	09:07	10.87	1.03	88.92	0.00	89.80
16MW-17	10/06/97	99.79000	00:00	12.03	1.28	87.76	-1.16	88.85
16MW-17	10/06/97	99.79000	10:45	10.98	0.94	88.81	1.05	89.61
16MW-17	12/12/97	99.79000	08:30	10.50	0.87	89.29	0.48	90.03
16MW-17	01/07/98	99.79000	10:23	11.15	1.21	88.64	-0.65	89.67
16MW-17	01/15/98	99.79000	07:30	8.45	0.43	91.34	2.70	91.71
16MW-17	02/10/98	99.79000	00:00	10.24	1.17	89.55	-1.79	90.55
16MW-17	02/24/98	99.79000	00:00	6.70	0.37	93.09	3.54	93.40
16MW-17	03/03/98	99.79000	00:00	8.95	0.95	90.84	-2.25	91.65
16MW-17	03/12/98	99.79000	00:00	7.27	0.49	92.52	1.68	92.94
16MW-17	03/13/98	99.79000	00:00	5.55	0.07	94.24	1.72	94.30
16MW-17	03/26/98	99.79000	00:00	5.29	0.01	94.50	0.26	94.51
16MW-17	04/03/98	99.79000	00:00	6.97	0.10	92.82	-1.68	92.91
16MW-17	04/09/98	99.79000	00:00	6.12	0.09	93.67	0.85	93.75
16MW-17	04/17/98	99.79000	00:00	6.04	0.13	93.75	0.08	93.86
16MW-17	04/24/98	99.79000	00:00	6.19	0.20	93.60	-0.15	93.77
16MW-17	05/05/98	99.79000	00:00	6.45	0.27	93.34	-0.26	93.61
16MW-17	05/15/98	99.79000	00:00	5.36	0.09	94.43	1.09	94.50
16MW-17	07/30/98	99.79000	00:00	10.26	0.39	89.53	-4.90	89.86
16MW-17	08/07/98	99.79000	00:00	7.72	0.21	92.07	2.54	92.24

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement

(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-17	08/13/98	99.79000	00:00	7.95	0.22	91.84	-0.23	92.02
16MW-17	08/21/98	99.79000	00:00	7.62	0.09	92.17	0.33	92.24
16MW-17	09/03/98	99.79000	00:00	7.76	0.12	92.03	-0.14	92.13
16MW-17	09/10/98	99.79000	00:00	7.72	0.07	92.07	0.04	92.13
16MW-17	10/02/98	99.79000	00:00	8.28	0.81	91.51	-0.56	92.20
16MW-17	10/20/98	99.79000	00:00	7.85	0.09	91.94	0.43	92.01
16MW-17	11/06/98	99.79000	00:00	8.04	0.07	91.75	-0.19	91.81
16MW-17	12/03/98	99.79000	00:00	7.99	0.04	91.80	0.05	91.83
16MW-17	12/23/98	99.79000	00:00	8.36	0.17	91.43	-0.37	91.57
16MW-17	01/26/99	99.79000	00:00	6.73	0.07	93.06	1.63	93.12
16MW-17	03/09/99	99.79000	00:00	7.03	0.05	92.76	-0.30	92.80
16MW-18	08/20/97	100.69000	00:00	7.96	0.00	92.73	NA	92.73
16MW-18	08/20/97	100.69000	09:03	7.96	0.00	92.73	0.00	92.73
16MW-18	10/06/97	100.69000	10:45	8.21	0.00	92.48	-0.25	92.48
16MW-18	12/12/97	100.69000	08:30	7.98	0.00	92.71	0.23	92.71
16MW-18	01/07/98	100.69000	10:30	6.85	0.00	93.84	1.13	93.84
16MW-18	01/15/98	100.69000	07:30	7.24	0.00	93.45	-0.39	93.45
16MW-18	02/10/98	100.69000	00:00	5.86	0.00	94.83	1.38	94.83
16MW-18	02/24/98	100.69000	00:00	6.80	0.00	93.89	-0.94	93.89
16MW-18	03/03/98	100.69000	00:00	5.30	0.00	95.39	1.50	95.39
16MW-18	03/12/98	100.69000	00:00	4.89	0.00	95.80	0.41	95.80
16MW-18	03/13/98	100.69000	00:00	5.06	0.00	95.63	-0.17	95.63
16MW-18	03/26/98	100.69000	00:00	4.78	0.00	95.91	0.28	95.91
16MW-18	04/03/98	100.69000	00:00	5.51	0.00	95.18	-0.73	95.18
16MW-18	04/09/98	100.69000	00:00	5.85	0.00	94.84	-0.34	94.84
16MW-18	04/17/98	100.69000	00:00	5.20	0.00	95.49	0.65	95.49
16MW-18	04/24/98	100.69000	00:00	5.50	0.00	95.19	-0.30	95.19
16MW-18	05/05/98	100.69000	00:00	4.40	0.00	96.29	1.10	96.29
16MW-18	05/15/98	100.69000	00:00	3.85	0.00	96.84	0.55	96.84
16MW-18	07/30/98	100.69000	00:00	6.93	0.01	93.76	-3.08	93.77
16MW-18	08/07/98	100.69000	00:00	7.14	0.00	93.55	-0.21	93.55
16MW-18	08/13/98	100.69000	00:00	8.40	0.00	92.29	-1.26	92.29
16MW-18	08/21/98	100.69000	00:00	7.61	0.00	93.08	0.79	93.08
16MW-18	09/03/98	100.69000	00:00	7.78	0.00	92.91	-0.17	92.91
16MW-18	09/10/98	100.69000	00:00	7.40	0.00	93.29	0.38	93.29

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement

(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-18	10/02/98	100.69000	00:00	7.66	0.00	93.03	-0.26	93.03
16MW-18	10/20/98	100.69000	00:00	8.12	0.00	92.57	-0.46	92.57
16MW-18	11/06/98	100.69000	00:00	8.31	0.00	92.38	-0.19	92.38
16MW-18	12/03/98	100.69000	00:00	8.20	0.00	92.49	0.11	92.49
16MW-18	12/23/98	100.69000	00:00	8.48	0.00	92.21	-0.28	92.21
16MW-18	01/26/99	100.69000	00:00	4.36	0.00	96.33	4.12	96.33
16MW-18	03/09/99	100.69000	00:00	6.30	0.00	94.39	-1.94	94.39
16MW-19	08/20/97	100.54000	08:57	7.70	0.00	92.84	NA	92.84
16MW-19	10/06/97	100.54000	10:45	10.29	0.62	90.25	-2.59	90.77
16MW-19	12/12/97	100.54000	08:30	12.02	1.12	88.52	-1.73	89.47
16MW-19	01/07/98	100.54000	10:37	10.00	0.82	90.54	2.02	91.24
16MW-19	01/15/98	100.54000	07:30	7.76	0.18	92.78	2.24	92.93
16MW-19	02/10/98	100.54000	00:00	6.07	0.09	94.47	1.69	94.55
16MW-19	02/24/98	100.54000	00:00	5.10	0.00	95.44	0.97	95.44
16MW-19	03/03/98	100.54000	00:00	5.35	0.01	95.19	-0.25	95.20
16MW-19	03/12/98	100.54000	00:00	4.85	0.01	95.69	0.50	95.70
16MW-19	03/13/98	100.54000	00:00	5.05	0.00	95.49	-0.20	95.49
16MW-19	03/26/98	100.54000	00:00	6.40	0.03	94.14	-1.35	94.16
16MW-19	04/03/98	100.54000	00:00	5.31	0.00	95.23	1.09	95.23
16MW-19	04/09/98	100.54000	00:00	5.54	0.00	95.00	-0.23	95.00
16MW-19	04/17/98	100.54000	00:00	5.15	0.03	95.39	0.39	95.42
16MW-19	04/24/98	100.54000	00:00	4.95	0.01	95.59	0.20	95.59
16MW-19	05/05/98	100.54000	00:00	4.73	0.05	95.81	0.22	95.86
16MW-19	05/15/98	100.54000	00:00	3.60	0.01	96.94	1.13	96.95
16MW-19	07/30/98	100.54000	00:00	7.12	0.11	93.42	-3.52	93.51
16MW-19	08/07/98	100.54000	00:00	6.97	0.00	93.57	0.15	93.57
16MW-19	08/13/98	100.54000	00:00	7.22	0.00	93.32	-0.25	93.32
16MW-19	08/21/98	100.54000	00:00	7.41	0.00	93.13	-0.19	93.13
16MW-19	09/03/98	100.54000	00:00	7.55	0.00	92.99	-0.14	92.99
16MW-19	09/10/98	100.54000	00:00	7.61	0.00	92.93	-0.06	92.93
16MW-19	10/02/98	100.54000	00:00	7.69	0.00	92.85	-0.08	92.85
16MW-19	10/20/98	100.54000	00:00	7.90	0.00	92.64	-0.21	92.64
16MW-19	11/06/98	100.54000	00:00	8.17	0.00	92.37	-0.27	92.37
16MW-19	12/03/98	100.54000	00:00	7.95	0.00	92.59	0.22	92.59
16MW-19	12/23/98	100.54000	00:00	8.09	0.01	92.45	-0.14	92.46

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-19	01/26/99	100.54000	00:00	5.81	0.04	94.73	2.28	94.76
16MW-19	03/09/99	100.54000	00:00	6.52	0.03	94.02	-0.71	94.04
16MW-20	08/20/97	100.82000	09:26	9.88	0.44	90.94	NA	91.31
16MW-20	10/06/97	100.82000	10:45	10.22	0.46	90.60	-0.34	90.99
16MW-20	12/12/97	100.82000	08:30	10.55	0.61	90.27	-0.33	90.79
16MW-20	01/07/98	100.82000	10:49	10.36	0.69	90.46	0.19	91.05
16MW-20	02/10/98	100.82000	00:00	7.71	0.15	93.11	2.65	93.23
16MW-20	02/24/98	100.82000	00:00	6.80	0.08	94.02	0.91	94.08
16MW-20	03/03/98	100.82000	00:00	6.85	0.07	93.97	-0.05	94.03
16MW-20	03/12/98	100.82000	00:00	6.37	0.02	94.45	0.48	94.46
16MW-20	03/26/98	100.82000	00:00	6.21	0.00	94.61	0.16	94.61
16MW-20	04/03/98	100.82000	00:00	6.60	0.04	94.22	-0.39	94.25
16MW-20	04/09/98	100.82000	00:00	6.68	0.02	94.14	-0.08	94.15
16MW-20	04/24/98	100.82000	00:00	6.48	0.00	94.34	0.20	94.34
16MW-20	05/05/98	100.82000	00:00	6.42	0.00	94.40	0.06	94.40
16MW-20	05/15/98	100.82000	00:00	5.70	0.05	95.12	0.72	95.16
16MW-20	07/30/98	100.82000	00:00	8.98	0.36	91.84	-3.28	92.15
16MW-20	08/07/98	100.82000	00:00	8.11	0.04	92.71	0.87	92.75
16MW-20	08/13/98	100.82000	00:00	8.29	0.05	92.53	-0.18	92.57
16MW-20	08/21/98	100.82000	00:00	8.40	0.05	92.42	-0.11	92.46
16MW-20	09/03/98	100.82000	00:00	8.65	0.06	92.17	-0.25	92.22
16MW-20	09/10/98	100.82000	00:00	8.53	0.01	92.29	0.12	92.30
16MW-20	10/02/98	100.82000	00:00	8.73	0.05	92.09	-0.20	92.13
16MW-20	10/20/98	100.82000	00:00	8.66	0.00	92.16	0.07	92.16
16MW-20	12/03/98	100.82000	00:00	9.03	0.06	91.79	-0.37	91.84
16MW-20	01/26/99	100.82000	00:00	7.70	0.02	93.12	1.33	93.14
16MW-20	03/09/99	100.82000	00:00	7.95	0.02	92.87	-0.25	92.89
16MW-21	08/20/97	99.78000	00:00	7.57	0.00	92.21	NA	92.21
16MW-21	08/20/97	99.78000	09:35	7.57	0.00	92.21	0.00	92.21
16MW-21	10/06/97	99.78000	10:45	7.80	0.00	91.98	-0.23	91.98
16MW-21	12/12/97	99.78000	08:30	7.70	0.00	92.08	0.10	92.08
16MW-21	01/07/98	99.78000	10:58	7.12	0.00	92.66	0.58	92.66
16MW-21	02/10/98	99.78000	00:00	6.00	0.00	93.78	1.12	93.78
16MW-21	02/24/98	99.78000	00:00	5.67	0.00	94.11	0.33	94.11

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-21	03/03/98	99.78000	00:00	5.40	0.00	94.38	0.27	94.38
16MW-21	03/12/98	99.78000	00:00	5.03	0.00	94.75	0.37	94.75
16MW-21	03/13/98	99.78000	00:00	5.17	0.00	94.61	-0.14	94.61
16MW-21	04/03/98	99.78000	00:00	5.25	0.00	94.53	-0.08	94.53
16MW-21	04/09/98	99.78000	00:00	5.55	0.00	94.23	-0.30	94.23
16MW-21	04/17/98	99.78000	00:00	6.49	0.01	93.29	-0.94	93.30
16MW-21	04/24/98	99.78000	00:00	5.93	0.00	93.85	0.56	93.85
16MW-21	05/05/98	99.78000	00:00	4.83	0.00	94.95	1.10	94.95
16MW-21	05/15/98	99.78000	00:00	4.10	0.00	95.68	0.73	95.68
16MW-21	07/30/98	99.78000	00:00	6.95	0.00	92.83	-2.85	92.83
16MW-21	08/07/98	99.78000	00:00	7.21	0.00	92.57	-0.26	92.57
16MW-21	08/13/98	99.78000	00:00	7.41	0.00	92.37	-0.20	92.37
16MW-21	08/21/98	99.78000	00:00	7.51	0.00	92.27	-0.10	92.27
16MW-21	09/03/98	99.78000	00:00	7.57	0.00	92.21	-0.06	92.21
16MW-21	09/10/98	99.78000	00:00	7.70	0.00	92.08	-0.13	92.08
16MW-21	10/02/98	99.78000	00:00	7.77	0.00	92.01	-0.07	92.01
16MW-21	10/20/98	99.78000	00:00	7.86	0.00	91.92	-0.09	91.92
16MW-21	12/03/98	99.78000	00:00	8.00	0.00	91.78	-0.14	91.78
16MW-21	01/26/99	99.78000	00:00	5.05	0.00	94.73	2.95	94.73
16MW-21	03/09/99	99.78000	00:00	6.57	0.00	93.21	-1.52	93.21
16MW-22	12/12/97	102.22000	00:00	7.70	0.00	94.52	NA	94.52
16MW-22	01/07/98	102.22000	00:00	5.34	0.00	96.88	2.36	96.88
16MW-22	02/10/98	102.22000	00:00	2.98	0.00	99.24	2.36	99.24
16MW-22	02/24/98	102.22000	00:00	1.60	0.00	100.62	1.38	100.62
16MW-22	03/03/98	102.22000	00:00	2.87	0.00	99.35	-1.27	99.35
16MW-22	03/26/98	102.22000	00:00	1.85	0.00	100.37	1.02	100.37
16MW-22	04/03/98	102.22000	00:00	2.05	0.00	100.17	-0.20	100.17
16MW-22	04/17/98	102.22000	00:00	2.10	0.00	100.12	-0.05	100.12
16MW-22	04/24/98	102.22000	00:00	1.52	0.00	100.70	0.58	100.70
16MW-22	05/05/98	102.22000	00:00	0.00	0.00	102.22	1.52	102.22
16MW-22	05/15/98	102.22000	00:00	2.86	0.00	99.36	-2.86	99.36
16MW-22	07/30/98	102.22000	00:00	6.03	0.00	96.19	-3.17	96.19
16MW-22	08/13/98	102.22000	00:00	6.10	0.00	96.12	-0.07	96.12
16MW-22	10/02/98	102.22000	00:00	7.78	0.00	94.44	-1.68	94.44
16MW-22	11/06/98	102.22000	00:00	8.79	0.00	93.43	-1.01	93.43

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

Date: 03/29/99

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
16MW-22	01/26/99	102.22000	00:00	1.81	0.00	100.41	6.98	100.41
16MW-22	03/09/99	102.22000	00:00	3.45	0.00	98.77	-1.64	98.77
16MW-23	12/12/97	102.58000	08:30	9.19	0.00	93.39	NA	93.39
16MW-23	01/07/98	102.58000	09:35	8.67	0.00	93.91	0.52	93.91
16MW-23	01/07/98	102.58000	09:49	8.67	0.00	93.91	0.00	93.91
16MW-23	02/10/98	102.58000	00:00	2.98	0.00	99.60	5.69	99.60
16MW-23	02/24/98	102.58000	00:00	7.20	0.00	95.38	-4.22	95.38
16MW-23	03/03/98	102.58000	00:00	7.10	0.00	95.48	0.10	95.48
16MW-23	03/26/98	102.58000	00:00	6.60	0.00	95.98	0.50	95.98
16MW-23	04/03/98	102.58000	00:00	6.90	0.00	95.68	-0.30	95.68
16MW-23	04/17/98	102.58000	00:00	6.95	0.00	95.63	-0.05	95.63
16MW-23	04/24/98	102.58000	00:00	6.84	0.00	95.74	0.11	95.74
16MW-23	05/05/98	102.58000	00:00	0.00	0.00	102.58	6.84	102.58
16MW-23	05/15/98	102.58000	00:00	5.89	0.00	96.69	-5.89	96.69
16MW-23	07/30/98	102.58000	00:00	8.03	0.00	94.55	-2.14	94.55
16MW-23	08/13/98	102.58000	00:00	8.46	0.00	94.12	-0.43	94.12
16MW-23	10/02/98	102.58000	00:00	9.03	0.00	93.55	-0.57	93.55
16MW-23	01/26/99	102.58000	00:00	8.21	0.00	94.37	0.82	94.37
16MW-23	03/09/99	102.58000	00:00	8.53	0.00	94.05	-0.32	94.05
C17MW-07	12/12/97	100.16000	00:00	11.69	1.26	88.47	NA	89.54
C17MW-07	01/07/98	100.16000	00:00	11.78	1.42	88.38	-0.09	89.58
C17MW-07	01/15/98	100.16000	00:00	7.95	0.19	92.21	3.83	92.37
C17MW-07	02/10/98	100.16000	00:00	9.05	0.83	91.11	-1.10	91.82
C17MW-07	02/24/98	100.16000	00:00	6.00	1.35	94.16	3.05	95.31
C17MW-07	03/03/98	100.16000	00:00	7.36	0.49	92.80	-1.36	93.21
C17MW-07	03/12/98	100.16000	00:00	5.99	0.18	94.17	1.37	94.32
C17MW-07	03/13/98	100.16000	00:00	5.96	0.13	94.20	0.03	94.31
C17MW-07	03/26/98	100.16000	00:00	5.35	0.01	94.81	0.61	94.82
C17MW-07	04/03/98	100.16000	00:00	5.90	0.09	94.26	-0.55	94.33
C17MW-07	04/09/98	100.16000	00:00	6.02	0.08	94.14	-0.12	94.20
C17MW-07	04/17/98	100.16000	00:00	5.99	0.12	94.17	0.03	94.27
C17MW-07	04/24/98	100.16000	00:00	5.90	0.13	94.26	0.09	94.37
C17MW-07	05/05/98	100.16000	00:00	6.50	0.27	93.66	-0.60	93.93
C17MW-07	05/15/98	100.16000	00:00	5.50	0.22	94.66	1.00	94.84

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement
(2)Measurements Based on Mean Sea Level

Water Level Product Thickness Data

Date: 03/29/99

SITE	DATE	MP ELEVATION(1) (feet)	TIME	DEPTH TO WATER (feet)	FLOATING PRODUCT THICKNESS (feet)	WATER ELEV.(1) (feet)	△ WATER ELEV.(1) (feet)	EQUIV. FRESH WATER HEAD(1) (feet)
C17MW-07	07/30/98	100.16000	00:00	10.61	1.12	89.55	-5.11	90.50
C17MW-07	08/07/98	100.16000	00:00	7.80	0.24	92.36	2.81	92.56
C17MW-07	08/13/98	100.16000	00:00	7.98	0.25	92.18	-0.18	92.39
C17MW-07	08/21/98	100.16000	00:00	7.61	0.11	92.55	0.37	92.64
C17MW-07	09/03/98	100.16000	00:00	7.76	0.15	92.40	-0.15	92.52
C17MW-07	09/10/98	100.16000	00:00	7.67	0.08	92.49	0.09	92.56
C17MW-07	10/02/98	100.16000	00:00	8.16	0.20	92.00	-0.49	92.17
C17MW-07	10/20/98	100.16000	00:00	7.88	0.10	92.28	0.28	92.36
C17MW-07	12/03/98	100.16000	00:00	7.96	0.08	92.20	-0.08	92.26
C17MW-07	12/23/98	100.16000	00:00	8.03	0.12	92.13	-0.07	92.23
C17MW-07	01/26/99	100.16000	00:00	6.65	0.10	93.51	1.38	93.59
C17MW-07	03/09/99	100.16000	00:00	6.95	0.11	93.21	-0.30	93.30

(1) Change in Water Elevation since last reported measurement

D = Dry NA = Not Available

(1)Change in Water Elevation since last reported measurement

(2)Measurements Based on Mean Sea Level

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 1
Analytical Results of Air Samples

Bi slurper Unit #1

SAMPLE NO. 16(A)VD15 Sample Date: 12/31/99 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	67.0	0.0	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	67.0	**0.000**	**7.0**	**0.00E+00**	**8.00E-03**
Toluene	92.0	384.6	60.0	67.0	0.0	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	67.0	0.0	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	67.0	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	67.0	0.0	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	67.0	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	67.0	0.0	N/A	0.00E+00	
				Total Emissions:	**0.000**	**27.5**	**0.00E+00**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 2
Analytical Results of Air Samples

Bioslurper Unit # 2

SAMPLE NO. 16(B)VD15 SAMPLE DATE: 12/31/98 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	79.0	0.0	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	79.0	**0.00**	**7.0**	**0.00E+00**	**8.00E-03**
Toluene	92.0	384.6	60.0	79.0	0.00	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	79.0	0.0	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	79.0	0.0	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	79.0	0.0	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	79.0	0.0	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	79.0	0.0	N/A	0.00E+00	
			Total Emissions:		**0.0**	**27.5**	**0.00E+00**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 1
Analytical Results of Air Samples

Bioslurper Unit #1

SAMPLE NO.: 16(A)99VD01 SAMPLE DATE: 2/1/99 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	66.1	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	66.1	**0.000**	**7.0**	**0.00E+00**	**8.00E-03**
Toluene	92.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
			Total Emissions:		**0.000**	**27**	**0.00E+00**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 2
Analytical Results of Air Samples

Bioslurper Unit # 2

SAMPLE NO.: 16(B)99VD01 SAMPLE DATE: 2/1/99 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	75.0	0.023	N/A	1.56E-05	
Benzene	78.0	384.6	60.0	75.0	**0.550**	**7.0**	**5.02E-04**	**8.00E-03**
Toluene	92.0	384.6	60.0	75.0	0.038	N/A	4.09E-05	
Ethylbenzene	106.0	384.6	60.0	75.0	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	75.0	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	75.0	0.710	N/A	8.81E-04	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	75.0	0.300	N/A	4.21E-04	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	75.0	0.064	N/A	8.99E-05	
				Total Emissions:	**1.685**	**27**	**1.95E-03**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 1
Analytical Results of Air Samples

Bioslurp r Unit #1

SAMPLE NO.: 16(A)99VD02 SAMPLE DATE: 2/25/99 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	70.5	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	70.5	**0.000**	**7.0**	**0.00E+00**	**8.00E-03**
Toluene	92.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	70.5	0.000	N/A	0.00E+00	
			Total Emissions:		**0.000**	**27**	**0.00E+00**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 2
Analytical Results of Air Samples

Bioslurper Unit # 2

SAMPLE NO.: 16(B)99VD02 SAMPLE DATE: 2/25/99 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	91.0	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	91.0	**0.280**	**7.0**	**3.10E-04**	**8.00E-03**
Toluene	92.0	384.6	60.0	91.0	0.130	N/A	1.70E-04	
Ethylbenzene	106.0	384.6	60.0	91.0	0.230	N/A	3.46E-04	
m,p-Xylenes	106.0	384.6	60.0	91.0	0.330	N/A	4.97E-04	
o-Xylene	106.0	384.6	60.0	91.0	0.100	N/A	1.50E-04	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	91.0	0.006	N/A	9.71E-06	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	91.0	0.020	N/A	3.41E-05	
				Total Emissions:	**1.096**	**27**	**1.52E-03**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 1
Analytical Results of Air Samples

Bioslurper Unit #1

SAMPLE NO.: 16(B)99VD03 SAMPLE DATE: 3/31/99 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	97.0	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	97.0	**0.240**	**7.0**	**2.83E-04**	**8.00E-03**
Toluene	92.0	384.6	60.0	97.0	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	97.0	0.400	N/A	6.42E-04	
m,p-Xylenes	106.0	384.6	60.0	97.0	0.550	N/A	8.82E-04	
o-Xylene	106.0	384.6	60.0	97.0	0.340	N/A	5.45E-04	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	97.0	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	97.0	0.000	N/A	0.00E+00	
				Total Emissions:	**1.530**	**27**	**2.35E-03**	**3.50E-02**

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

U.S. Navy RAC Contract No. 62472-94-D-0398
Naval Weapons Station-Earle: Bioslurper No. 1
Analytical Results of Air Samples

Bioslurper Unit #1

SAMPLE NO.: 16(A)99VD03 SAMPLE DATE: 3/31/99 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	66.1	0.000	N/A	0.00E+00	
Benzene	78.0	384.6	60.0	66.1	**0.000**	**7.0**	**0.00E+00**	**8.00E-03**
Toluene	92.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
Ethylbenzene	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
m,p-Xylenes	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
o-Xylene	106.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
1,3,5-Trimethylbenzene	120.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
1,2,4-Trimethylbenzene	120.0	384.6	60.0	66.1	0.000	N/A	0.00E+00	
			Total Emissions:		**0.000**	**27**	**0.00E+00**	**3.50E-02**

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

VOLATILE ORGANIC ANALYSIS

CLIENT NAME:	Foster Wheeler Environmental	CLIENT SAMPLE ID:	16 (A) VD 15
PROJECT #:	---	AAI RFS#	9900701
PROJECT NAME:	NWS-Earle	AAI ID#:	9900701-001
MATRIX:	Air/Canister		
SAMPLE VOLUME:	0.005 Liter	DATE SAMPLED:	12/31/98
INITIAL PRESSURE:	1.00 psia	DATE RECEIVED:	1/7/99
FINAL PRESSURE:	1.00 psia	DATE ANALYZED:	1/8/99
PRES. DILUTION :	1.00		
DILUTION FACTOR:	1	ANALYTICAL METHOD:	EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	1.0	ND<	0.5
74-83-9	Bromomethane	ND<	1.0	ND<	0.3
75-01-04	Vinyl Chloride	ND<	1.0	ND<	0 4
75-00-3	Chloroethane	ND<	1.0	ND<	0.4
75-69-4	Freon 11	ND<	1 0	ND<	0.2
75-35-4	1,1-Dichloroethene	ND<	1 0	ND<	0 3
76-13-1	Freon 113	ND<	1.0	ND<	0.1
75-09-2	Methylene Chloride	ND<	1.0	ND<	0.3
75-35-3	1,1-Dichloroethane	ND<	1 0	ND<	0 2
156-60-5	trans-1,2-Dichloroethene	ND<	1 0	ND<	0 3
156-59-2	cis-1,2-Dichloroethene	ND<	1.0	ND<	0 3
67-66-3	Chloroform	ND<	1.0	ND<	0.2
71-55-6	1,1,1-Trichloroethane	ND<	1 0	ND<	0.2
56-23-5	Carbon Tetrachloride	ND<	1 0	ND<	0.2
71-43-2	Benzene	ND<	1.0	ND<	0 3
107-06-2	1,2-Dichloroethane	ND<	1 0	ND<	0.2
79-01-6	Trichloroethene	ND<	1.0	ND<	0.2
78-87-5	1,2-Dichloropropane	ND<	1.0	ND<	0.2
10061-02-6	trans-1,3-Dichloropropene	ND<	1.0	ND<	0.2
108-88-3	Toluene	ND<	1 0	ND<	0.3
10061-01-5	cis-1,3-Dichloropropene	ND<	1 0	ND<	0 2
79-00-5	1,1-2-Trichloroethane	ND<	1 0	ND<	0.2
127-18-4	Tetrachloroethene	ND<	1 0	ND<	0.1
106-93-4	Ethylene Dibromide	ND<	1.0	ND<	0 1
108-90-7	Chlorobenzene	ND<	1.0	ND<	0.2
100-41-4	Ethylbenzene	ND<	1.0	ND<	0.2
1330-20-7	m,p-Xylene	ND<	1 0	ND<	0.2
95-47-6	o-Xylene	ND<	1 0	ND<	0.2
100-42-5	Styrene	ND<	1 0	ND<	0 2
79-34-5	1,1,2,2-Tetrachlorethane	ND<	1 0	ND<	0.1
108-67-8	1,3,5-Trimethyl Benzene	ND<	1.0	ND<	0.2
95-63-6	1,2,4-Trimethyl Benzene	ND<	1 0	ND<	0.2
541-73-1	1,3-Dichlorobenzene	ND<	1.0	ND<	0.2
106-46-7	1,4-Dichlorobenzene	ND<	1.0	ND<	0.2
100-44-7	Chlorotoluene	ND<	1.0	ND<	0 2
95-50-1	1,2-Dichlorobenzene	ND<	1 0	ND<	0.2
67-64-1	Acetone	ND<	1 0	ND<	0.4
78-93-3	2-Butanone	ND<	1.0	ND<	0.3
108-10-1	4-methyl-2-pentanone	ND<	1.0	ND<	0.2
591-78-6	2-Hexanone	ND<	1 0	ND<	0.2

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	108	70-130
Toluene-d8 (SS2)	114	70-130
4- Bromofluorobenzene (SS3)	113	70-130

ND- Not detected

TR - Trace

*Value outside QC limits due to matrix interfence

VOLATILE ORGANIC ANALYSIS

CLIENT NAME:	Foster Wheeler Environmental	**CLIENT SAMPLE ID:**	16 (B) VD 15
PROJECT #:	—	**AAI RFS#**	9900701
PROJECT NAME:	NWS-Earle	**AAI ID#:**	9900701-002
MATRIX:	Air/Canister		
SAMPLE VOLUME:	0 005 Liter	**DATE SAMPLED:**	12/31/98
INITIAL PRESSURE:	1.00 psia	**DATE RECEIVED:**	1/7/99
FINAL PRESSURE:	1.00 psia	**DATE ANALYZED:**	1/8/99
PRES. DILUTION :	1.00		
DILUTION FACTOR:	1	**ANALYTICAL METHOD:**	EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	1.0	ND<	0.5
74-83-9	Bromomethane	ND<	1.0	ND<	0 3
75-01-04	Vinyl Chloride	ND<	1.0	ND<	0.4
75-00-3	Chloroethane	ND<	1 0	ND<	0.4
75-69-4	Freon 11	ND<	1.0	ND<	0.2
75-35-4	1,1-Dichloroethene	ND<	1.0	ND<	0.3
76-13-1	Freon 113	ND<	1 0	ND<	0.1
75-09-2	Methylene Chloride	ND<	1 0	ND<	0.3
75-35-3	1,1-Dichloroethane	ND<	1 0	ND<	0 2
156-60-5	trans-1,2-Dichloroethene	ND<	1.0	ND<	0.3
156-59-2	cis-1,2-Dichloroethene	ND<	1 0	ND<	0 3
67-66-3	Chloroform	ND<	1 0	ND<	0 2
71-55-6	1,1,1-Trichloroethane	ND<	1 0	ND<	0.2
56-23-5	Carbon Tetrachloride	ND<	1.0	ND<	0.2
71-43-2	Benzene	ND<	1.0	ND<	0.3
107-06-2	1,2-Dichloroethane	ND<	1 0	ND<	0.2
79-01-6	Trichloroethene	ND<	1.0	ND<	0.2
78-87-5	1,2-Dichloropropane	ND<	1 0	ND<	0 2
10061-02-6	trans-1,3-Dichloropropene	ND<	1 0	ND<	0 2
108-88-3	Toluene	ND<	1 0	ND<	0 3
10061-01-5	cis-1,3-Dichloropropene	ND<	1 0	ND<	0 2
79-00-5	1,1-2-Trichloroethane	ND<	1.0	ND<	0.2
127-18-4	Tetrachloroethene	ND<	1 0	ND<	0.1
106-93-4	Ethylene Dibromide	ND<	1 0	ND<	0.1
108-90-7	Chlorobenzene	ND<	1 0	ND<	0.2
100-41-4	Ethylbenzene	ND<	1.0	ND<	0.2
1330-20-7	m,p-Xylene	ND<	1 0	ND<	0.2
95-47-6	o-Xylene	ND<	1.0	ND<	0.2
100-42-5	Styrene	ND<	1.0	ND<	0.2
79-34-5	1,1,2,2-Tetrachlorethane	ND<	1 0	ND<	0.1
108-67-8	1,3,5-Trimethyl Benzene	ND<	1 0	ND<	0.2
95-63-6	1,2,4-Trimethyl Benzene	ND<	1.0	ND<	0.2
541-73-1	1,3-Dichlorobenzene	ND<	1 0	ND<	0.2
106-46-7	1,4-Dichlorobenzene	ND<	1 0	ND<	0.2
100-44-7	Chlorotoluene	ND<	1 0	ND<	0.2
95-50-1	1,2-Dichlorobenzene	ND<	1 0	ND<	0.2
67-64-1	Acetone	ND<	1.0	ND<	0 4
78-93-3	2-Butanone	ND<	1.0	ND<	0.3
108-10-1	4-methyl-2-pentanone	ND<	1 0	ND<	0 2
591-78-6	2-Hexanone	ND<	1 0	ND<	0.2

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	114	70-130
Toluene-d8 (SS2)	109	70-130
4- Bromofluorobenzene (SS3)	106	70-130

ND- Not detected

TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME:	Foster Wheeler Environmental	CLIENT SAMPLE ID:	Method Blank
PROJECT #:	---	AAI RFS#	9900701
PROJECT NAME:	NWS-Earle	AAI ID#:	Method Blank
MATRIX:	Air/Canister		
SAMPLE VOLUME:	0.005 Liter	DATE SAMPLED:	12/31/98
INITIAL PRESSURE:	1.00 psia	DATE RECEIVED:	1/7/99
FINAL PRESSURE:	1.00 psia	DATE ANALYZED:	1/8/99
PRES. DILUTION :	1.00		
DILUTION FACTOR:	1	ANALYTICAL METHOD:	EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	1.0	ND<	0.5
74-83-9	Bromomethane	ND<	1.0	ND<	0.3
75-01-04	Vinyl Chloride	ND<	1.0	ND<	0.4
75-00-3	Chloroethane	ND<	1.0	ND<	0.4
75-69-4	Freon 11	ND<	1.0	ND<	0.2
75-35-4	1,1-Dichloroethene	ND<	1 0	ND<	0.3
76-13-1	Freon 113	ND<	1.0	ND<	0 1
75-09-2	Methylene Chloride	ND<	1.0	ND<	0 3
75-35-3	1,1-Dichloroethane	ND<	1 0	ND<	0 2
156-60-5	trans-1,2-Dichloroethene	ND<	1 0	ND<	0 3
156-59-2	cis-1,2-Dichloroethene	ND<	1 0	ND<	0 3
67-66-3	Chloroform	ND<	1 0	ND<	0 2
71-55-6	1,1,1-Trichloroethane	ND<	1 0	ND<	0.2
56-23-5	Carbon Tetrachloride	ND<	1 0	ND<	0.2
71-43-2	Benzene	ND<	1 0	ND<	0.3
107-06-2	1,2-Dichloroethane	ND<	1 0	ND<	0 2
79-01-6	Trichloroethene	ND<	1 0	ND<	0.2
78-87-5	1,2-Dichloropropane	ND<	1 0	ND<	0.2
10061-02-6	trans-1,3-Dichloropropene	ND<	1.0	ND<	0.2
108-88-3	Toluene	ND<	1.0	ND<	0.3
10061-01-5	cis-1,3-Dichloropropene	ND<	1 0	ND<	0 2
79-00-5	1,1-2-Trichloroethane	ND<	1 0	ND<	0.2
127-18-4	Tetrachloroethene	ND<	1.0	ND<	0.1
106-93-4	Ethylene Dibromide	ND<	1.0	ND<	0.1
108-90-7	Chlorobenzene	ND<	1 0	ND<	0.2
100-41-4	Ethylbenzene	ND<	1 0	ND<	0.2
1330-20-7	m,p-Xylene	ND<	1 0	ND<	0.2
95-47-6	o-Xylene	ND<	1 0	ND<	0 2
100-42-5	Styrene	ND<	1 0	ND<	0.2
79-34-5	1,1,2,2-Tetrachlorethane	ND<	1 0	ND<	0 1
108-67-8	1,3,5-Trimethyl Benzene	ND<	1.0	ND<	0.2
95-63-6	1,2,4-Trimethyl Benzene	ND<	1.0	ND<	0.2
541-73-1	1,3-Dichlorobenzene	ND<	1 0	ND<	0.2
106-46-7	1,4-Dichlorobenzene	ND<	1.0	ND<	0.2
100-44-7	Chlorotoluene	ND<	1 0	ND<	0.2
95-50-1	1,2-Dichlorobenzene	ND<	1.0	ND<	0 2
67-64-1	Acetone	ND<	1 0	ND<	0 4
78-93-3	2-Butanone	ND<	1.0	ND<	0.3
108-10-1	4-methyl-2-pentanone	ND<	1.0	ND<	0 2
591-78-6	2-Hexanone	ND<	1 0	ND<	0.2

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	92	70-130
Toluene-d8 (SS2)	128	70-130
4- Bromofluorobenzene (SS3)	73	70-130

ND- Not detected

TR - Trace

*Value outside QC limits due to matrix interfence.

ANALYTICAL RESULTS

AAI RFS #: 9900701

Client Name: Foster Wheeler Environmental
Project Name: NWS-Earle
Project #: ---
Matrix: Air/Canister

Date(s) Sampled: 12/31/98
Date(s) Analyzed: 1/8/99
Analytical Method: CARB/EPA
Chemist. HA

	Units	16 (A) VD 15 9900701 -001	16 (B) VD 15 9900701 -002	Method Blank
EPA 8015mod				
TPH as gasoline	(ppm(v))	430	83	ND<10

	Units	16 (A) VD 15 9900701 -001	16 (B) VD 15 9900701 -002	Method Blank
EPA 8015mod				
TPH as gasoline	(mg/m3)	1,550	290	ND<1 0

QUALITY CONTROL

AAI RFS #: 9900701

Client Name. Foster Wheeler Environmental
Project Name: NWS-Earle
Project #: ---
Matrix. Air/Canister

Date(s) Sampled: 12/31/98
Date(s) Analyzed: 1/8/99
Analytical Method. CARB/EPA
Chemist: HA

	Sample Result 9900701-001 (ppm(v))	Duplicate Result 9900701-001 (ppm(v))	RPD (%)	Quality Control Limits (%)
EPA 8015mod				
TPH as gasoline	430	410	5	30

	Sample Result 9900701-001 (mg/m3)	Duplicate Result 9900701-001 (mg/m3)	RPD (%)	Quality Control Limits (%)
EPA 8015mod				
TPH as gasoline	1,550	1,500	3	30

Chain of Custody Record

EA Laboratories
[redacted]
Telephone: [redacted]-71-4920

C mpany Name: Foster Wheeler Environ	Project Manager or Contact: Ph n : Mike Heffron
Project No.	Project Name: NWS-Earle
Dept.: Task:	
Sample Storage Location:	ATO Number:
Pag of	Report #: AAI RFS# 9900701

Param ters/Meth d Numb rs for Analysis

Report Deliverables: 1 2 3 4 D E

EDD: Yes/No

DUE TO CLIENT: _____

ID #	Dat	Time	Water	Air	Sample Identification 19 Characters	No. of Containers	TPH	Volatile Organics	EA Labs Accession Number	Remarks
-001	12/30/98	10:00		X			X	X		LPM:
-002	12/30/98	10:30		X			X	X		48 HOUR RUSH
										PER MIKE HEFFRON
										1/8/99 (43)

Sampled by: (Signature)	Date/Time 01/06/99	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time 01/06/99	Received by Laboratory: (Signatur) Leticia Zelaya	Date/Time 1/7/99 1000	Airbill Number: 2074087046	Sampl Shipped by: (Circle) Fed Ex. Puro. UPS Hand Carried Other:

Cooler Temp.____C pH: ☐ Yes ☐ No Comments: Custody Seals Intact ☐ Yes ☐ No

NOTE: Please indicate method number for analyses requested. This will help clarify any questions with laboratory techniques.

WHITE—EA Laboratori s YELLOW—EA Laboratori s PINK—Project Manager *Shaded Areas for Lab Use Only*

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0.5 Liter
INITIAL PRESSURE: 1.00 psia
FINAL PRESSURE: 1.00 psia
PRES. DILUTION : 1.00
DILUTION FACTOR: 1

CLIENT SAMPLE ID: 16 (A) 99VD01
AAI RFS# 9905003
AAI ID#: 9905003-001

DATE SAMPLED: 2/1/99
DATE RECEIVED: 2/19/99
DATE ANALYZED: 2/24/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chioromethane	ND<	0.010	ND<	0.005
74-83-9	Bromomethane	ND<	0.010	ND<	0.003
75-01-04	Vinyl Chionde	ND<	0.010	ND<	0.004
75-00-3	Chloroethane	ND<	0.010	ND<	0.004
75-69-4	Freon 11	ND<	0.010	ND<	0.002
75-35-4	1,1-Dichioroethene	ND<	0.010	ND<	0.003
76-13-1	Freon 113	ND<	0.010	ND<	0.001
75-09-2	Methylene Chioride	ND<	0.010	ND<	0.003
75-35-3	1,1-Dichioroethane	ND<	0.010	ND<	0.002
156-60-5	trans-1,2-Dichloroethene	ND<	0.010	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	ND<	0.010	ND<	0.003
67-66-3	Chloroform	ND<	0.010	ND<	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.010	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.010	ND<	0.002
71-43-2	Benzene	ND<	0.010	ND<	0.003
107-06-2	1,2-Dichloroethane	ND<	0.010	ND<	0.002
79-01-6	Trichloroethene	ND<	0.010	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.010	ND<	0.002
10061-02-6	trans-1,3-Dichloropropene	ND<	0.010	ND<	0.002
108-88-3	Toluene	ND<	0.010	ND<	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.010	ND<	0.002
79-00-5	1,1-2-Trichloroethane	ND<	0.010	ND<	0.002
127-18-4	Tetrachloroethene	ND<	0.010	ND<	0.001
106-93-4	Ethylene Dibromide	ND<	0.010	ND<	0.001
108-90-7	Chlorobenzene	ND<	0.010	ND<	0.002
100-41-4	Ethylbenzene	ND<	0.010	ND<	0.002
1330-20-7	m,p-Xylene	ND<	0.010	ND<	0.002
95-47-6	o-Xylene	ND<	0.010	ND<	0.002
100-42-5	Styrene	ND<	0.010	ND<	0.002
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0.010	ND<	0.001
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.010	ND<	0.002
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.010	ND<	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.010	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.010	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.010	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.010	ND<	0.002
67-64-1	Acetone	ND<	0.010	ND<	0.004
78-93-3	2-Butanone	ND<	0.010	ND<	0.003
108-10-1	4-methyl-2-pentanone	ND<	0.010	ND<	0.002
591-78-6	2-Hexanone	ND<	0.010	ND<	0.002

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	115	70-130
Toluene-d8 (SS2)	116	70-130
4- Bromofluorobenzene (SS3)	100	70-130

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME:	Foster Wheeler Environmental	**CLIENT SAMPLE ID:**	16 (B) 99VD01
PROJECT #:	—	**AAI RFS#**	9905003
PROJECT NAME:	NWS-Earle	**AAI ID#:**	9905003-002
MATRIX:	Air/Canister		
SAMPLE VOLUME:	0.5 Liter	**DATE SAMPLED:**	2/1/99
INITIAL PRESSURE:	1.00 psia	**DATE RECEIVED:**	2/19/99
FINAL PRESSURE:	1.00 psia	**DATE ANALYZED:**	2/24/99
PRES. DILUTION :	1.00		
DILUTION FACTOR:	1	**ANALYTICAL METHOD:**	EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.010	ND<	0.005
74-83-9	Bromomethane	ND<	0.010	ND<	0.003
75-01-04	Vinyl Chloride	ND<	0.010	ND<	0.004
75-00-3	Chloroethane	ND<	0.010	ND<	0.004
75-69-4	Freon 11	ND<	0.010	ND<	0.002
75-35-4	1,1-Dichloroethene	ND<	0.010	ND<	0.003
76-13-1	Freon 113	ND<	0.010	ND<	0.001
75-09-2	Methylene Chloride	ND<	0.010	ND<	0.003
75-35-3	1,1-Dichloroethane	ND<	0.010	ND<	0.002
156-60-5	trans-1,2-Dichloroethene	ND<	0.010	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	0.054	0.010	0.014	0.003
67-66-3	Chloroform	0.072	0.010	0.015	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.010	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.010	ND<	0.002
71-43-2	Benzene	1.8	0.010	0.55	0.003
107-06-2	1,2-Dichloroethane	ND<	0.010	ND<	0.002
79-01-6	Trichloroethene	ND<	0.010	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.010	ND<	0.002
10061-02-6	trans-1,3-Dichloropropene	ND<	0.010	ND<	0.002
108-88-3	Toluene	0.14	0.010	0.038	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.010	ND<	0.002
79-00-5	1,1-2-Trichloroethane	ND<	0.010	ND<	0.002
127-18-4	Tetrachloroethene	ND<	0.010	ND<	0.001
106-93-4	Ethylene Dibromide	ND<	0.010	ND<	0.001
108-90-7	Chlorobenzene	ND<	0.010	ND<	0.002
100-41-4	Ethylbenzene	ND<	0.010	ND<	0.002
1330-20-7	m,p-Xylene	ND<	0.010	ND<	0.002
95-47-6	o-Xylene	3.064	0.010	0.71	0.002
100-42-5	Styrene	ND<	0.010	ND<	0.002
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0.010	ND<	0.001
108-67-8	1,3,5-Trimethyl Benzene	1.478	0.010	0.30	0.002
95-63-6	1,2,4-Trimethyl Benzene	0.32	0.010	0.064	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.010	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.010	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.010	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.010	ND<	0.002
67-64-1	Acetone	0.054	0.010	0.023	0.004
78-93-3	2-Butanone	ND<	0.010	ND<	0.003
108-10-1	4-methyl-2-pentanone	ND<	0.010	ND<	0.002
591-78-6	2-Hexanone	ND<	0.010	ND<	0.002

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	71	70-130
Toluene-d8 (SS2)	90	70-130
4- Bromofluorobenzene (SS3)	*	70-130

ND- Not detected

TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0.5 Liter
INITIAL PRESSURE: 1.00 psia
FINAL PRESSURE: 1.00 psia
PRES. DILUTION : 1.00
DILUTION FACTOR: 1

CLIENT SAMPLE ID: Method Blank
AAI RFS# 9905003
AAI ID#: Method Blank

DATE SAMPLED: 2/1/99
DATE RECEIVED: 2/19/99
DATE ANALYZED: 2/23/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.010	ND<	0.005
74-83-9	Bromomethane	ND<	0.010	ND<	0.003
75-01-04	Vinyl Chloride	ND<	0.010	ND<	0.004
75-00-3	Chloroethane	ND<	0.010	ND<	0.004
75-69-4	Freon 11	ND<	0.010	ND<	0.002
75-35-4	1,1-Dichloroethene	ND<	0.010	ND<	0.003
76-13-1	Freon 113	ND<	0.010	ND<	0.001
75-09-2	Methylene Chloride	ND<	0.010	ND<	0.003
75-35-3	1,1-Dichloroethane	ND<	0.010	ND<	0.002
156-60-5	trans-1,2-Dichloroethene	ND<	0.010	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	ND<	0.010	ND<	0.003
67-66-3	Chloroform	ND<	0.010	ND<	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.010	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.010	ND<	0.002
71-43-2	Benzene	ND<	0.010	ND<	0.003
107-06-2	1,2-Dichloroethane	ND<	0.010	ND<	0.002
79-01-6	Trichloroethene	ND<	0.010	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.010	ND<	0.002
10061-02-6	trans-1,3-Dichloropropene	ND<	0.010	ND<	0.002
108-88-3	Toluene	ND<	0.010	ND<	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.010	ND<	0.002
79-00-5	1,1-2-Trichloroethane	ND<	0.010	ND<	0.002
127-18-4	Tetrachloroethene	ND<	0.010	ND<	0.001
106-93-4	Ethylene Dibromide	ND<	0.010	ND<	0.001
108-90-7	Chlorobenzene	ND<	0.010	ND<	0.002
100-41-4	Ethylbenzene	ND<	0.010	ND<	0.002
1330-20-7	m,p-Xylene	ND<	0.010	ND<	0.002
95-47-6	o-Xylene	ND<	0.010	ND<	0.002
100-42-5	Styrene	ND<	0.010	ND<	0.002
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0.010	ND<	0.001
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.010	ND<	0.002
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.010	ND<	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.010	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.010	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.010	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.010	ND<	0.002
67-64-1	Acetone	ND<	0.010	ND<	0.004
78-93-3	2-Butanone	ND<	0.010	ND<	0.003
108-10-1	4-methyl-2-pentanone	ND<	0.010	ND<	0.002
591-78-6	2-Hexanone	ND<	0.010	ND<	0.002

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	102	70-130
Toluene-d8 (SS2)	112	70-130
4- Bromofluorobenzene (SS3)	109	70-130

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interference.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0.5 Liter
INITIAL PRESSURE: 14.70 psia
FINAL PRESSURE: 17.30 psia
PRES. DILUTION : 1.18
DILUTION FACTOR: 1

CLIENT SAMPLE ID: 16 (A) 99VD02
AAI RFS# 9906201
AAI ID#: 9906201-001

DATE SAMPLED: 2/25/99
DATE RECEIVED: 3/1/99
DATE ANALYZED: 3/4/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.012	ND<	0.006
74-83-9	Bromomethane	ND<	0.012	ND<	0.003
75-01-04	Vinyl Chloride	ND<	0.012	ND<	0.005
75-00-3	Chloroethane	ND<	0.012	ND<	0.004
75-69-4	Freon 11	ND<	0.012	ND<	0.002
75-35-4	1,1-Dichloroethene	ND<	0.012	ND<	0.003
76-13-1	Freon 113	ND<	0.012	ND<	0.002
75-09-2	Methylene Chloride	ND<	0.012	ND<	0.003
75-35-3	1,1-Dichloroethane	ND<	0.012	ND<	0.003
156-60-5	trans-1,2-Dichloroethene	ND<	0.012	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	ND<	0.012	ND<	0.003
67-66-3	Chloroform	ND<	0.012	ND<	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.012	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.012	ND<	0.002
71-43-2	Benzene	ND<	0.012	ND<	0.004
107-06-2	1,2-Dichloroethane	ND<	0.012	ND<	0.003
79-01-6	Trichloroethene	ND<	0.012	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.012	ND<	0.003
10061-02-6	trans-1,3-Dichloropropene	ND<	0.012	ND<	0.003
108-88-3	Toluene	ND<	0.012	ND<	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.012	ND<	0.003
79-00-5	1,1,2-Trichloroethane	ND<	0.012	ND<	0.002
127-18-4	Tetrachloroethene	0.037659864	0.012	0.0056	0.002
106-93-4	Ethylene Dibromide	ND<	0.012	ND<	0.002
108-90-7	Chlorobenzene	ND<	0.012	ND<	0.003
100-41-4	Ethylbenzene	ND<	0.012	ND<	0.003
1330-20-7	m,p-Xylene	ND<	0.012	ND<	0.003
95-47-6	o-Xylene	ND<	0.012	ND<	0.003
100-42-5	Styrene	ND<	0.012	ND<	0.003
79-34-5	1,1,2,2-Tetrachloroethane	ND<	0.012	ND<	0.002
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.012	ND<	0.002
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.012	ND<	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.012	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.012	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.012	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.012	ND<	0.002
67-64-1	Acetone	ND<	0.012	ND<	0.005
78-93-3	2-Butanone	ND<	0.012	ND<	0.004
108-10-1	4-methyl-2-pentanone	ND<	0.012	ND<	0.003
591-78-6	2-Hexanone	ND<	0.012	ND<	0.003

ND- Not detected *Value outside QC limits due to matrix interference.

TR - Trace

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0.5 Liter
INITIAL PRESSURE: 14.70 psia
FINAL PRESSURE: 17.10 psia
PRES. DILUTION : 1.16
DILUTION FACTOR: 1

CLIENT SAMPLE ID: 16 (B) 99VD02
AAI RFS# 9906201
AAI ID#: 9906201-002

DATE SAMPLED: 2/25/99
DATE RECEIVED: 3/1/99
DATE ANALYZED: 3/5/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.012	ND<	0.006
74-83-9	Bromomethane	ND<	0.012	ND<	0.003
75-01-04	Vinyl Chloride	ND<	0.012	ND<	0.005
75-00-3	Chloroethane	ND<	0.012	ND<	0.004
75-69-4	Freon 11	ND<	0.012	ND<	0.002
75-35-4	1,1-Dichloroethene	ND<	0.012	ND<	0.003
76-13-1	Freon 113	ND<	0.012	ND<	0.002
75-09-2	Methylene Chloride	ND<	0.012	ND<	0.003
75-35-3	1,1-Dichloroethane	ND<	0.012	ND<	0.003
156-60-5	trans-1,2-Dichloroethene	ND<	0.012	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	0.18	0.012	0.046	0.003
67-66-3	Chloroform	0.060	0.012	0.012	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.012	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.012	ND<	0.002
71-43-2	Benzene	0.88	0.012	0.28	0.004
107-06-2	1,2-Dichloroethane	ND<	0.012	ND<	0.003
79-01-6	Trichloroethene	ND<	0.012	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.012	ND<	0.003
10061-02-6	trans-1,3-Dichloropropene	ND<	0.012	ND<	0.003
108-88-3	Toluene	0.48	0.012	0.13	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.012	ND<	0.003
79-00-5	1,1-2-Trichloroethane	ND<	0.012	ND<	0.002
127-18-4	Tetrachloroethene	ND<	0.012	ND<	0.002
106-93-4	Ethylene Dibromide	ND<	0.012	ND<	0.002
108-90-7	Chlorobenzene	ND<	0.012	ND<	0.003
100-41-4	Ethylbenzene	1.0	0.012	0.23	0.003
1330-20-7	m,p-Xylene	1.4	0.012	0.33	0.003
95-47-6	o-Xylene	0.42	0.012	0.10	0.003
100-42-5	Styrene	ND<	0.012	ND<	0.003
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0.012	ND<	0.002
108-67-8	1,3,5-Trimethyl Benzene	0.028	0.012	0.0057	0.002
95-63-6	1,2,4-Trimethyl Benzene	0.10	0.012	0.020	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.012	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.012	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.012	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.012	ND<	0.002
67-64-1	Acetone	ND<	0.012	ND<	0.005
78-93-3	2-Butanone	ND<	0.012	ND<	0.004
108-10-1	4-methyl-2-pentanone	0.91	0.012	0.22	0.003
591-78-6	2-Hexanone	0.10	0.012	0.025	0.003

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0.5 Liter
INITIAL PRESSURE: 1.00 psia
FINAL PRESSURE: 1.00 psia
PRES. DILUTION : 1.00
DILUTION FACTOR: 1

CLIENT SAMPLE ID: Method Blank
AAI RFS# 9906201
AAI ID#: Method Blank

DATE SAMPLED: 2/25/99
DATE RECEIVED: 3/1/99
DATE ANALYZED: 3/4/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.010	ND<	0.005
74-83-9	Bromomethane	ND<	0.010	ND<	0.003
75-01-04	Vinyl Chloride	ND<	0.010	ND<	0.004
75-00-3	Chloroethane	ND<	0.010	ND<	0.004
75-69-4	Freon 11	ND<	0.010	ND<	0.002
75-35-4	1,1-Dichloroethene	ND<	0.010	ND<	0.003
76-13-1	Freon 113	ND<	0.010	ND<	0.001
75-09-2	Methylene Chloride	ND<	0.010	ND<	0.003
75-35-3	1,1-Dichloroethane	ND<	0.010	ND<	0.002
156-60-5	trans-1,2-Dichloroethene	ND<	0.010	ND<	0.003
156-59-2	cis-1,2-Dichloroethene	ND<	0.010	ND<	0.003
67-66-3	Chloroform	ND<	0.010	ND<	0.002
71-55-6	1,1,1-Trichloroethane	ND<	0.010	ND<	0.002
56-23-5	Carbon Tetrachloride	ND<	0.010	ND<	0.002
71-43-2	Benzene	ND<	0.010	ND<	0.003
107-06-2	1,2-Dichloroethane	ND<	0.010	ND<	0.002
79-01-6	Trichloroethene	ND<	0.010	ND<	0.002
78-87-5	1,2-Dichloropropane	ND<	0.010	ND<	0.002
10061-02-6	trans-1,3-Dichloropropene	ND<	0.010	ND<	0.002
108-88-3	Toluene	ND<	0.010	ND<	0.003
10061-01-5	cis-1,3-Dichloropropene	ND<	0.010	ND<	0.002
79-00-5	1,1-2-Trichloroethane	ND<	0.010	ND<	0.002
127-18-4	Tetrachloroethene	ND<	0.010	ND<	0.001
106-93-4	Ethylene Dibromide	ND<	0.010	ND<	0.001
108-90-7	Chlorobenzene	ND<	0.010	ND<	0.002
100-41-4	Ethylbenzene	ND<	0.010	ND<	0.002
1330-20-7	m,p-Xylene	ND<	0.010	ND<	0.002
95-47-6	o-Xylene	ND<	0.010	ND<	0.002
100-42-5	Styrene	ND<	0.010	ND<	0.002
79-34-5	1,1,2,2-Tetrachloroethane	ND<	0.010	ND<	0.001
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.010	ND<	0.002
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.010	ND<	0.002
541-73-1	1,3-Dichlorobenzene	ND<	0.010	ND<	0.002
106-46-7	1,4-Dichlorobenzene	ND<	0.010	ND<	0.002
100-44-7	Chlorotoluene	ND<	0.010	ND<	0.002
95-50-1	1,2-Dichlorobenzene	ND<	0.010	ND<	0.002
67-64-1	Acetone	ND<	0.010	ND<	0.004
78-93-3	2-Butanone	ND<	0.010	ND<	0.003
108-10-1	4-methyl-2-pentanone	ND<	0.010	ND<	0.002
591-78-6	2-Hexanone	ND<	0.010	ND<	0.002

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interference.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0 01 Liter
INITIAL PRESSURE: 1.00 psia
FINAL PRESSURE: 1 00 psia
PRES. DILUTION : 1.00
DILUTION FACTOR: 1

CLIENT SAMPLE ID: Method Blank
AAI RFS# 9909204
AAI ID#: Method Blank

DATE SAMPLED: 3/31/99
DATE RECEIVED: 4/2/99
DATE ANALYZED: 4/5/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.500	ND<	0.242
74-83-9	Bromomethane	ND<	0.500	ND<	0.129
75-01-04	Vinyl Chloride	ND<	0.500	ND<	0 196
75-00-3	Chloroethane	ND<	0.500	ND<	0.190
75-69-4	Freon 11	ND<	0 500	ND<	0 089
75-35-4	1,1-Dichloroethene	ND<	0.500	ND<	0.126
76-13-1	Freon 113	ND<	0 500	ND<	0 065
75-09-2	Methylene Chloride	ND<	0.500	ND<	0.144
75-35-3	1,1-Dichloroethane	ND<	0.500	ND<	0.124
156-60-5	trans-1,2-Dichloroethene	ND<	0.500	ND<	0.126
156-59-2	cis-1,2-Dichloroethene	ND<	0.500	ND<	0 126
67-66-3	Chloroform	ND<	0.500	ND<	0 102
71-55-6	1,1,1-Trichloroethane	ND<	0.500	ND<	0.092
56-23-5	Carbon Tetrachloride	ND<	0.500	ND<	0.080
71-43-2	Benzene	ND<	0 500	ND<	0.157
107-06-2	1,2-Dichloroethane	ND<	0.500	ND<	0 124
79-01-6	Trichloroethene	ND<	0.500	ND<	0.093
78-87-5	1,2-Dichloropropane	ND<	0.500	ND<	0.108
10061-02-6	trans-1,3-Dichloropropene	ND<	0.500	ND<	0.110
108-88-3	Toluene	ND<	0.500	ND<	0.133
10061-01-5	cis-1,3-Dichloropropene	ND<	0.500	ND<	0 110
79-00-5	1,1-2-Trichloroethane	ND<	0.500	ND<	0.092
127-18-4	Tetrachloroethene	ND<	0.500	ND<	0.074
106-93-4	Ethylene Dibromide	ND<	0.500	ND<	0.065
108-90-7	Chlorobenzene	ND<	0.500	ND<	0.109
100-41-4	Ethylbenzene	ND<	0.500	ND<	0.115
1330-20-7	m,p-Xylene	ND<	0.500	ND<	0 115
95-47-6	o-Xylene	ND<	0 500	ND<	0.115
100-42-5	Styrene	ND<	0 500	ND<	0 117
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0 500	ND<	0 073
108-67-8	1,3,5-Trimethyl Benzene	ND<	0 500	ND<	0 102
95-63-6	1,2,4-Trimethyl Benzene	ND<	0 500	ND<	0 102
541-73-1	1,3-Dichlorobenzene	ND<	0.500	ND<	0 083
106-46-7	1,4-Dichlorobenzene	ND<	0.500	ND<	0.083
100-44-7	Chlorotoluene	ND<	0.500	ND<	0.097
95-50-1	1,2-Dichlorobenzene	ND<	0 500	ND<	0.083
67-64-1	Acetone	ND<	0.500	ND<	0.211
78-93-3	2-Butanone	ND<	0.500	ND<	0.170
108-10-1	4-methyl-2-pentanone	ND<	0.500	ND<	0.122
591-78-6	2-Hexanone	ND<	0.500	ND<	0.122

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	103	70-130
Toluene-d8 (SS2)	101	70-130
4- Bromofluorobenzene (SS3)	112	70-130

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME:	Foster Wheeler Environmental	**CLIENT SAMPLE ID:**	16 (A) 99VD03
PROJECT #:	—	**AAI RFS#**	9909204
PROJECT NAME:	NWS-Earle	**AAI ID#:**	9909204-001
MATRIX:	Air/Canister		
SAMPLE VOLUME:	0 01 Liter	**DATE SAMPLED:**	3/31/99
INITIAL PRESSURE:	14.60 psia	**DATE RECEIVED:**	4/2/99
FINAL PRESSURE:	16.00 psia	**DATE ANALYZED:**	4/5/99
PRES. DILUTION :	1.10		
DILUTION FACTOR:	1	**ANALYTICAL METHOD:**	EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.548	ND<	0.265
74-83-9	Bromomethane	ND<	0.548	ND<	0.141
75-01-04	Vinyl Chloride	ND<	0.548	ND<	0 214
75-00-3	Chloroethane	ND<	0.548	ND<	0.208
75-69-4	Freon 11	ND<	0.548	ND<	0.098
75-35-4	1,1-Dichloroethene	ND<	0.548	ND<	0.138
76-13-1	Freon 113	ND<	0 548	ND<	0 072
75-09-2	Methylene Chloride	ND<	0.548	ND<	0 158
75-35-3	1,1-Dichloroethane	ND<	0.548	ND<	0.135
156-60-5	trans-1,2-Dichloroethene	ND<	0.548	ND<	0 138
156-59-2	cis-1,2-Dichloroethene	ND<	0.548	ND<	0.138
67-66-3	Chloroform	ND<	0.548	ND<	0.112
71-55-6	1,1,1-Trichloroethane	ND<	0.548	ND<	0.100
56-23-5	Carbon Tetrachloride	ND<	0.548	ND<	0 087
71-43-2	Benzene	ND<	0.548	ND<	0.172
107-06-2	1,2-Dichloroethane	ND<	0.548	ND<	0.135
79-01-6	Trichloroethene	ND<	0.548	ND<	0.102
78-87-5	1,2-Dichloropropane	ND<	0.548	ND<	0 119
10061-02-6	trans-1,3-Dichloropropene	ND<	0.548	ND<	0.121
108-88-3	Toluene	ND<	0.548	ND<	0.145
10061-01-5	cis-1,3-Dichloropropene	ND<	0.548	ND<	0.121
79-00-5	1,1-2-Trichloroethane	ND<	0.548	ND<	0 100
127-18-4	Tetrachloroethene	ND<	0.548	ND<	0 081
106-93-4	Ethylene Dibromide	ND<	0.548	ND<	0.071
108-90-7	Chlorobenzene	ND<	0.548	ND<	0.119
100-41-4	Ethylbenzene	ND<	0.548	ND<	0.126
1330-20-7	m,p-Xylene	ND<	0.548	ND<	0.126
95-47-6	o-Xylene	ND<	0.548	ND<	0 126
100-42-5	Styrene	ND<	0 548	ND<	0.129
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0 548	ND<	0 080
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.548	ND<	0 112
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.548	ND<	0.112
541-73-1	1,3-Dichlorobenzene	ND<	0 548	ND<	0 091
106-46-7	1,4-Dichlorobenzene	ND<	0.548	ND<	0.091
100-44-7	Chlorotoluene	ND<	0.548	ND<	0.106
95-50-1	1,2-Dichlorobenzene	ND<	0.548	ND<	0.091
67-64-1	Acetone	ND<	0.548	ND<	0.231
78-93-3	2-Butanone	ND<	0.548	ND<	0.186
108-10-1	4-methyl-2-pentanone	ND<	0.548	ND<	0 134
591-78-6	2-Hexanone	ND<	0.548	ND<	0.134

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	95	70-130
Toluene-d8 (SS2)	96	70-130
4- Bromofluorobenzene (SS3)	119	70-130

ND- Not detected

TR - Trace

*Value outside QC limits due to matrix interfence.

VOLATILE ORGANIC ANALYSIS

CLIENT NAME: Foster Wheeler Environmental
PROJECT #: —
PROJECT NAME: NWS-Earle
MATRIX: Air/Canister
SAMPLE VOLUME: 0 01 Liter
INITIAL PRESSURE: 14.60 psia
FINAL PRESSURE: 15 90 psia
PRES. DILUTION : 1.09
DILUTION FACTOR: 1

CLIENT SAMPLE ID: 16 (B) 99VD03
AAI RFS# 9909204
AAI ID#: 9909204-002

DATE SAMPLED: 3/31/99
DATE RECEIVED: 4/2/99
DATE ANALYZED: 4/6/99

ANALYTICAL METHOD: EPA TO14 (GC/MS)

CAS NUMBER	COMPOUND	CONCENTRATION mg/m3	PQL	ppm(v)	PQL
74-87-3	Chloromethane	ND<	0.545	ND<	0.264
74-83-9	Bromomethane	ND<	0.545	ND<	0.140
75-01-04	Vinyl Chloride	ND<	0.545	ND<	0.213
75-00-3	Chloroethane	ND<	0.545	ND<	0.206
75-69-4	Freon 11	ND<	0.545	ND<	0.097
75-35-4	1,1-Dichloroethene	ND<	0.545	ND<	0.137
76-13-1	Freon 113	ND<	0 545	ND<	0.071
75-09-2	Methylene Chloride	ND<	0.545	ND<	0.157
75-35-3	1,1-Dichloroethane	ND<	0.545	ND<	0.135
156-60-5	trans-1,2-Dichloroethene	ND<	0.545	ND<	0.137
156-59-2	cis-1,2-Dichloroethene	ND<	0.545	ND<	0.137
67-66-3	Chloroform	ND<	0.545	ND<	0.112
71-55-6	1,1,1-Trichloroethane	ND<	0 545	ND<	0.100
56-23-5	Carbon Tetrachloride	ND<	0.545	ND<	0.087
71-43-2	Benzene	0.75	0.545	0.24	0.171
107-06-2	1,2-Dichloroethane	ND<	0.545	ND<	0.135
79-01-6	Trichloroethene	ND<	0.545	ND<	0.101
78-87-5	1,2-Dichloropropane	ND<	0.545	ND<	0.118
10061-02-6	trans-1,3-Dichloropropene	ND<	0 545	ND<	0 120
108-88-3	Toluene	ND<	0.545	ND<	0.145
10061-01-5	cis-1,3-Dichloropropene	ND<	0.545	ND<	0 120
79-00-5	1,1-2-Trichloroethane	ND<	0.545	ND<	0.100
127-18-4	Tetrachloroethene	ND<	0.545	ND<	0.080
106-93-4	Ethylene Dibromide	ND<	0.545	ND<	0.071
108-90-7	Chlorobenzene	ND<	0.545	ND<	0.118
100-41-4	Ethylbenzene	1.7	0.545	0.40	0.125
1330-20-7	m,p-Xylene	2 4	0.545	0.55	0 125
95-47-6	o-Xylene	1 5	0 545	0 34	0.125
100-42-5	Styrene	ND<	0.545	ND<	0.128
79-34-5	1,1,2,2-Tetrachlorethane	ND<	0.545	ND<	0.079
108-67-8	1,3,5-Trimethyl Benzene	ND<	0.545	ND<	0.111
95-63-6	1,2,4-Trimethyl Benzene	ND<	0.545	ND<	0.111
541-73-1	1,3-Dichlorobenzene	ND<	0 545	ND<	0.091
106-46-7	1,4-Dichlorobenzene	ND<	0.545	ND<	0.091
100-44-7	Chlorotoluene	ND<	0.545	ND<	0.105
95-50-1	1,2-Dichlorobenzene	ND<	0.545	ND<	0.091
67-64-1	Acetone	ND<	0 545	ND<	0.230
78-93-3	2-Butanone	ND<	0.545	ND<	0.185
108-10-1	4-methyl-2-pentanone	ND<	0.545	ND<	0 133
591-78-6	2-Hexanone	ND<	0.545	ND<	0.133

Surrogate Recovery	% Recovery	
1,2-Dichloroethane-D4 (SS1)	101	70-130
Toluene-d8 (SS2)	93	70-130
4- Bromofluorobenzene (SS3)	111	70-130

ND- Not detected
TR - Trace

*Value outside QC limits due to matrix interfence.

ANALYTICAL RESULTS

AAI RFS #: 9909204

Client Name: Foster Wheeler Environmental
Project Name: NWS-Earle
Project #. —
Matrix: Air/Canister

Date(s) Sampled: 3/31/99
Date(s) Analyzed: 4/6/99
Analytical Method. CARB/EPA
Chemist: HA

	Units	16 (A) 99VD03 9909204 -001	16 (B) 99VD03 9909204 -002	Method Blank
EPA 8015mod				
TPH as gasoline	(ppm(v))	ND<10	200	ND<10

	Units	16 (A) 99VD03 9909204 -001	16 (B) 99VD03 9909204 -002	Method Blank
EPA 8015mod				
TPH as gasoline	(mg/m3)	ND<1.0	700	ND<1.0

QUALITY CONTROL

AAI RFS #: 9909204

Client Name. Foster Wheeler Environmental
Project Name: NWS-Earle
Project #: —
Matrix: Air/Canister

Date(s) Sampled: 3/31/99
Date(s) Analyzed. 4/6/99
Analytical Method: CARB/EPA
Chemist: HA

	Sample Result 9909204-002 (ppm(v))	Duplicate Result 9909204-002 (ppm(v))	RPD (%)	Quality Control Limits (%)
EPA 8015mod				
TPH as gasoline	200	200	0	30

	Sample Result 9909204-002 (mg/m3)	Duplicate Result 9909204-002 (mg/m3)	RPD (%)	Quality Control Limits (%)
EPA 8015mod				
TPH as gasoline	700	700	0	30

Page 1 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 01/25/99 16:09:37

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 10
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87163 NJ DEP 59538 NC DNR266, SC 88002, NH 204091-C.

WORK ID NWS EARLE
TAKEN 1/13/99
TRANS
TYPE WATER
P.O. # NWS EARLE
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01	16(B)EW99W06
02	16(B)EW99W07
03	16(B)EW99W08
04	16(B)EW99W09
05	16(B)EW99W10
06	16(B)EW99W10
07	16(B)EW99W10
08	16(B)EW99W10
09	16(B)EW99W10
10	16EW99TB01

TEST CODES and NAMES used on this workorder

8260	PURGEABLE ORGANICS VOA
8270	A/BN EXTRACTABLES
MEX HG	METALS, EXT. FOR MERCURY
MEX TW	METALS, TOTAL EXT., WATER
PH W	PH - AQUEOUS
PPCBW	PESTICIDES/PCB (WATER)
TALW	TAL METALS
TPH IR	TPH BY IR
TSS	TOTAL SUSPENDED SOLIDS

 TOXICON CORP. REPORT Work Order # 99-01-261

Received: 01/18/99

Results by Sample

SAMPLE ID 16(B)EW99W06 SAMPLE # 01 FRACTIONS: A

Date & Time Collected 01/15/99 10:00:00 Category WATER

TPH_IR 120
mg/L DL=1.0

SAMPLE ID 16(B)EW99W07 SAMPLE # 02 FRACTIONS: A

Date & Time Collected 01/15/99 10:02:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W08 SAMPLE # 03 FRACTIONS: A

Date & Time Collected 01/15/99 10:06:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W09 SAMPLE # 04 FRACTIONS: A

Date & Time Collected 01/15/99 10:06:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W10 SAMPLE # 05 FRACTIONS: A

Date & Time Collected 01/15/99 10:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Page 3 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 06A TEST CODE 8270 NAME A/BN EXTRACTABLES
Date & Time Collected 01/15/99 10:10:00 Category WATER

	RESULT	LIMIT		RESULT	LIMIT
BASE NEUTRAL EXTRACTABLES					
bis(-2-Chloroethyl) ether	ND	11	Chrysene	ND	11
1,3-Dichlorobenzene	ND	11	Di-n-octyl phthalate	ND	11
1,4-Dichlorobenzene	ND	11	Benzo(b)fluoranthene	ND	11
1,2-Dichlorobenzene	ND	11	Benzo(k)fluoranthene	ND	11
bis(2-Chloroisopropyl) ether	ND	11	Benzo(a)pyrene	ND	11
N-Nitroso-Di-N-Propylamine	ND	11	Indeno(1,2,3-cd)pyrene	ND	11
Hexachloroethane	ND	11	Dibenz(a,h)anthracene	ND	11
Nitrobenzene	ND	11	Benzo(g,h,i)perylene	ND	11
Isophorone	ND	11	2-Methylnaphthalene	ND	11
bis(2-Chloroethoxy) methane	ND	11	Benzidine	ND	11
1,2,4-Trichlorobenzene	ND	11	Dibenzofuran	ND	11
Naphthalene	ND	11			
Hexachlorobutadiene	ND	11	ACID EXTRACTABLES		
Hexachlorocyclopentadiene	ND	11	Phenol	ND	11
2-Chloronaphthalene	ND	11	2-Chlorophenol	ND	11
Dimethyl phthalate	ND	11	Benzyl Alcohol	ND	22
Acenophthylene	ND	11	2-Methylphenol	ND	11
Acenaphthene	ND	11	4+3-Methylphenol	ND	11
2,4-Dinitrotoluene	ND	11	2-Nitrophenol	ND	11
2,6-Dinitrotoluene	ND	11	2,4-Dimethylphenol	ND	11
Diethylphthalate	ND	11	Benzoic Acid	ND	56
4-Chlorophenyl phenyl ether	ND	11	2,4-Dichlorophenol	ND	11
Fluorene	ND	11	4-Chloroaniline	ND	11
N-Nitrosodiphenylamine	ND	11	4-Chloro-3-methylphenol	ND	11
4-Bromophenyl phenyl ether	ND	11	2,4,6-Trichlorophenol	ND	11
Hexachlorobenzene	ND	11	2,4,5-Trichlorophenol	ND	11
Phenanthrene	ND	11	2-Nitroaniline	ND	28
Anthracene	ND	11	3-Nitroaniline	ND	28
Di-n-butylphthalate	ND	11	2,4-Dinitrophenol	ND	28
Fluoranthene	ND	11	4-Nitrophenol	ND	28
Pyrene	ND	11	4-Nitroaniline	ND	28
Butyl benzyl phthalate	ND	11	4,6-Dinitro-2-methylphenol	ND	28
3,3'-Dichlorobenzidine	ND	22	Pentachlorophenol	ND	28
Benzo (a) anthracene	ND	11	2,6- Dichlorophenol	ND	28
bis (2-ethylhexyl)phthalate	ND	11			

Notes and Definitions for this Report:

UNITS: ug/L
EXTRACTED: 01/19/99
DATE RUN: 01/20/99
ANALYST: PAC
INSTRUMENT: F
DIL. FACTOR: 1.12
ND = not detected at detection limit

Page 4 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 07A TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)
Date & Time Collected 01/15/99 10:10:00 Category WATER

PESTICIDES

	RESULT	LIMIT
Alpha-BHC	ND	0.010
Gamma-BHC (Lindane)	ND	0.010
Beta-BHC	ND	0.010
Heptachlor	ND	0.010
Delta-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

PCB

	RESULT	LIMIT
Aroclor 1016	ND	0.10
Aroclor 1221	ND	0.10
Aroclor 1232	ND	0.10
Aroclor 1242	ND	0.10
Aroclor 1248	ND	0.10
Aroclor 1254	ND	0.10
Aroclor 1260	ND	0.10

Notes and Definitions for this Report:

EXTRACTED: 01/19/99
UNITS: ug/L
DATE RUN: 01/21/99
ANALYST: CK
INSTRUMENT: HP3
DIL. FACTOR: 1

ND = not detected at detection limit

Page 5 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sampl

SAMPLE ID 16(B)EW99W10 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 01/15/99 10:10:00 Category WATER

PH_W 6.4 TSS ND
PH UNITS mg/L DL=4.0

Page 6 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 09A TEST CODE TALM NAME TAL METALS
Date & Time Collected 01/15/99 10:10:00 Category WATER

TAL METALS

	RESULT	LIMIT
Silver	ND	0.007
Cadmium	ND	0.005
Chromium	ND	0.010
Copper	ND	0.010
Nickel	ND	0.020
Lead	ND	0.050
Zinc	0.042	0.020
Arsenic	ND	0.100
Selenium	ND	0.250
Beryllium	ND	0.004
Antimony	ND	0.150
Thallium	ND	0.300
Barium	0.087	0.010
Iron	ND	0.020
Manganese	0.491	0.010
Cobalt	ND	0.010
Vanadium	ND	0.010
Aluminum	ND	0.200
Calcium	18.5	0.100
Potassium	3.19	0.500
Sodium	31.5	0.500
Magnesium	5.19	0.050
Mercury	ND	0.0005

Notes and Definitions for this Report:

EXTRACTED..... 01/20/99
DATE RUN..... 01/21/99
ANALYST..... AS
INSTRUMENT.... ICP
CONC FACTOR... 1
UNITS..... mg/L

ND = not detected at detection limit

Page 7 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16EW99TB01 FRACTION 10A TEST CODE 8260 NAME PURGEABLE ORGANICS VOA
Date & Time Collected 01/15/99 Category WATER

EPA 8260 PURGEABLE ORGANICS

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	5.0	m+p-Xylene	ND	5.0
Vinyl Chloride	ND	2.0	1,2-Dichlorobenzene	ND	5.0
Chloroethane	ND	10	1,3-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,4-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	Naphthalene	ND	10
Trichlorofluoromethane	ND	10	n-Propylbenzene	ND	10
1,1-Dichloroethane	ND	5.0	Bromobenzene	ND	5.0
Trans-1,2-Dichloroethene	ND	5.0	Bromchloromethane	ND	5.0
Chloroform	ND	5.0	n-Butylbenzene	ND	10
1,2-Dichloroethane	ND	5.0	sec-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	tert-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	2-Chlorotoluene	ND	5.0
Bromodichloromethane	ND	5.0	4-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromoethane	ND	5.0
Dibromochloromethane	ND	5.0	Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dichlorodifluoromethane	ND	10
Benzene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0	1,3-Dichloropropane	ND	5.0
2-2-Dichlorpropane	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Bromoform	ND	5.0	1,2,3-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Isopropylbenzene	ND	10	1,2,4-Trichlorobenzene	ND	5.0
Tetrachloroethene	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Toluene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Ethyl Benzene	ND	5.0	trans-1,3-Dichloropropene	ND	5.0
p-Isopropyltoluene	ND	10	Styrene	ND	5.0

Notes and definitions for this report:

DATE RUN 01/23/99
ANALYST JPM
INSTRUMENT B
DIL. FACTOR 1
UNITS ug/L
COMMENTS

ND = Not detected at detection limit

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260B: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 Final Update III, 1996. Office of Solid Waste, USEPA.

SOIL RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE 8270 NAME A/BN EXTRACTABLES

EPA METHOD: 8270C: Gas Chromatography / Mass Spectrometry for Semivolatile Organics; Capillary Column Technique.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 FINAL UPDATE 111, 1996. Office of Solid Waste, USEPA.

TEST CODE MEX HG NAME METALS, EXT. FOR MERCURY

REFERENCE:

EPA METHOD 245.1 Mercury. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020.

EPA METHOD 7470.Mercury in Liquid Waste.
or
EPA METHOD 7471.Mercury in Solid or Semisolid Waste.
Test Methods for Evaluating Solid Waste:Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA>

TEST CODE MEX TW NAME METALS, TOTAL EXT., WATER

REFERENCE:

EPA METHOD 3005. Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by Flame Atomic Absorption Spectroscopy or Inductively Coupled Plasma Spectroscopy. Test Methods for Evaluating Physical/Chemical Methods. SW 846, 3rd Edition.

Wastewater digestion
40CFR Part 136 Appendix C-Preparation for Inductively Coupled Plasma-Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes Method 200.7. Protection of Environment, 1991.

TEST CODE PH W NAME PH - AQUEOUS

EPA METHOD: 150.1

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL.

TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

 TOXIKON CORP. REPORT Work Order # 98-12-131

Received: 12/07/98 12/08/98 15:35:32

REPORT TO: FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY: TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY
CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS-EARLE
TAKEN 12/4/98
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16(A)EW98W109
02 16(A)EW98W110
03 16(A)EW98W111
04 16(A)EW98W112
05 16(A)EW98W113
06 16(A)EW98W114
07 16(B)EW98W92
08 16(B)EW98W93
09 16(B)EW98W94
10 16(B)EW98W95
11 16(B)EW98W96

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 12/07/98 Results by Sample

SAMPLE ID 16(A)EW98W109 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/04/98 14:00:00 Category WATER

TPH_IR 690
mg/L DL=1.0

SAMPLE ID 16(A)EW98W110 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/04/98 14:02:00 Category WATER

TPH_IR 243
mg/L DL=1.0

SAMPLE ID 16(A)EW98W111 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/04/98 14:04:00 Category WATER

TPH_IR 79.4
mg/L DL=1.0

SAMPLE ID 16(A)EW98W112 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/04/98 14:06:00 Category WATER

TPH_IR 1.13
mg/L DL=1.0

SAMPLE ID 16(A)EW98W113 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/04/98 14:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(A)EW98W114 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/04/98 14:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W92 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 12/04/98 14:40:00 Category WATER

TPH_IR 65.9
mg/L DL=1.0

SAMPLE ID 16(B)EW98W93 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/04/98 14:42:00 Category WATER

TPH_IR 1.09
mg/L DL=1.0

Received: 12/07/98 Results by Sample

SAMPLE ID 16(B)EW98W94 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/04/98 14:44:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W95 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/04/98 14:46:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W96 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/04/98 14:48:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Received: 12/07/98

Test Methodology

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 98-12-131

DUE DATE : 12-10-98

COMPANY: Foster Wheeler
ADDRESS: One Oxford Valley Suite 200
Langhorne, PA 19047
PHONE #: (215) 702 4000 FAX #: (215) 702-4047
P.O. #:
PROJECT MANAGER: Mike Hoffman
PROJECT ID/LOCATION: NWS-Earle

SAMPLE TYPE: 1. WASTEWATER 2. SOIL 3. SLUDGE 4. OIL 5. DRINKING WATER 6. WATER (GW/MW/SW) 7. OTHER (SPECIFY

CONTAINER TYPE: P - PLASTIC G - GLASS V - VOA

ANALYSES: TPH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW98W109	W	1L	G	1	12/4/98	14:00	H_2SO_4	X	pH2
2	16(A)EW98W110						14:02		X	pH2
3	16(A)EW98W111						14:04		X	pH2
4	16(A)EW98W112						14:06		X	pH2
5	16(A)EW98W113						14:08		X	pH2
6	16(A)EW98W114						14:10		X	pH2
7	16(B)EW98W92						14:40		X	pH2
8	16(B)EW98W93						14:42		X	pH2
9	16(B)EW98W94						14:44		X	pH2
10	16(B)EW98W95						14:46		X	pH2
11	16(B)EW98W96						14:48		X	pH2
—										

SAMPLED BY: [signature] DATE: 12-4-98 TIME: - -

RELINQUISHED BY: [signature] DATE: 12-4-98 TIME: - -

RELINQUISHED BY: DATE: - - TIME: - -

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: DATE: - - TIME: - -

RECEIVED FOR LAB BY: [signature] DATE: 12-7-98 TIME: 10:30 -

COOLER TEMPERATURE 16.0

72 hr.

☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are th re any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ____ If Yes, 1st Known _____

CASE NARRATIVE

Work Order: 9812131

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 9812131
MATRIX: WATER

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
TPH by IR	NA	0-25	94.9	NA	80-120

 TOXIKON CORP. REPORT Work Order # 98-12-323

Received: 12/15/98 12/18/98 09:45:47

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 6
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS EARLE
TAKEN 12/11/98
TRANS
TYPE WATER
P.O. # NWS EARLE
INVOICE under separate cover

VERIFIED BY: Susan Etheridge

SAMPLE IDENTIFICATION

01 16(A)EW98W115
02 16(A)EW98W116
03 16(A)EW98W117
04 16(A)EW98W118
05 16(A)EW98W119
06 16(A)EW98W120

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 12/15/98

Results by Sample

SAMPLE ID 16(A)EW98W115 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/11/98 10:00:00 Category WATER

TPH_IR 447
mg/L DL=1.0

SAMPLE ID 16(A)EW98W116 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/11/98 10:02:00 Category WATER

TPH_IR 156
mg/L DL=1.0

SAMPLE ID 16(A)EW98W117 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/11/98 10:04:00 Category WATER

TPH_IR 88.5
mg/L DL=1.0

SAMPLE ID 16(A)EW98W118 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/11/98 10:06:00 Category WATER

TPH_IR 1.51
mg/L DL=1.0

SAMPLE ID 16(A)EW98W119 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/11/98 10:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(A)EW98W120 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/11/98 10:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Received: 12/15/98

Test Methodology

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 98-12-323

DUE DATE : 12-18-98

COMPANY: Foster Wheeler Enviro
ADDRESS: One Oxford Valley Suite 201
Langhorne PA 19047
PHONE #: (215) 702-4311 FAX #: (215) 702-4315
P.O. #: NUS-Earle
PROJECT MANAGER: Mike Geffen
PROJECT ID/LOCATION: NUS-Earle

SAMPLE TYPE
1. WASTEWATER
2. SOIL
3. SLUDGE
4. OIL
5. DRINKING WATER
6. WATER (GW/MW/SW)
7. OTHER (SPECIFY

CONTAINER TYPE
P - PLASTIC
G - GLASS
V - VOA

ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH												SPECIAL INSTRUCTIONS COMMENTS
1	16(A)EW98W115	6	1L	G	1	12/1/98	10:00	H_2SO_4	X												pH=2
2	16A/EW98W116						10:02		X												pH=2
3	16(A)EW98W117						10:04		X												pH=2
4	16(A)EW98W118						10:06		X												pH=2
5	16(A)EW98W119						10:08		X												pH=2
6	16A)EW98W120						10:11		X												pH=2

SAMPLED BY:	DATE: 12-14-98 TIME: - -	QUOTATION #:	
RELINQUISHED BY:	DATE: 12-14-98 TIME: - -	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY:	DATE: - - TIME: - -	RECEIVED FOR LAB BY: D. Marlow	DATE: 12-15-98 TIME: 15-45-
METHOD OF SHIPMENT		COOLER TEMPERATURE 8.1c	

7 d tr.

☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information

Are there any other known or suspected contaminants in these samples other than those listed abov ?
Yes ____ No ____ If Yes, 1st Known _____

CASE NARRATIVE

Work Order: 9812323

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 9812323
MATRIX: WATER

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
TPH by IR	NA	0-25	105	NA	80-120

Page 1
Received: 12/15/98

TOXIKON CORP. REPORT
12/17/98 14:19:33

Work Order # 98-12-324

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL MEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 5
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

WORK ID NWS EARLE
TAKEN 12/11/98
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS, DEMAND, O&G, PHENOLICS, PCBs, CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

VERIFIED BY: Kendra Hanna

SAMPLE IDENTIFICATION

01 16(B)EW98W97
02 16(B)EW98W98
03 16(B)EW98W99
04 16(B)EW98W100
05 16(B)EW98W101

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 12/15/98

TOXIKON CORP. REPORT

Results by Sample

Work Order # 98-12-324

SAMPLE ID 16(B)EW98W97

SAMPLE # 01 FRACTIONS: A

Date & Time Collected 12/11/98 11:00:00 Category WATER

TPH_IR Z35

mg/L DL=1.0

SAMPLE ID 16(B)EW98W98

SAMPLE # 02 FRACTIONS: A

Date & Time Collected 12/11/98 11:02:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW98W99

SAMPLE # 03 FRACTIONS: A

Date & Time Collected 12/11/98 11:04:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW98W100

SAMPLE # 04 FRACTIONS: A

Date & Time Collected 12/11/98 11:06:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW98W101

SAMPLE # 05 FRACTIONS: A

Date & Time Collected 12/11/98 11:08:00 Category WATER

TPH_IR ND

mg/L DL=1.0

Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 98-12-2

DUE DATE: 12-18-98

COMPANY: Foster Wheeler
ADDRESS: One Oxford Valley Suite 200
Langhorne, PA 19047
PHONE #: (215) 702-4015 FAX #: (215) 702-4045
P.O. #:
PROJECT MANAGER: Mike Affron
PROJECT ID/LOCATION: NWS-Earle

SAMPLE TYPE: 1. WASTEWATER 2. SOIL 3. SLUDGE 4. OIL 5. DRINKING WATER 6. WATER (GW/MW/SW) 7. OTHER (SPECIFY)

CONTAINER TYPE: P - PLASTIC, G - GLASS, V - VOA

ANALYSES: TPH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/COMMENTS
1	16(B)EW98W97	G-W	1P	G	1	11/16/98	11:00	H_2SO_4	X	PH=2
2	16(B)EW98W98						11:02		X	PH=2
3	16(B)EW98W99						11:04		X	PH=2
4	16(B)EW98W00						11:06		X	PH=2
5	16(B)EW98W10B						11:08		X	PH=2

SAMPLED BY: [signature] DATE: 12-11-98 TIME: - -

RELINQUISHED BY: [signature] DATE: 12-14-98 TIME: - -

RELINQUISHED BY: DATE: - - TIME: - -

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: DATE: - - TIME: - -

RECEIVED FOR LAB BY: [signature] DATE: 12-15-98 TIME: 16-00

COOLER TEMPERATURE: 8°C

☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ____ If Yes, list Known ____

CASE NARRATIVE

Work Order: 9812324

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

Received: 12/15/98

TOXIKON CORP. REPORT

Test Methodology

Work Order # 98-12-324

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

 TOXIKON CORP. REPORT Work Order # 99-01-090

Received: 01/07/99 01/11/99 09:20:50

REPORT TO: FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY: TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS EARLE
TAKEN 1/6/99
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16(A)EW99W01
02 16(A)EW99W02
03 16(A)EW99W03
04 16(A)EW99W04
05 16(A)EW99W05
06 16(A)EW99W06
07 16(B)EW99W01
08 16(B)EW99W02
09 16(B)EW99W03
10 16(B)EW99W04
11 16(B)EW99W05

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

TOXIKON CORP. REPORT

Work Order # 99-01-090

Received: 01/07/99

Results by Sample

SAMPLE ID 16(A)EW99W01 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 01/06/99 14:00:00 Category WATER

TPH_IR 425
mg/L DL=1.0

SAMPLE ID 16(A)EW99W02 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 01/06/99 14:02:00 Category WATER

TPH_IR 1980
mg/L DL=1.0

SAMPLE ID 16(A)EW99W03 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 01/06/99 14:04:00 Category WATER

TPH_IR 1580
mg/L DL=1.0

SAMPLE ID 16(A)EW99W04 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 01/06/99 14:06:00 Category WATER

TPH_IR 1040
mg/L DL=1.0

SAMPLE ID 16(A)EW99W05 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 01/06/99 14:08:00 Category WATER

TPH_IR 25.6
mg/L DL=1.0

SAMPLE ID 16(A)EW99W06 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 01/06/99 14:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W01 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 01/06/99 14:45:00 Category WATER

TPH_IR 4.84
mg/L DL=1.0

SAMPLE ID 16(B)EW99W02 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 01/06/99 14:46:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Received: 01/07/99 Results by Sample

SAMPLE ID 16(B)EW99W03 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 01/06/99 14:48:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W04 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 01/06/99 14:50:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W05 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 01/06/99 14:02:00 Category WATER

TPH_IR ND
mg/L DL=1.0

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-01-040

DUE DATE : 01-11-99

COMPANY: Foster Wheeler Enviro
ADDRESS: One Oxford Valley Suite 200
Langhorne PA 19047
PHONE #: (215) 702 4015 FAX #: ( )
P.O. #:
PROJECT MANAGER: Mike Heffron
PROJECT ID/LOCATION: NWS-Earle

SAMPLE TYPE: 1. WASTEWATER 2. SOIL 3. SLUDGE 4. OIL 5. DRINKING WATER 6. WATER (GW/MW/SW) 7. OTHER (SPECIFY

CONTAINER TYPE: P - PLASTIC G - GLASS V - VOA

ANALYSES: TPH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW99W01	GW	1L	G	1	1/6/99	14:00	H_2SO_4		pH=2
2	16(A)EW99W02						14:02			pH=2
3	16(A)EW99W03						14:04			pH=2
4	16(A)EW99W04						14:06			pH=2
5	16(A)EW99W05						14:08			pH=2
6	16(A)EW99W06						14:10			pH=2
7	16(B)EW99W01						14:45			pH=2
8	16(B)EW99W02						14:46			pH=2
9	16(B)EW99W03						14:48			pH=2
10	16(B)EW99W04						14:50			pH=2
11	16(B)EW99W05						14:52			pH=2

SAMPLED BY:	DATE: 1-6-99 TIME: - -	QUOTATION #:	
RELINQUISHED BY:	DATE: 1-6-99 TIME: - -	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY: USPS	DATE: 1-6-99 TIME: - -	RECEIVED FOR LAB BY: J. Mattar	DATE: 01-07-99 TIME: 14-15 -
METHOD OF SHIPMENT EXPRESS MAIL.		COOLER TEMPERATURE 6.0°C	

72 hr.

☑ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ____ If Yes, 1st Known _____

TOXIKON

QA/QC REPORT

WET CHEMISTRY

WORK ORDER: 9901090
MATRIX: WATER

PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
TPH_IR	0	0-25	98.7	NA	80-120

CASE NARRATIVE

Work Order: 9901090

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

Page 1 TOXIKON CORP. REPORT Work Order # 99-01-260
Received: 01/18/99 01/25/99 15:54:45

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY
CONTACT JAYSON

CLIENT FOSTER SAMPLES 12
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS-EARLE
TAKEN 1/15/99
TRANS
TYPE WATER
P.O. # NWS EARLE
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01	16(A)EW99W07
02	16(A)EW99W08
03	16(A)EW99W09
04	16(A)EW99W10
05	16(A)EW99W11
06	16(A)EW99W12
07	16(A)EW99W12
08	16(A)EW99W12
09	16(A)EW99W12
10	16(A)EW99W12
11	16(A)EW99W12
12	16(A)EW99W12

TEST CODES and NAMES used on this workorder

8260	PURGEABLE ORGANICS VOA
8270	A/BN EXTRACTABLES
MEX HG	METALS, EXT. FOR MERCURY
MEX TW	METALS, TOTAL EXT., WATER
PH W	PH - AQUEOUS
PPCBW	PESTICIDES/PCB (WATER)
TALW	TAL METALS
TPH IR	TPH BY IR
TSS	TOTAL SUSPENDED SOLIDS

Received: 01/18/99

Results by Sample

SAMPLE ID 16(A)EW99W07 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 01/15/99 09:00:00 Category WATER

TPH_IR 206
mg/L DL=1.0

SAMPLE ID 16(A)EW99W08 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 01/15/99 09:02:00 Category WATER

TPH_IR 208
mg/L DL=1.0

SAMPLE ID 16(A)EW99W09 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 01/15/99 09:04:00 Category WATER

TPH_IR 22.6
mg/L DL=1.0

SAMPLE ID 16(A)EW99W10 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 01/15/99 09:06:00 Category WATER

TPH_IR 1.67
mg/L DL=1.0

SAMPLE ID 16(A)EW99W11 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 01/15/99 09:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(A)EW99W12 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 01/15/99 09:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Page 3 TOXICON CORP. REPORT Work Order # 99-01-260
Received: 01/18/99 Results by Sample

SAMPLE ID 16(A)EW99W12 FRACTION 07A TEST CODE 8260 NAME PURGEABLE ORGANICS VOA
Date & Time Collected 01/15/99 09:10:00 Category WATER

EPA 8260 PURGEABLE ORGANICS

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	5.0	m+p-Xylene	ND	5.0
Vinyl Chloride	ND	2.0	1,2-Dichlorobenzene	ND	5.0
Chloroethane	ND	10	1,3-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,4-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	Naphthalene	ND	10
Trichlorofluoromethane	ND	10	n-Propylbenzene	ND	10
1,1-Dichloroethane	ND	5.0	Bromobenzene	ND	5.0
Trans-1,2-Dichloroethene	ND	5.0	Bromchloromethane	ND	5.0
Chloroform	ND	5.0	n-Butylbenzene	ND	10
1,2-Dichloroethane	ND	5.0	sec-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	tert-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	2-Chlorotoluene	ND	5.0
Bromodichloromethane	ND	5.0	4-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	1,2-Dibromo-3-chloropropene	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromoethane	ND	5.0
Dibromochloromethane	ND	5.0	Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dichlorodifluoromethane	ND	10
Benzene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0	1,3-Dichloropropane	ND	5.0
2-2-Dichlorpropane	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Bromoform	ND	5.0	1,2,3-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Isopropylbenzene	ND	10	1,2,4-Trichlorobenzene	ND	5.0
Tetrachloroethene	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Toluene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Ethyl Benzene	ND	5.0	trans-1,3-Dichloropropene	ND	5.0
p-Isopropyltoluene	ND	10	Styrene	ND	5.0

Notes and definitions for this report:
DATE RUN 01/20/99
ANALYST JPM
INSTRUMENT B
DIL. FACTOR 1
UNITS ug/L
COMMENTS

ND = Not detected at detection limit

Page 4 TOXIKON CORP. REPORT Work Order # 99-01-260
Received: 01/18/99 Results by Sample

SAMPLE ID 16(A)EW99W12 FRACTION OBA TEST CODE 8270 NAME A/BN EXTRACTABLES
Date & Time Collected 01/15/99 09:10:00 Category WATER

BASE NEUTRAL EXTRACTABLES	RESULT	LIMIT		RESULT	LIMIT
bis(-2-Chloroethyl) ether	ND	12	Chrysene	ND	12
1,3-Dichlorobenzene	ND	12	Di-n-octyl phthalate	ND	12
1,4-Dichlorobenzene	ND	12	Benzo(b)fluoranthene	ND	12
1,2-Dichlorobenzene	ND	12	Benzo(k)fluoranthene	ND	12
bis(2-Chloroisopropyl) ether	ND	12	Benzo(a)pyrene	ND	12
N-Nitroso-Di-N-Propylamine	ND	12	Indeno(1,2,3-cd)pyrene	ND	12
Hexachloroethane	ND	12	Dibenz(a,h)anthracene	ND	12
Nitrobenzene	ND	12	Benzo(g,h,i)perylene	ND	12
Isophorone	ND	12	2-Methylnaphthalene	ND	12
bis(2-Chloroethoxy) methane	ND	12	Benzidine	ND	12
1,2,4-Trichlorobenzene	ND	12	Dibenzofuran	ND	12
Naphthalene	ND	12			
Hexachlorobutadiene	ND	12	ACID EXTRACTABLES		
Hexachlorocyclopentadiene	ND	12	Phenol	ND	12
2-Chloronaphthalene	ND	12	2-Chlorophenol	ND	12
Dimethyl phthalate	ND	12	Benzyl Alcohol	ND	23
Acenaphthylene	ND	12	2-Methylphenol	ND	12
Acenaphthene	ND	12	4+3-Methylphenol	ND	12
2,4-Dinitrotoluene	ND	12	2-Nitrophenol	ND	12
2,6-Dinitrotoluene	ND	12	2,4-Dimethylphenol	ND	12
Diethylphthalate	ND	12	Benzoic Acid	ND	58
4-Chlorophenyl phenyl ether	ND	12	2,4-Dichlorophenol	ND	12
Fluorene	ND	12	4-Chloroaniline	ND	12
N-Nitrosodiphenylamine	ND	12	4-Chloro-3-methylphenol	ND	12
4-Bromophenyl phenyl ether	ND	12	2,4,6-Trichlorophenol	ND	12
Hexachlorobenzene	ND	12	2,4,5-Trichlorophenol	ND	12
Phenanthrene	ND	12	2-Nitroaniline	ND	29
Anthracene	ND	12	3-Nitroaniline	ND	29
Di-n-butylphthalate	ND	12	2,4-Dinitrophenol	ND	29
Fluoranthene	ND	12	4-Nitrophenol	ND	29
Pyrene	ND	12	4-Nitroaniline	ND	29
Butyl benzyl phthalate	ND	12	4,6-Dinitro-2-methylphenol	ND	29
3,3'-Dichlorobenzidine	ND	23	Pentachlorophenol	ND	29
Benzo (a) anthracene	ND	12	2,6- Dichlorophenol	ND	29
bis (2-ethylhexyl)phthalate	ND	12			

Notes and Definitions for this Report:

UNITS: ug/L
EXTRACTED: 01/19/99
DATE RUN: 01/20/99
ANALYST: PAC
INSTRUMENT: F
DIL. FACTOR: 1.16
ND = not detected at detection limit

 TOXIKON CORP. REPORT Work Order # 99-01-260

Received: 01/18/99 Results by Sample

SAMPLE ID 16(A)EW99W12 FRACTION 09A TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

Date & Time Collected 01/15/99 09:10:00 Category WATER

PESTICIDES

	RESULT	LIMIT
Alpha-BHC	ND	0.010
Gamma-BHC (Lindane)	ND	0.010
Beta-BHC	ND	0.010
Heptachlor	ND	0.010
Delta-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

PCB

	RESULT	LIMIT
Aroclor 1016	ND	0.10
Aroclor 1221	ND	0.10
Aroclor 1232	ND	0.10
Aroclor 1242	ND	0.10
Aroclor 1248	ND	0.10
Aroclor 1254	ND	0.10
Aroclor 1260	ND	0.10

Notes and Definitions for this Report:

EXTRACTED: 01/19/99
UNITS: ug/L
DATE RUN: 01/21/99
ANALYST: CK
INSTRUMENT: HP3
DIL. FACTOR: 1

ND = not detected at detection limit

Page 6 TOXIKON CORP. REPORT Work Order # 99-01-260
Received: 01/18/99 Results by Sample

SAMPLE ID 16(A)EW99U12 FRACTION 10A TEST CODE TALW NAME TAL METALS
Date & Time Collected 01/15/99 09:10:00 Category WATER

TAL METALS

	RESULT	LIMIT
Silver	ND	0.007
Cadmium	ND	0.005
Chromium	ND	0.010
Copper	0.023	0.010
Nickel	0.023	0.020
Lead	ND	0.050
Zinc	0.137	0.020
Arsenic	ND	0.100
Selenium	ND	0.250
Beryllium	ND	0.004
Antimony	ND	0.150
Thallium	ND	0.300
Barium	0.046	0.010
Iron	8.45	0.020
Manganese	0.195	0.010
Cobalt	ND	0.010
Vanadium	ND	0.010
Aluminum	ND	0.200
Calcium	18.5	0.100
Potassium	1.72	0.500
Sodium	75.9	0.500
Magnesium	3.38	0.050
Mercury	ND	0.0005

Notes and Definitions for this Report:

EXTRACTED..... 01/20/99
DATE RUN..... 01/21/99
ANALYST..... AS
INSTRUMENT.... ICP
CONC FACTOR... 1
UNITS..... mg/L

ND = not detected at detection limit

Received: 01/18/99

Results by Sample

SAMPLE ID 16(A)EW99W12 SAMPLE # 11 FRACTIONS: A

Date & Time Collected 01/15/99 09:10:00 Category WATER

TSS ND

mg/L DL=4.0

SAMPLE ID 16(A)EW99W12 SAMPLE # 12 FRACTIONS: A

Date & Time Collected 01/15/99 09:10:00 Category WATER

PH_W 6.4

PH UNITS

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260B: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 Final Update III, 1996. Office of Solid Waste, USEPA.

SOIL RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE 8270 NAME A/BN EXTRACTABLES

EPA METHOD: 8270C: Gas Chromatography / Mass Spectrometry for Semivolatile Organics; Capillary Column Technique.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 FINAL UPDATE III, 1996. Office of Solid Waste, USEPA.

TEST CODE MEX HG NAME METALS, EXT. FOR MERCURY

REFERENCE:

EPA METHOD 245.1 Mercury. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020.

EPA METHOD 7470.Mercury in Liquid Waste.

or

EPA METHOD 7471.Mercury in Solid or Semisolid Waste.
Test Methods for Evaluating Solid Waste:Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA>

TEST CODE MEX TW NAME METALS, TOTAL EXT., WATER

REFERENCE:

EPA METHOD 3005. Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by Flame Atomic Absorption Spectroscopy or Inductively Coupled Plasma Spectroscopy. Test Methods for Evaluating Physical/Chemical Methods. SW 846, 3rd Edition.

Wastewater digestion
40CFR Part 136 Appendix C-Preparation for Inductively Coupled Plasma-Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes Method 200.7. Protection of Environment, 1991.

TEST CODE PH W NAME PH - AQUEOUS

EPA METHOD: 150.1

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL.

TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

EPA METHOD: 608 for water sample

TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

Reference: Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A. 40 CFR Part 136. Federal Register Vol. 49, No. 209, 1984.

TEST CODE TALW NAME TAL METALS

REFERENCE METHODS: 6010A (ICAP), 7000A (GFAA), 7470 (Hg)
Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 Third Edition, Final Update I, 1992

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TEST CODE TSS NAME TOTAL SUSPENDED SOLIDS

EPA METHOD: 160.2

Reference: Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-01-260

DUE DATE : 1-21-99

COMPANY: Foster Wheeler
ADDRESS: One Oxford Valley, Suite 200
Langhorne PA 19047
PHONE #: (215) 702 4000 FAX #: (215) 702-4045
P.O. #: NWS-Earlp
PROJECT MANAGER: Mike Heffron
PROJECT ID/LOCATION: NWS-Earlp

SAMPLE TYPE: 1. WASTEWATER 2. SOIL 3. SLUDGE 4. OIL 5. DRINKING WATER 6. WATER (GW/MW/SW) 7. OTHER (SPECIFY

CONTAINER TYPE: P - PLASTIC G - GLASS V - VOA

ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	Volatile Organics	Semi-Volatile Organics	PCBs / Pesticides	TAL Metals	Total Suspended Solids	pH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW99W07	GW	1l	G	1	1/15/99	9:00	H_2SO_4								pH=21
2	16(A)EW99W08						9:02									pH=21
3	16(A)EW99W09						9:04									pH=21
4	16(A)EW99W10						9:06									pH=21
5	16(A)EW99W11						9:08									pH=21
6	16(A)EW99W12						9:10									pH=21
7	16(A)EW99W12		40ml	G	2			HCl		X						
8	16(A)EW99W12		1l	G	2			N/A			X					pH=6
9	16(A)EW99W12		1l	G	2			N/A				X				pH=6
10	16(A)EW99W12		1l	P	1			HNO_3					X			pH=1
11	16(A)EW99W12		250 ml	P	1			N/A						X		pH=6
12	16(A)EW99W12		250 ml	P	1			N/A						X		pH=6

SAMPLED BY: DATE: 1-15-99 TIME: - -
RELINQUISHED BY: DATE: 1-15-99 TIME: - -
RELINQUISHED BY: Fed Ex DATE: - - TIME: - -
METHOD OF SHIPMENT

QUOTATION #:
RECEIVED BY: Fed Ex DATE: - - TIME: - -
RECEIVED FOR LAB BY: Kindra Hanna DATE: 1-18-99 TIME: 17-00
COOLER TEMPERATURE

72 hr. Turnaround
☒ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ____ If Yes, 1st Known ____

Page 1 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 01/25/99 16:09:37

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 10
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

WORK ID NWS EARLE
TAKEN 1/13/99
TRANS
TYPE WATER
P.O. # NWS EARLE
INVOICE under separate cover

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS, DEMAND, O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87163, NJ DEP 59538, NC DNR286, SC 88002, NH 204097-C.

VERIFIED BY:

SAMPLE IDENTIFICATION

01	16(B)EW99W06
02	16(B)EW99W07
03	16(B)EW99W08
04	16(B)EW99W09
05	16(B)EW99W10
06	16(B)EW99W10
07	16(B)EW99W10
08	16(B)EW99W10
09	16(B)EW99W10
10	16EW99TB01

TEST CODES and NAMES used on this workorder

8260	PURGEABLE ORGANICS VOA
8270	A/BN EXTRACTABLES
MEX HG	METALS, EXT. FOR MERCURY
MEX TW	METALS, TOTAL EXT., WATER
PH W	PH - AQUEOUS
PPCBW	PESTICIDES/PCB (WATER)
TALW	TAL METALS
TPH IR	TPH BY IR
TSS	TOTAL SUSPENDED SOLIDS

 TOXICON CORP. REPORT Work Order # 99-01-261

Received: 01/18/99

Results by Sample

SAMPLE ID 16(B)EW99W06 SAMPLE # 01 FRACTIONS: A

Date & Time Collected 01/15/99 10:00:00 Category WATER

TPH_IR 120

mg/L DL=1.0

SAMPLE ID 16(B)EW99W07 SAMPLE # 02 FRACTIONS: A

Date & Time Collected 01/15/99 10:02:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW99W08 SAMPLE # 03 FRACTIONS: A

Date & Time Collected 01/15/99 10:06:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW99W09 SAMPLE # 04 FRACTIONS: A

Date & Time Collected 01/15/99 10:06:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW99W10 SAMPLE # 05 FRACTIONS: A

Date & Time Collected 01/15/99 10:10:00 Category WATER

TPH_IR ND

mg/L DL=1.0

Page 3 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 06A TEST CODE 8270 NAME A/BN EXTRACTABLES
Date & Time Collected 01/15/99 10:10:00 Category WATER

BASE NEUTRAL EXTRACTABLES	RESULT	LIMIT		RESULT	LIMIT
bis(-2-Chloroethyl) ether	ND	11	Chrysene	ND	11
1,3-Dichlorobenzene	ND	11	Di-n-octyl phthalate	ND	11
1,4-Dichlorobenzene	ND	11	Benzo(b)fluoranthene	ND	11
1,2-Dichlorobenzene	ND	11	Benzo(k)fluoranthene	ND	11
bis(2-Chloroisopropyl) ether	ND	11	Benzo(a)pyrene	ND	11
N-Nitroso-Di-N-Propylamine	ND	11	Indeno(1,2,3-cd)pyrene	ND	11
Hexachloroethane	ND	11	Dibenz(a,h)anthracene	ND	11
Nitrobenzene	ND	11	Benzo(g,h,i)perylene	ND	11
Isophorone	ND	11	2-Methylnaphthalene	ND	11
bis(2-Chloroethoxy) methane	ND	11	Benzidine	ND	11
1,2,4-Trichlorobenzene	ND	11	Dibenzofuran	ND	11
Naphthalene	ND	11			
Hexachlorobutadiene	ND	11	ACID EXTRACTABLES		
Hexachlorocyclopentadiene	ND	11	Phenol	ND	11
2-Chloronaphthalene	ND	11	2-Chlorophenol	ND	11
Dimethyl phthalate	ND	11	Benzyl Alcohol	ND	22
Acenaphthylene	ND	11	2-Methylphenol	ND	11
Acenaphthene	ND	11	4+3-Methylphenol	ND	11
2,4-Dinitrotoluene	ND	11	2-Nitrophenol	ND	11
2,6-Dinitrotoluene	ND	11	2,4-Dimethylphenol	ND	11
Diethylphthalate	ND	11	Benzoic Acid	ND	56
4-Chlorophenyl phenyl ether	ND	11	2,4-Dichlorophenol	ND	11
Fluorene	ND	11	4-Chloroaniline	ND	11
N-Nitrosodiphenylamine	ND	11	4-Chloro-3-methylphenol	ND	11
4-Bromophenyl phenyl ether	ND	11	2,4,6-Trichlorophenol	ND	11
Hexachlorobenzene	ND	11	2,4,5-Trichlorophenol	ND	11
Phenanthrene	ND	11	2-Nitroaniline	ND	28
Anthracene	ND	11	3-Nitroaniline	ND	28
Di-n-butylphthalate	ND	11	2,4-Dinitrophenol	ND	28
Fluoranthene	ND	11	4-Nitrophenol	ND	28
Pyrene	ND	11	4-Nitroaniline	ND	28
Butyl benzyl phthalate	ND	11	4,6-Dinitro-2-methylphenol	ND	28
3,3'-Dichlorobenzidine	ND	22	Pentachlorophenol	ND	28
Benzo (a) anthracene	ND	11	2,6- Dichlorophenol	ND	28
bis (2-ethylhexyl)phthalate	ND	11			

Notes and Definitions for this Report:

UNITS: ug/L
EXTRACTED: 01/19/99
DATE RUN: 01/20/99
ANALYST: PAC
INSTRUMENT: F
DIL. FACTOR: 1.12
ND = not detected at detection limit

Page 4 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 07A TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)
Date & Time Collected 01/15/99 10:10:00 Category WATER

PESTICIDES

	RESULT	LIMIT
Alpha-BHC	ND	0.010
Gamma-BHC (Lindane)	ND	0.010
Beta-BHC	ND	0.010
Heptachlor	ND	0.010
Delta-BHC	ND	0.010
Aldrin	ND	0.010
Heptachlor Epoxide	ND	0.010
Endosulfan I	ND	0.010
4,4'-DDE	ND	0.010
Dieldrin	ND	0.010
Endrin	ND	0.010
4,4'-DDD	ND	0.010
Endosulfan II	ND	0.010
4,4'-DDT	ND	0.010
Endrin Aldehyde	ND	0.010
Endosulfan Sulfate	ND	0.010
Chlordane	ND	0.010
Toxaphene	ND	0.010
Methoxychlor	ND	0.010

PCB

	RESULT	LIMIT
Aroclor 1016	ND	0.10
Aroclor 1221	ND	0.10
Aroclor 1232	ND	0.10
Aroclor 1242	ND	0.10
Aroclor 1248	ND	0.10
Aroclor 1254	ND	0.10
Aroclor 1260	ND	0.10

Notes and Definitions for this Report:

EXTRACTED: 01/19/99
UNITS: ug/L
DATE RUN: 01/21/99
ANALYST: CK
INSTRUMENT: HP3
DIL. FACTOR: 1

ND = not detected at detection limit

Received: 01/18/99

Results by Sample

SAMPLE ID 16(B)EW99W10 SAMPLE # 08 FRACTIONS: A

Date & Time Collected 01/15/99 10:10:00 Category WATER

PH_W	6.4	TSS	ND
	PH UNITS	mg/L	DL=4.0

Page 6 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16(B)EW99W10 FRACTION 09A TEST CODE TALW NAME TAL METALS
Date & Time Collected 01/15/99 10:10:00 Category WATER

TAL METALS

	RESULT	LIMIT
Silver	ND	0.007
Cadmium	ND	0.005
Chromium	ND	0.010
Copper	ND	0.010
Nickel	ND	0.020
Lead	ND	0.050
Zinc	0.042	0.020
Arsenic	ND	0.100
Selenium	ND	0.250
Beryllium	ND	0.004
Antimony	ND	0.150
Thallium	ND	0.300
Barium	0.087	0.010
Iron	ND	0.020
Manganese	0.491	0.010
Cobalt	ND	0.010
Vanadium	ND	0.010
Aluminum	ND	0.200
Calcium	18.5	0.100
Potassium	3.19	0.500
Sodium	31.5	0.500
Magnesium	5.19	0.050
Mercury	ND	0.0005

Notes and Definitions for this Report:

EXTRACTED..... 01/20/99
DATE RUN..... 01/21/99
ANALYST..... AS
INSTRUMENT.... ICP
CONC FACTOR... 1
UNITS..... mg/L

ND = not detected at detection limit

Page 7 TOXIKON CORP. REPORT Work Order # 99-01-261
Received: 01/18/99 Results by Sample

SAMPLE ID 16EW99TB01 FRACTION 10A TEST CODE 8260 NAME PURGEABLE ORGANICS VOA
Date & Time Collected 01/15/99 Category WATER

EPA 8260 PURGEABLE ORGANICS

	RESULT	LIMIT		RESULT	LIMIT
Chloromethane	ND	10	o-Xylene	ND	5.0
Bromomethane	ND	5.0	m+p-Xylene	ND	5.0
Vinyl Chloride	ND	2.0	1,2-Dichlorobenzene	ND	5.0
Chloroethane	ND	10	1,3-Dichlorobenzene	ND	5.0
Methylene Chloride	ND	10	1,4-Dichlorobenzene	ND	5.0
1,1-Dichloroethene	ND	5.0	Naphthalene	ND	10
Trichlorofluoromethane	ND	10	n-Propylbenzene	ND	10
1,1-Dichloroethane	ND	5.0	Bromobenzene	ND	5.0
Trans-1,2-Dichloroethene	ND	5.0	Bromchloromethane	ND	5.0
Chloroform	ND	5.0	n-Butylbenzene	ND	10
1,2-Dichloroethane	ND	5.0	sec-Butylbenzene	ND	10
1,1,1-Trichloroethane	ND	5.0	tert-Butylbenzene	ND	10
Carbon Tetrachloride	ND	5.0	2-Chlorotoluene	ND	5.0
Bromodichloromethane	ND	5.0	4-Chlorotoluene	ND	5.0
1,2-Dichloropropane	ND	5.0	1,2-Dibromo-3-chloropropane	ND	5.0
Trichloroethene	ND	5.0	1,2-Dibromoethane	ND	5.0
Dibromochloromethane	ND	5.0	Dibromomethane	ND	5.0
1,1,2-Trichloroethane	ND	5.0	Dichlorodifluoromethane	ND	10
Benzene	ND	5.0	cis-1,2-Dichloroethene	ND	5.0
1,1-Dichloropropene	ND	5.0	1,3-Dichloropropane	ND	5.0
2-2-Dichlorpropane	ND	5.0	1,1,1,2-Tetrachloroethane	ND	5.0
Bromoform	ND	5.0	1,2,3-Trichlorobenzene	ND	5.0
Hexachlorobutadiene	ND	10	1,1,2,2-Tetrachloroethane	ND	5.0
Isopropylbenzene	ND	10	1,2,4-Trichlorobenzene	ND	5.0
Tetrachloroethene	ND	5.0	1,2,3-Trichloropropane	ND	5.0
Methyl tertiary butyl ether	ND	5.0	1,2,4-Trimethylbenzene	ND	10
Toluene	ND	5.0	1,3,5-Trimethylbenzene	ND	10
Chlorobenzene	ND	5.0	cis-1,3-Dichloropropene	ND	5.0
Ethyl Benzene	ND	5.0	trans-1,3-Dichloropropene	ND	5.0
p-Isopropyltoluene	ND	10	Styrene	ND	5.0

Notes and definitions for this report:

DATE RUN 01/23/99
ANALYST JPM
INSTRUMENT B
DIL. FACTOR 1
UNITS ug/L
COMMENTS

ND = Not detected at detection limit

TEST CODE 8260 NAME PURGEABLE ORGANICS VOA

EPA METHOD: 8260B: Gas Chromatography/Mass Spectrometry for Volatile Organics.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 Final Update III, 1996. Office of Solid Waste, USEPA.

SOIL RESULTS ARE REPORTED ON A DRY WEIGHT BASIS.

TEST CODE 8270 NAME A/BN EXTRACTABLES

EPA METHOD: 8270C: Gas Chromatography / Mass Spectrometry for Semivolatile Organics; Capillary Column Technique.

Reference: Test Methods for Evaluating Solid Wastes: Physical/Chemical Methods.
EPA SW-846 FINAL UPDATE 111, 1996. Office of Solid Waste, USEPA.

TEST CODE MEX HG NAME METALS, EXT. FOR MERCURY

REFERENCE:

EPA METHOD 245.1 Mercury. Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020.

EPA METHOD 7470.Mercury in Liquid Waste.
or
EPA METHOD 7471.Mercury in Solid or Semisolid Waste.
Test Methods for Evaluating Solid Waste:Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA>

TEST CODE MEX TW NAME METALS, TOTAL EXT., WATER

REFERENCE:

EPA METHOD 3005. Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by Flame Atomic Absorption Spectroscopy or Inductively Coupled Plasma Spectroscopy. Test Methods for Evaluating Physical/Chemical Methods. SW 846, 3rd Edition.

Wastewater digestion
40CFR Part 136 Appendix C-Preparation for Inductively Coupled Plasma-Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes Method 200.7. Protection of Environment, 1991.

TEST CODE PH W NAME PH - AQUEOUS

EPA METHOD: 150.1

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL.

TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

 TOXIKON CORP. REPORT Work Order # 98-12-131

Received: 12/07/98 12/08/98 15:35:32

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY
CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS-EARLE
TAKEN 12/4/98
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16(A)EW98W109
02 16(A)EW98W110
03 16(A)EW98W111
04 16(A)EW98W112
05 16(A)EW98W113
06 16(A)EW98W114
07 16(B)EW98W92
08 16(B)EW98W93
09 16(B)EW98W94
10 16(B)EW98W95
11 16(B)EW98W96

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 12/07/98 Results by Sample

SAMPLE ID 16(A)EW98W109 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 12/04/98 14:00:00 Category WATER

TPH_IR 690
mg/L DL=1.0

SAMPLE ID 16(A)EW98W110 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 12/04/98 14:02:00 Category WATER

TPH_IR 243
mg/L DL=1.0

SAMPLE ID 16(A)EW98W111 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 12/04/98 14:04:00 Category WATER

TPH_IR 79.4
mg/L DL=1.0

SAMPLE ID 16(A)EW98W112 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 12/04/98 14:06:00 Category WATER

TPH_IR 1.13
mg/L DL=1.0

SAMPLE ID 16(A)EW98W113 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 12/04/98 14:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(A)EW98W114 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 12/04/98 14:10:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W92 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 12/04/98 14:40:00 Category WATER

TPH_IR 65.9
mg/L DL=1.0

SAMPLE ID 16(B)EW98W93 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 12/04/98 14:42:00 Category WATER

TPH_IR 1.09
mg/L DL=1.0

Received: 12/07/98 Results by Sample

SAMPLE ID 16(B)EW98W94 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 12/04/98 14:44:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W95 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 12/04/98 14:46:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW98W96 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 12/04/98 14:48:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Received: 12/07/98 Test Methodology

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 98-12-131

DUE DATE : 12-10-98

COMPANY: Foster Wheeler
ADDRESS: One Oxford Valley Suite 200
Langhorne, PA 19047
PHONE #: (215) 701 4000 FAX #: (215) 701-4047
P.O. #:
PROJECT MANAGER: Mike Hoffman
PROJECT ID/LOCATION: NWS-Earle

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW98W109	W	1L	G	1	12/4/98	14:00	H_2SO_4	X	pH2
2	16(A)EW98W110						14:02		X	pH2
3	16(A)EW98W111						14:04		X	pH2
4	16(A)EW98W112						14:06		X	pH2
5	16(A)EW98W113						14:08		X	pH2
6	16(A)EW98W114						14:10		X	pH2
7	16(B)EW98W92						14:40		X	pH2
8	16(B)EW98W93						14:42		X	pH2
9	16(B)EW98W94						14:44		X	pH2
10	16(B)EW98W95						14:46		X	pH2
11	16(B)EW98W96						14:48		X	pH2
—										

SAMPLED BY: [signature] DATE: 12-4-98 TIME: - -

RELINQUISHED BY: [signature] DATE: 12-4-98 TIME: - -

RELINQUISHED BY: DATE: - - TIME: - -

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: DATE: - - TIME: - -

RECEIVED FOR LAB BY: [signature] DATE: 12-7-98 TIME: 10:30 - —

COOLER TEMPERATURE 4.0

72 hr.

☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ No ____ If Yes, 1st Known _____

EPA METHOD: 608 for water sample

TEST CODE PPCBW NAME PESTICIDES/PCB (WATER)

Reference: Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater. Appendix A. 40 CFR Part 136. Federal Register Vol. 49, No. 209, 1984.

TEST CODE TALW NAME TAL METALS

REFERENCE METHODS: 6010A (ICAP), 7000A (GFAA), 7470 (Hg)
Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 Third Edition, Final Update 1, 1992

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TEST CODE TSS NAME TOTAL SUSPENDED SOLIDS

EPA METHOD: 160.2

Reference: Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7476

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-01-261

DUE DATE : 1-21-99

COMPANY: Foster Wheeler
ADDRESS: One Oxford [illegible]
Englewood, NJ 1907[illegible]
PHONE #: (215) 202-Y[illegible] FAX #: (215) 20[illegible]
P.O. #:
PROJECT MANAGER: [illegible]
PROJECT ID/LOCATION: [illegible]

SAMPLE TYPE: 1. WASTEWATER, 2. SOIL, 3. SLUDGE, 4. OIL, 5. DRINKING WATER, 6. WATER (GW/MW/SW), 7. OTHER (SPECIFY)

CONTAINER TYPE: P - PLASTIC, G - GLASS, V - VOA

ANALYSES: [illegible] Organics, [illegible] Metals, [illegible] Solids, pH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	[illegible] Organics	[illegible] Metals	[illegible] Solids	pH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(B)EW99W06	GW	1l	G	1	1/15/99	10:[illegible]	[illegible]	X				pH=1
2	16(B)EW99W07						10:02		X				pH=1
3	16(B)EW99W08						10:04		X				pH=1
4	16(B)EW99W09						10:06		X				pH=1
5	16(B)EW99W10				2		10:[illegible]		X				pH=1
X	16(B)EW99W10	GW	40ml	G	2	1/15/[illegible]		[illegible]	[illegible]				not in cooler kdh
6	16(B)EW99W10		1l	G	2			n/a		X			pH=6
7	16(B)EW99W10		1l	G	2			[illegible]	[illegible]		X		pH=6
8	16(B)EW99W10		250ml	P	2	1/15/99		n/a				X X	pH=1
9	16(B)EW99W10		1l	P	1	1/15/99		[illegible]			X		pH=6
10	16EW99TB01	—	40ml	G	1	1/15/99				X			pH=6

SAMPLED BY: [illegible]	DATE: 1-15-99	QUOTATION #:	
	TIME: - -		
RELINQUISHED BY: [illegible]	DATE: 1-15-99	RECEIVED BY:	DATE: - -
	TIME: - -		TIME: - -
RELINQUISHED BY: Fedex	DATE: 1-19-99	RECEIVED FOR LAB BY: [illegible]	DATE: 1-18-99
	TIME: 9-15 -		TIME: 9-15 - —
METHOD OF SHIPMENT: Fedex		COOLER TEMPERATURE: 5.2°C	

72 hr. turnaround

☒ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes ____ N ____ If Yes, 1st Known _____

Page 1 TOXIKON CORP. REPORT Work Order # 99-01-539

Received: 01/29/99 02/03/99 07:57:07

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
CERTIFIED BY
ATTEN PAUL LEZBERG
PHONE (781)275-3330
CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS, DEMAND, O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NAVAL WEAPON STATION EARLE
TAKEN 1/26/99
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16AEW99W13
02 16AEW99W14
03 16AEW99W15
04 16AEW99W16
05 16AEW99W17
06 16AEW99W18
07 16BEW99W11
08 16BEW99W12
09 16BEW99W13
10 16BEW99W14
11 16BEW99W15

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

 TOXIKON CORP. REPORT Work Order # 99-01-539

Received: 01/29/99 Results by Sample

SAMPLE ID 16AEW99W13 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 01/26/99 14:30:00 Category WATER

TPH_IR 80.0
mg/L DL=1.0

SAMPLE ID 16AEW99W14 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 01/26/99 14:32:00 Category WATER

TPH_IR 1450
mg/L DL=1.0

SAMPLE ID 16AEW99W15 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 01/26/99 14:34:00 Category WATER

TPH_IR 1130
mg/L DL=1.0

SAMPLE ID 16AEW99W16 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 01/26/99 14:36:00 Category WATER

TPH_IR 151
mg/L DL=1.0

SAMPLE ID 16AEW99W17 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 01/26/99 14:38:00 Category WATER

TPH_IR 17.5
mg/L DL=1.0

SAMPLE ID 16AEW99W18 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 01/26/99 14:40:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16BEW99W11 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 01/26/99 15:52:00 Category WATER

TPH_IR 31.5
mg/L DL=1.0

SAMPLE ID 16BEW99W12 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 01/26/99 15:54:00 Category WATER

TPH_IR 1.48
mg/L DL=1.0

 TOXIKON CORP. REPORT Work Order # 99-01-539

Received: 01/29/99 Results by Sample

SAMPLE ID 16BEW99W13 SAMPLE # 09 FRACTIONS: A

Date & Time Collected 01/26/99 15:56:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16BEW99W14 SAMPLE # 10 FRACTIONS: A

Date & Time Collected 01/26/99 15:58:00 Category WATER

TPH_IR 2.87

mg/L DL=1.0

SAMPLE ID 16BEW99W15 SAMPLE # 11 FRACTIONS: A

Date & Time Collected 01/26/99 16:00:00 Category WATER

TPH_IR ND

mg/L DL=1.0

Received: 01/29/99 Test Methodology

TEST CODE TPH_IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (617) 275-3330
Fax: (617) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99.01.539

DUE DATE : 02.02.99

02/03/99 08:41

COMPANY: FWENC

ADDRESS: One Oxford Valley Ste 200
Langhorne PA 18947

PHONE #: (215) 702 4015 FAX #: (215) 702 4045

P.O. #:

PROJECT MANAGER: [redacted]

PROJECT ID/LOCATION: Naval Weapon Station Earle

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
7. OTHER (SPECIFY	

ANALYSES: TPH 418.1

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH 418.1	SPECIAL INSTRUCTIONS/ COMMENTS
1	16AEW99W13	1	Liter	G	1	1/26/99	1430	HCl	↓	PH=4
2	16AEW99W14	1	↓	↓	1	↓	1432	HCl	↓	PH=4
3	16AEW99W15	1	↓	↓	1	↓	1434	HCl	↓	PH=2
4	16AEW99W16	1	↓	↓	1	↓	1436	HCl	↓	PH=2
5	16AEW99W17	1	↓	↓	1	↓	1438	HCl	↓	PH=2
6	16AEW99W18	1	↓	↓	1	↓	1440	HCl	↓	PH=2
7	16BEW99W11	1	↓	↓	1	↓	1552	HCl	↓	PH=2
8	16BEW99W12	1	↓	↓	1	↓	1554	HCl	↓	PH=2
9	16BEW99W13	1	↓	↓	1	↓	1556	HCl	↓	PH=3
10	16BEW99W14	1	↓	↓	1	↓	1558	HCl	↓	PH=2
11	16BEW99W15	1	↓	↓	1	↓	1600	HCl	↓	PH=2

SAMPLED BY: Bryan Sladen	DATE: 01 - 28 - 99 TIME: 1430 - 1600 -	QUOTATION #:	
RELINQUISHED BY: [signature]	DATE: 01 - 28 - 99 TIME: 1600 -	RECEIVED BY:	DATE: - - TIME: - -
RELINQUISHED BY: FED-EX	DATE: 1 - 29 - 99 TIME: - -	RECEIVED FOR LAB BY: [signature]	DATE: 01 - 29 - 99 TIME: 10 - 00 -
METHOD OF SHIPMENT		COOLER TEMPERATURE	

72 hr. turnaround

☒ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above ?
Yes ___ No ___ If Yes, list Known

☑ 006

Page 1 TOXIKON CORP. REPORT Work Order # 99-02-516
Received: 02/27/99 03/03/99 11:13:16

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 6045
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87163, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS-EARLE
TAKEN 2/25/99
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16(A)EW99W25
02 16(A)EW99W26
03 16(A)EW99W27
04 16(A)EW99W28
05 16(A)EW99W29
06 16(A)EW99W30
07 16(B)EW99W16
08 16(B)EW99W17
09 16(B)EW99W18
10 16(B)EW99W19
11 16(B)EW99W20

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 02/27/99

Results by Sample

SAMPLE ID 16(A)EW99W25 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 02/25/99 15:30:00 Category WATER

TPH_IR 1030
mg/L DL=1.0

SAMPLE ID 16(A)EW99W26 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 02/25/99 15:32:00 Category WATER

TPH_IR 258
mg/L DL=1.0

SAMPLE ID 16(A)EW99W27 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 02/25/99 15:34:00 Category WATER

TPH_IR 39.0
mg/L DL=1.0

SAMPLE ID 16(A)EW99W28 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 02/25/99 15:36:00 Category WATER

TPH_IR 2.78
mg/L DL=1.0

SAMPLE ID 16(A)EW99W29 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 02/25/99 15:38:00 Category WATER

TPH_IR 1.57
mg/L DL=1.0

SAMPLE ID 16(A)EW99W30 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 02/25/99 15:40:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W16 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 02/25/99 16:00:00 Category WATER

TPH_IR 47.9
mg/L DL=1.0

SAMPLE ID 16(B)EW99W17 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 02/25/99 16:02:00 Category WATER

TPH_IR 92.8
mg/L DL=1.0

 TOXIKON CORP. REPORT Work Order # 99-02-516

Received: 02/27/99 Results by Sample

SAMPLE ID 16(B)EW99W18 SAMPLE # 09 FRACTIONS: A

Date & Time Collected 02/25/99 16:04:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW99W19 SAMPLE # 10 FRACTIONS: A

Date & Time Collected 02/25/99 16:06:00 Category WATER

TPH_IR ND

mg/L DL=1.0

SAMPLE ID 16(B)EW99W20 SAMPLE # 11 FRACTIONS: A

Date & Time Collected 02/25/99 16:08:00 Category WATER

TPH_IR ND

mg/L DL=1.0

Received: 02/27/99 Test Methodology

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99.02.516

DUE DATE : 03.03.99

COMPANY: Foster Wheeler Environ
ADDRESS: One Oxford Valley, Suite 200
Langhorne, PA 19047
PHONE #: (215) 702 4000 FAX #: (215) 702 4045
P.O. #:
PROJECT MANAGER: Mike Ruffner
PROJECT ID/LOCATION: NWS - Earle

SAMPLE TYPE	CONTAINER TYPE
1. WASTEWATER	P - PLASTIC
2. SOIL	G - GLASS
3. SLUDGE	V - VOA
4. OIL	
5. DRINKING WATER	
6. WATER (GW/MW/SW)	
7. OTHER (SPECIFY	

ANALYSES: TPH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	1(GA)EW99W25	GW	1Q	G	1	2/25/99	3:30	HCl	X	
2	1(GA)EW99W26						3:32			
3	1(GA)EW99W27						3:34			
4	1(GA)EW99W28						3:36			
5	1(GA)EW99W29						3:38			
6	1(GA)EW99W30						3:40			
7	1(GB)EW99W16						4:00			
8	1(GB)EW99W17						4:02			
9	1(GB)EW99W18						4:04			
10	1(GB)EW99W19						4:06			
11	1(GB)EW99W20						4:08			

SAMPLED BY: [signature] DATE: 2-25-99 TIME:

RELINQUISHED BY: [signature] DATE: 2-25-99 TIME:

RELINQUISHED BY: FED-EX DATE: 2-25-99 TIME:

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: DATE: TIME:

RECEIVED FOR LAB BY: [signature] DATE: 02-27-99 TIME: 12:00

COOLER TEMPERATURE

3 Day turnaround

☒ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?

03/03/99 14:15 FAX 006

Page 1 TOXIKON CORP. REPORT Work Order # 99-03-297

Received: 03/15/99 03/17/99 16:34:02

REPORT TO
FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4065
ATTEN MICHAEL HEFFRON

PREPARED BY
TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
CERTIFIED BY
ATTEN PAUL LEZBERG
PHONE (781)275-3330
CONTACT JAYSON

CLIENT FOSTER SAMPLES 7
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE, CYANIDE, RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST., NUTRIENTS, DEMAND, O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR266, SC 88002, NH 204091-C.

WORK ID NAVY WEAPONS-EARLE
TAKEN 3/11/99
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION		TEST CODES and NAMES used on this workorder
01	16(A)EW99W31	IPH_IR IPH BY IR
02	16(A)EW99W33	
03	16(A)EW99W34	
04	16(A)EW99W35	
05	16(B)EW99W22	
06	16(B)EW99W24	
07	16(B)EW99W25	

[illegible] shipment

Received: 03/15/99 Results by Sample

SAMPLE ID 16(A)EW99W31 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 03/11/99 13:00:00 Category WATER

TPH_IR 1810
mg/L DL=1.0

SAMPLE ID 16(A)EW99W33 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 03/11/99 13:04:00 Category WATER

TPH_IR 646
mg/L DL=1.0

SAMPLE ID 16(A)EW99W34 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 03/11/99 13:06:00 Category WATER

TPH_IR 438
mg/L DL=1.0

SAMPLE ID 16(A)EW99W35 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 03/11/99 13:08:00 Category WATER

TPH_IR 111
mg/L DL=1.0

SAMPLE ID 16(B)EW99W22 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 03/11/99 14:02:00 Category WATER

TPH_IR 135
mg/L DL=1.0

SAMPLE ID 16(B)EW99W24 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 03/11/99 14:06:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W25 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 03/11/99 14:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

Received: 03/15/99 Test Methodology

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY

WORK ORDER #: 99.03.297
DATE: 03.18.99

COMPANY: [illegible] Wheeler Engineering
ADDRESS: One Overhead Valley Rd, [illegible]
Langhorne PA 19047
PHONE #: (215) 702-4015 FAX #: (215) 702-4045
P.O. #:
PROJECT MANAGER: Mike [illegible]
PROJECT ID/LOCATION: Naval Weapons - Earle

SAMPLE / CONTAINER TYPE
1. WASTEWATER — P PLASTIC
2. SOIL — G GLASS
3. SLUDGE — V VOA
4. OIL
5. DRINKING WATER
6. WATER (GW/SW/SW)
7. OTHER (SPECIFY)

ANALYSES: TPH

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW99W31	GW	1L	G	1	3/11/99	13:00	HCl	Y	PH=2
—	16(A)EW99W32						13:02			BROKEN IN TRANSIT
2	16(A)EW99W33						13:04			PH=2
3	16(A)EW99W34						13:06			PH=2
4	16(A)EW99W35						13:08			PH=3
—	16(A)EW99W36						13:10			BROKEN IN TRANSIT
—	16(B)EW99W[illegible]						14:00			BROKEN IN TRANSIT
5	16(B)EW99W22						14:02			PH=2
—	16(B)EW99W23						14:04			BROKEN IN TRANSIT
6	16(B)EW99W24						14:06			PH=1
7	16(B)EW99W25						14:08			PH=2

SAMPLED BY: [signature] DATE: 3-11-99 TIME: - -
RELINQUISHED BY: [signature] DATE: 3-12-99 TIME: - -
RELINQUISHED BY: FED-EX DATE: 03-15-99 TIME: - -
METHOD OF SHIPMENT

QUOTATION #:
RECEIVED BY: DATE: - - TIME: - -
RECEIVED FOR LAB BY: [signature] DATE: 03-15-99 TIME: 12-10
COOLER TEMPERATURE 16.0°

7 day
☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are there any other known or suspected contaminants in these samples other than those listed above?
Yes No If Yes 1st Known

03/18/99 08:51 FAX

 TOXIKON CORP. REPORT Work Order # 99-03-406

Received: 03/20/99 03/24/99 14:11:12

REPORT TO: FOSTER & WHEELER
1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047
215-702-4007 FAX: 4045
ATTEN MICHAEL HEFFRON

PREPARED BY: TOXIKON CORPORATION
15 WIGGINS AVE
BEDFORD, MA 01730
ATTEN PAUL LEZBERG
PHONE (781)275-3330

CERTIFIED BY

CONTACT JAYSON

CLIENT FOSTER SAMPLES 11
COMPANY FOSTER & WHEELER
FACILITY 1 OXFORD VALLEY, SUITE 200
LANGHORNE, PA. 19047

MA CERT # M-MA064: TRACE METALS, SULFATE,CYANIDE,RES. FREE CHLORINE, Ca, TOTAL ALK., TDS, pH, THMs, VOC, PEST.,NUTRIENTS. DEMAND. O&G, PHENOLICS, PCBs . CT DHS #PH-0563, NY #10778 FL HRS E87143, NJ DEP 59538, NC DNR286, SC 88002, NH 204091-C.

WORK ID NWS-EARLE
TAKEN 3/18/99
TRANS
TYPE WATER
P.O. #
INVOICE under separate cover

VERIFIED BY:

SAMPLE IDENTIFICATION

01 16(A)EW99W37
02 16(A)EW99W38
03 16(A)EW99W39
04 16(A)EW99W40
05 16(A)EW99W41
06 16(A)EW99W42
07 16(B)EW99W26
08 16(B)EW99W27
09 16(B)EW99W28
10 16(B)EW99W29
11 16(B)EW9930

TEST CODES and NAMES used on this workorder

TPH IR TPH BY IR

Received: 03/20/99

Results by Sample

SAMPLE ID 16(A)EW99W37 SAMPLE # 01 FRACTIONS: A
Date & Time Collected 03/18/99 14:30:00 Category WATER

TPH_IR 948
mg/L DL=1.0

SAMPLE ID 16(A)EW99W38 SAMPLE # 02 FRACTIONS: A
Date & Time Collected 03/18/99 14:32:00 Category WATER

TPH_IR 264
mg/L DL=1.0

SAMPLE ID 16(A)EW99W39 SAMPLE # 03 FRACTIONS: A
Date & Time Collected 03/18/99 14:34:00 Category WATER

TPH_IR 170
mg/L DL=1.0

SAMPLE ID 16(A)EW99W40 SAMPLE # 04 FRACTIONS: A
Date & Time Collected 03/18/99 14:36:00 Category WATER

TPH_IR 166
mg/L DL=1.0

SAMPLE ID 16(A)EW99W41 SAMPLE # 05 FRACTIONS: A
Date & Time Collected 03/18/99 14:38:00 Category WATER

TPH_IR 16.4
mg/L DL=1.0

SAMPLE ID 16(A)EW99W42 SAMPLE # 06 FRACTIONS: A
Date & Time Collected 03/18/99 14:40:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W26 SAMPLE # 07 FRACTIONS: A
Date & Time Collected 03/18/99 14:00:00 Category WATER

TPH_IR 271
mg/L DL=1.0

SAMPLE ID 16(B)EW99W27 SAMPLE # 08 FRACTIONS: A
Date & Time Collected 03/18/99 14:02:00 Category WATER

TPH_IR 109
mg/L DL=1.0

Received: 03/20/99 Results by Sample

SAMPLE ID 16(B)EW99W28 SAMPLE # 09 FRACTIONS: A
Date & Time Collected 03/18/99 14:04:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW99W29 SAMPLE # 10 FRACTIONS: A
Date & Time Collected 03/18/99 14:06:00 Category WATER

TPH_IR ND
mg/L DL=1.0

SAMPLE ID 16(B)EW9930 SAMPLE # 11 FRACTIONS: A
Date & Time Collected 03/18/99 14:08:00 Category WATER

TPH_IR ND
mg/L DL=1.0

TEST CODE TPH IR NAME TPH BY IR

EPA METHOD: 418.1 for water sample.

Reference: Methods for Chemical Analysis of Water and Wastes.
EPA 600/4-79-020 (Revised, March 1983). EPA/EMSL, Cincinnati, OH.

EPA METHOD: 9071/9073

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods.
EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

TOXIKON
15 Wiggins Ave., Bedford, MA 01730
Telephone: (781) 275-3330
Fax: (781) 275-7478

CHAIN OF CUSTODY RECORD

WORK ORDER #: 99-03-406

DUE DATE : 3-25-99

COMPANY: Foster Wheeler Enviro.
ADDRESS: One Oxford Valley Suite 200
Langhorne, PA 19047
PHONE #: (215) 762-4015 FAX #: (215) 702-4041
P.O. #:
PROJECT MANAGER: Mike Heffner
PROJECT ID/LOCATION: UWS - Earle

SAMPLE TYPE
1. WASTEWATER
2. SOIL
3. SLUDGE
4. OIL
5. DRINKING WATER
6. WATER (GW/MW/SW)
7. OTHER (SPECIFY

CONTAINER TYPE
P - PLASTIC
G - GLASS
V - VOA

ANALYSES

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	TPH	SPECIAL INSTRUCTIONS/ COMMENTS
1	16(A)EW99W37	GW	1l	G	1	3/18/99	2:30	H_2SO_4	X	ph 1
2	16(A)EW99W38						2:32		X	ph 1
3	16(A)EW99W39						2:34		X	ph 1
4	16(A)EW99W40						2:36		X	ph 1
5	16(A)EW99W41						2:38		X	ph 1
6	16(A)EW99W42						2:40		X	ph 1
7	16(B)EW99W26	GW	1l	G	1	3/18/99	2:00		X	ph 1
8	16(B)EW99W27						2:02		X	ph 1
9	16(B)EW99W28						2:04		X	ph 1
10	16(B)EW99W29						2:06		X	ph 1
11	16(B)EW99 30						2:08		X	ph 1
										-

SAMPLED BY: [signature] DATE: 3-18-99 TIME: - -

RELINQUISHED BY: DATE: - - TIME: - -

RELINQUISHED BY: U.S.P.S. DATE: 3-20-99 TIME: 12-00-—

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: DATE: - - TIME: - -

RECEIVED FOR LAB BY: T. Bergstrom DATE: 3-20-99 TIME: 12-00-—

COOLER TEMPERATURE 5°C

72 hr. turnaround

☒ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information
Are th re any other known r suspected contaminants in these samples other than those listed abov ?
Yes ____ No ____ If Yes, 1st Known _____

CASE NARRATIVE

Work Order: 9903406

All samples were analyzed within the method holding times.

No target compounds were detected in the method blanks.

TOXIKON

QA/QC REPORT WET CHEMISTRY

WORK ORDER: 9903406
MATRIX: WATER

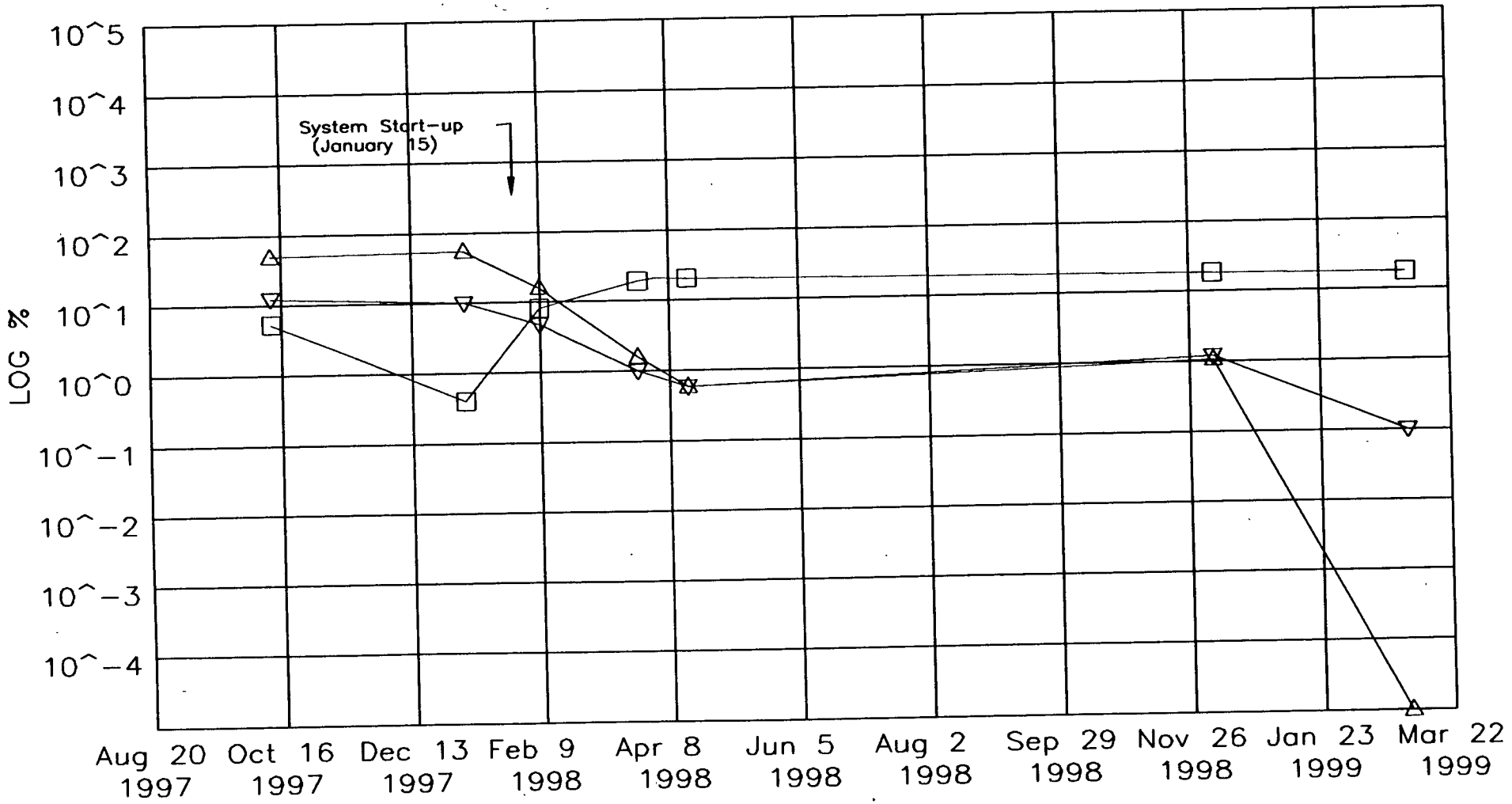
PARAMETER	DUPLICATE PERCENT RPD	CONTROL LIMITS	CONTROL SPIKE PERCENT RECOVERY	MATRIX SPIKE PERCENT RECOVERY	CONTROL LIMITS
TPH by IR	NA	0-25	103	NA	80-120

Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells

Well: 16MW-13

△ = % CH4
▽ = % CO2
□ = % O2

Constituent vs. Time

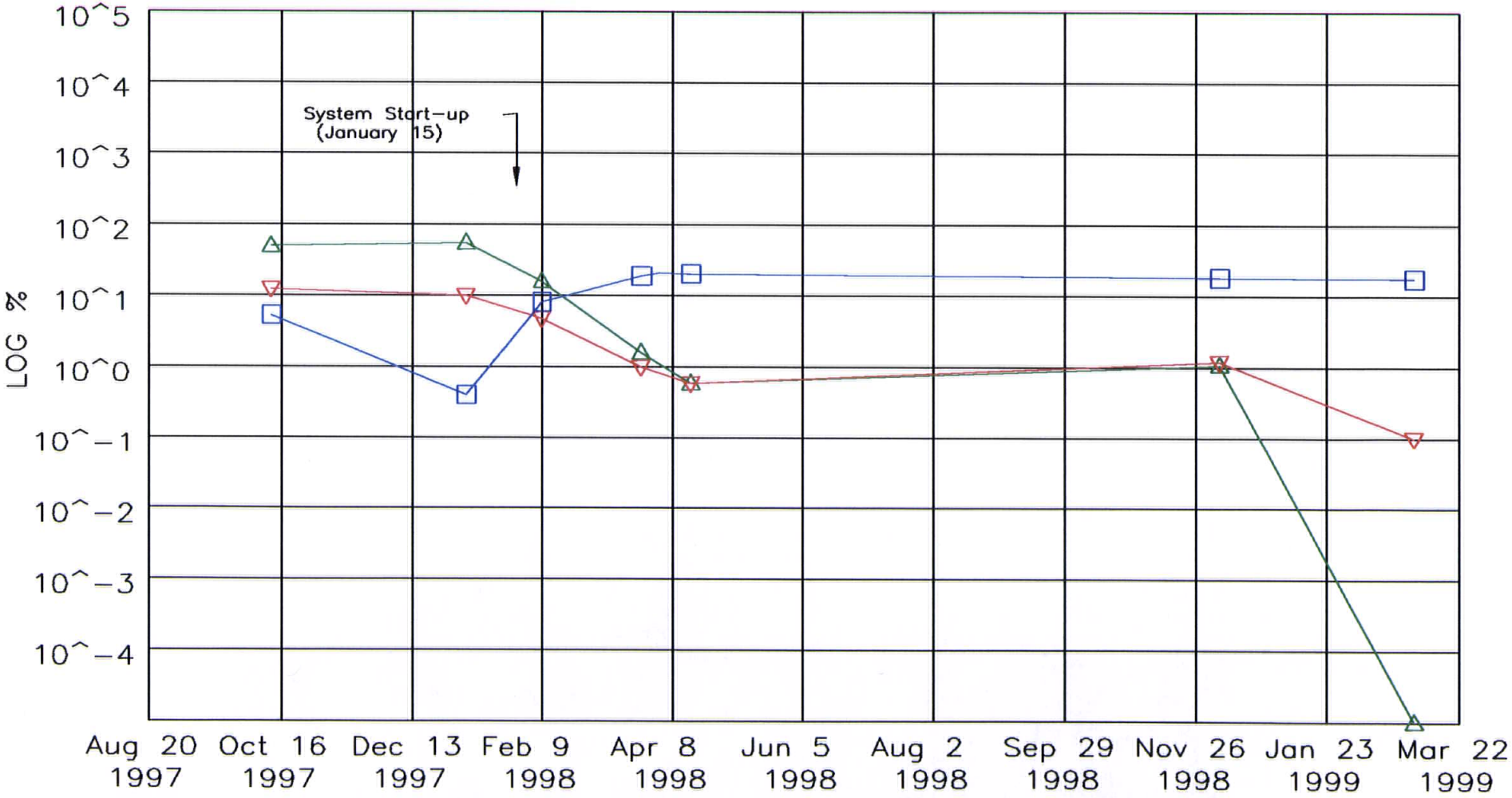


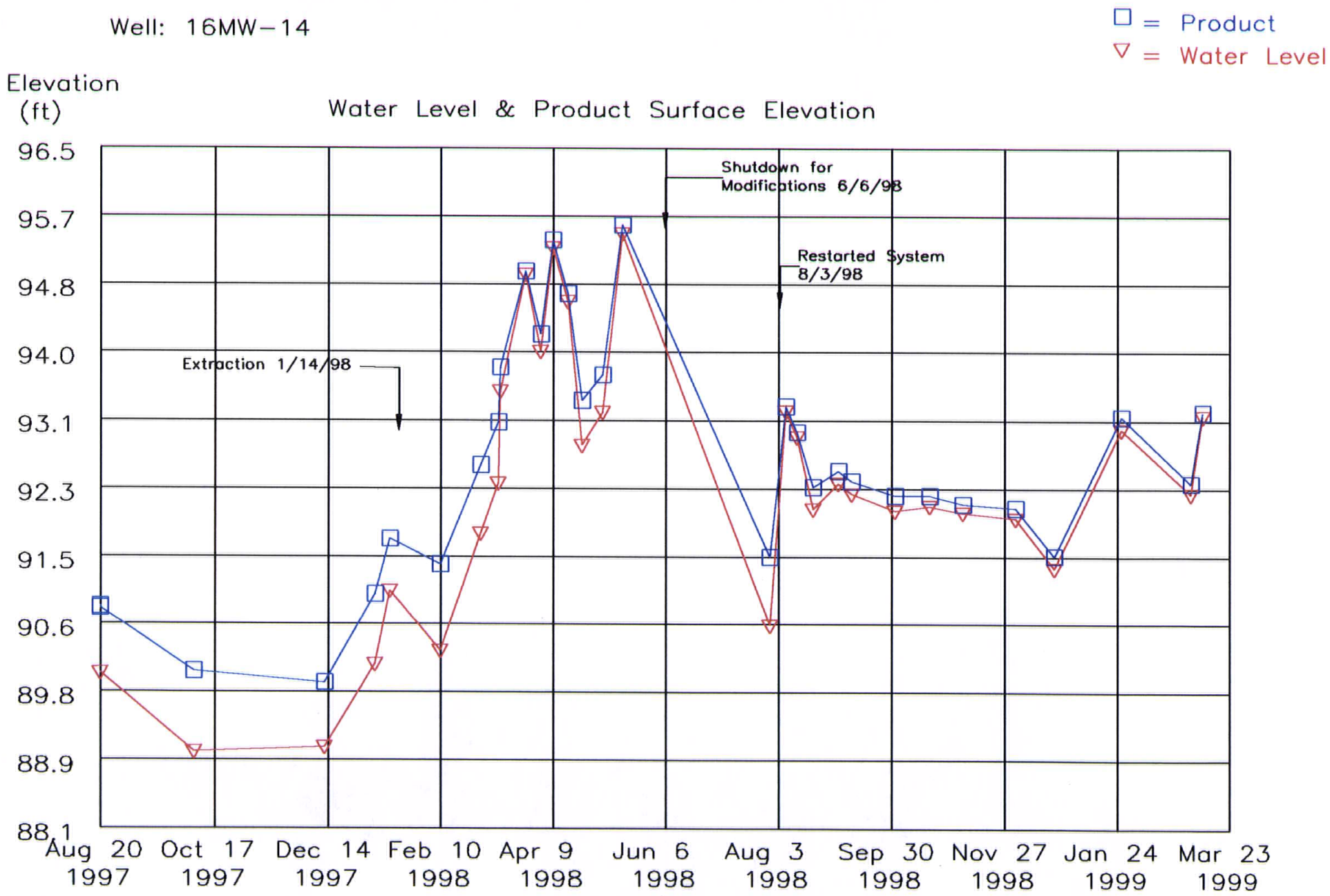
Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells

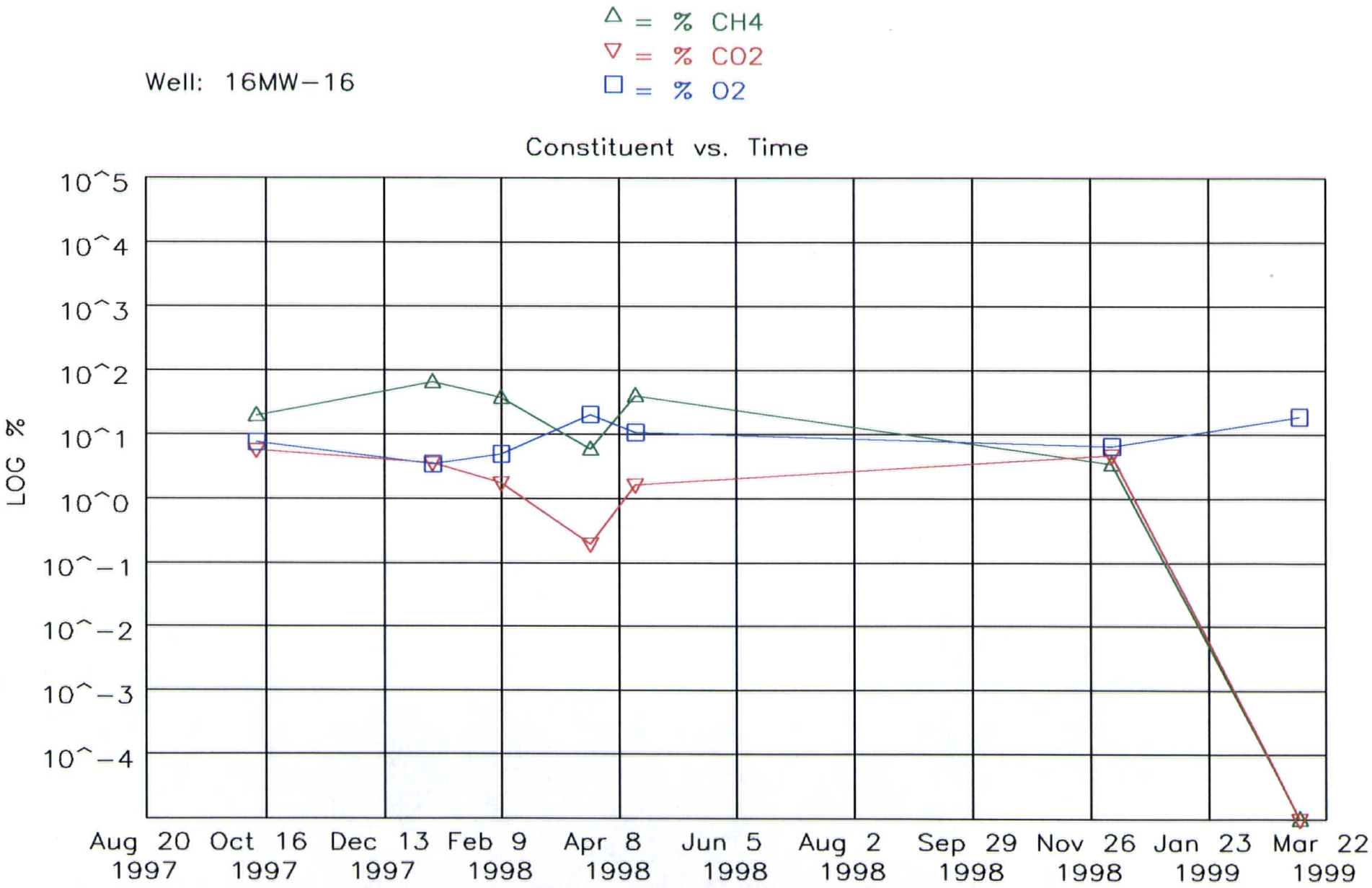
Well: 16MW-13

△ = % CH4
▽ = % CO2
□ = % O2

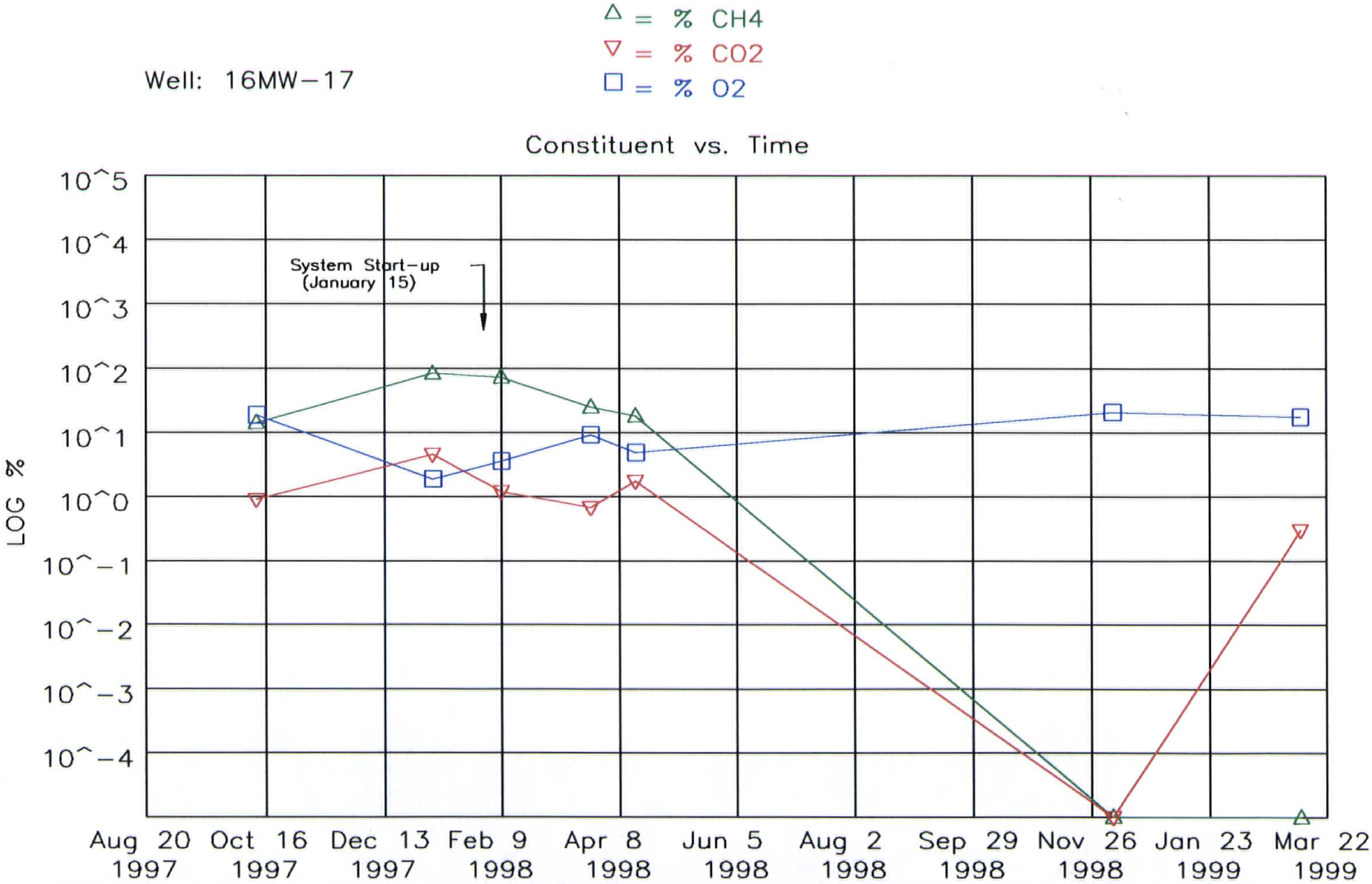
Constituent vs. Time



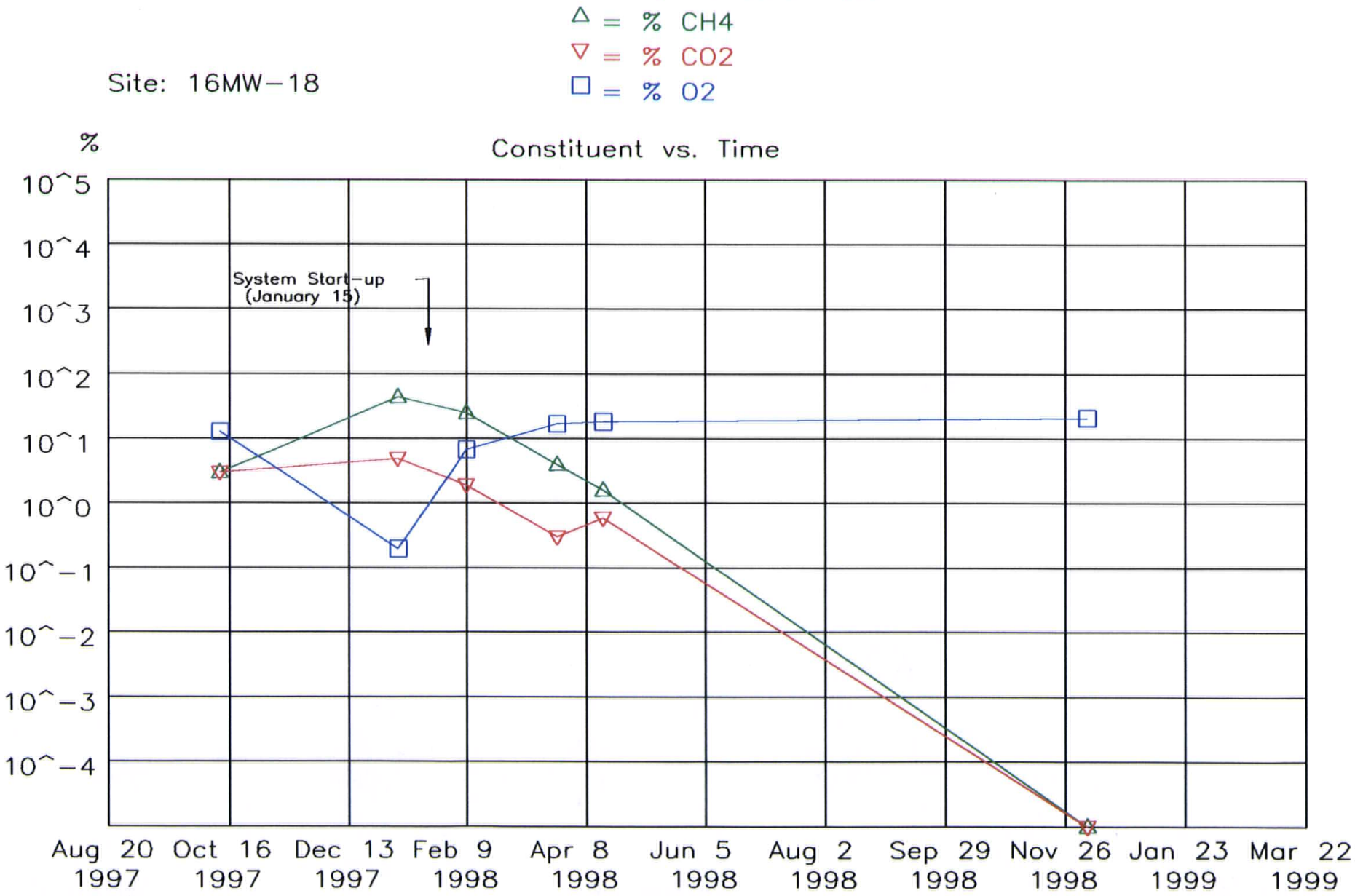

Well: 16MW-14
□ = Product
▽ = Water Level
Elevation (ft)
Water Level & Product Surface Elevation
96.5
95.7
94.8
94.0
93.1
92.3
91.5
90.6
89.8
88.9
88.1
Shutdown for Modifications 6/6/98
Restarted System 8/3/98
Extraction 1/14/98
Aug 20 1997
Oct 17 1997
Dec 14 1997
Feb 10 1998
Apr 9 1998
Jun 6 1998
Aug 3 1998
Sep 30 1998
Nov 27 1998
Jan 24 1999
Mar 23 1999


△ = % CH4
▽ = % CO2
□ = % O2
Well: 16MW-16
Constituent vs. Time
LOG %
10^5
10^4
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-3
10^-4
Aug 20 1997
Oct 16 1997
Dec 13 1997
Feb 9 1998
Apr 8 1998
Jun 5 1998
Aug 2 1998
Sep 29 1998
Nov 26 1998
Jan 23 1999
Mar 22 1999

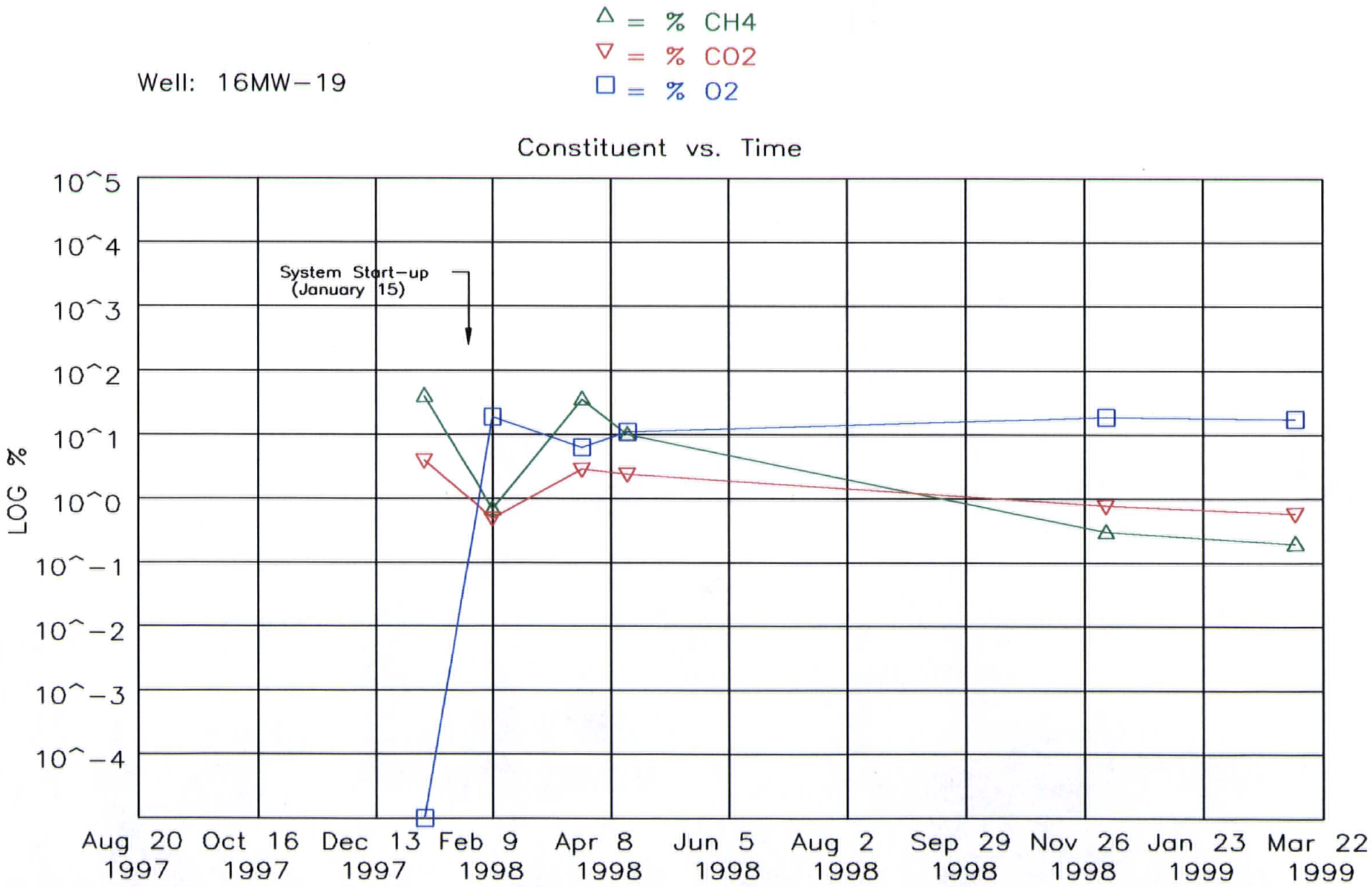
Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells



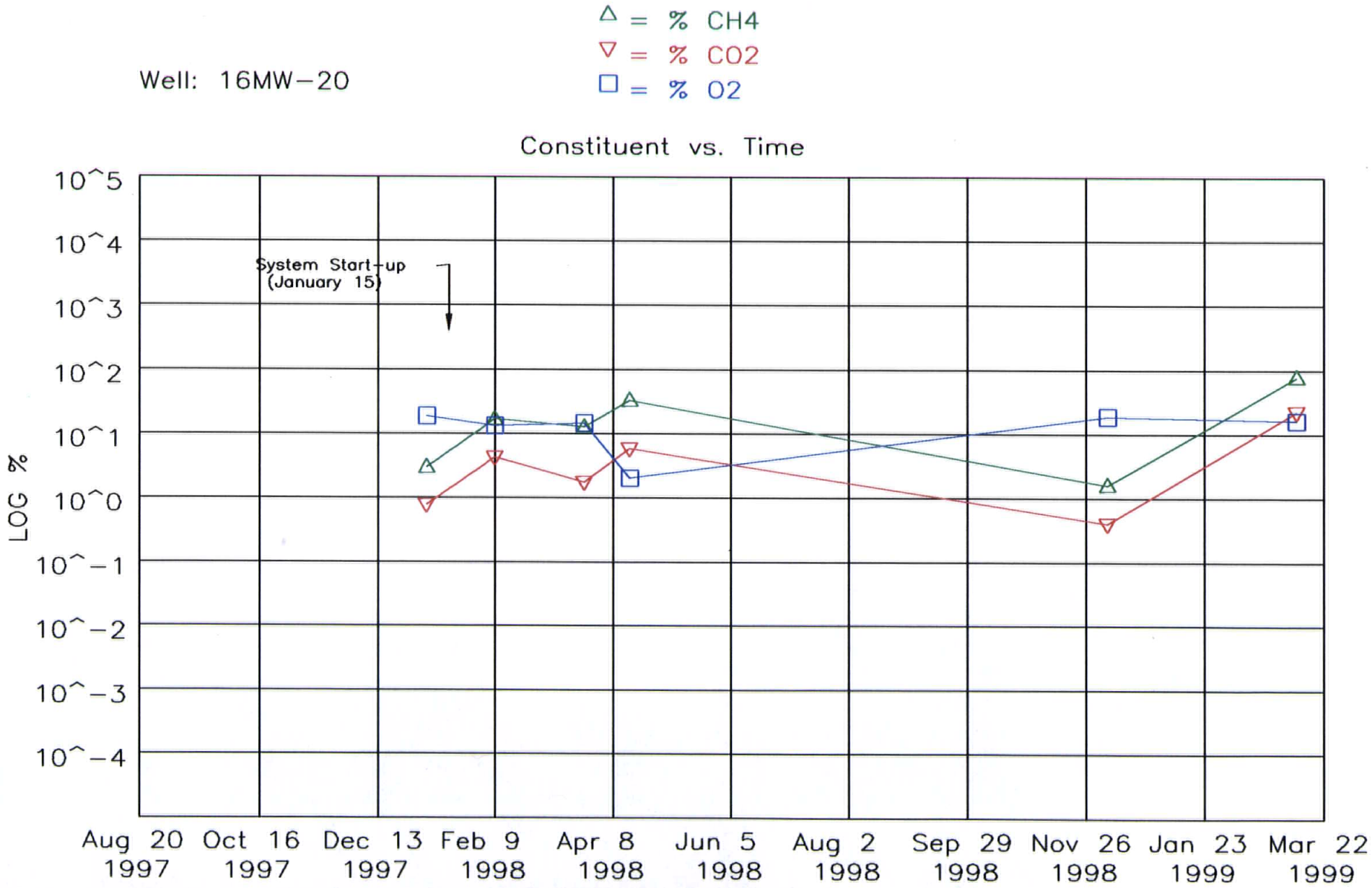
Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells



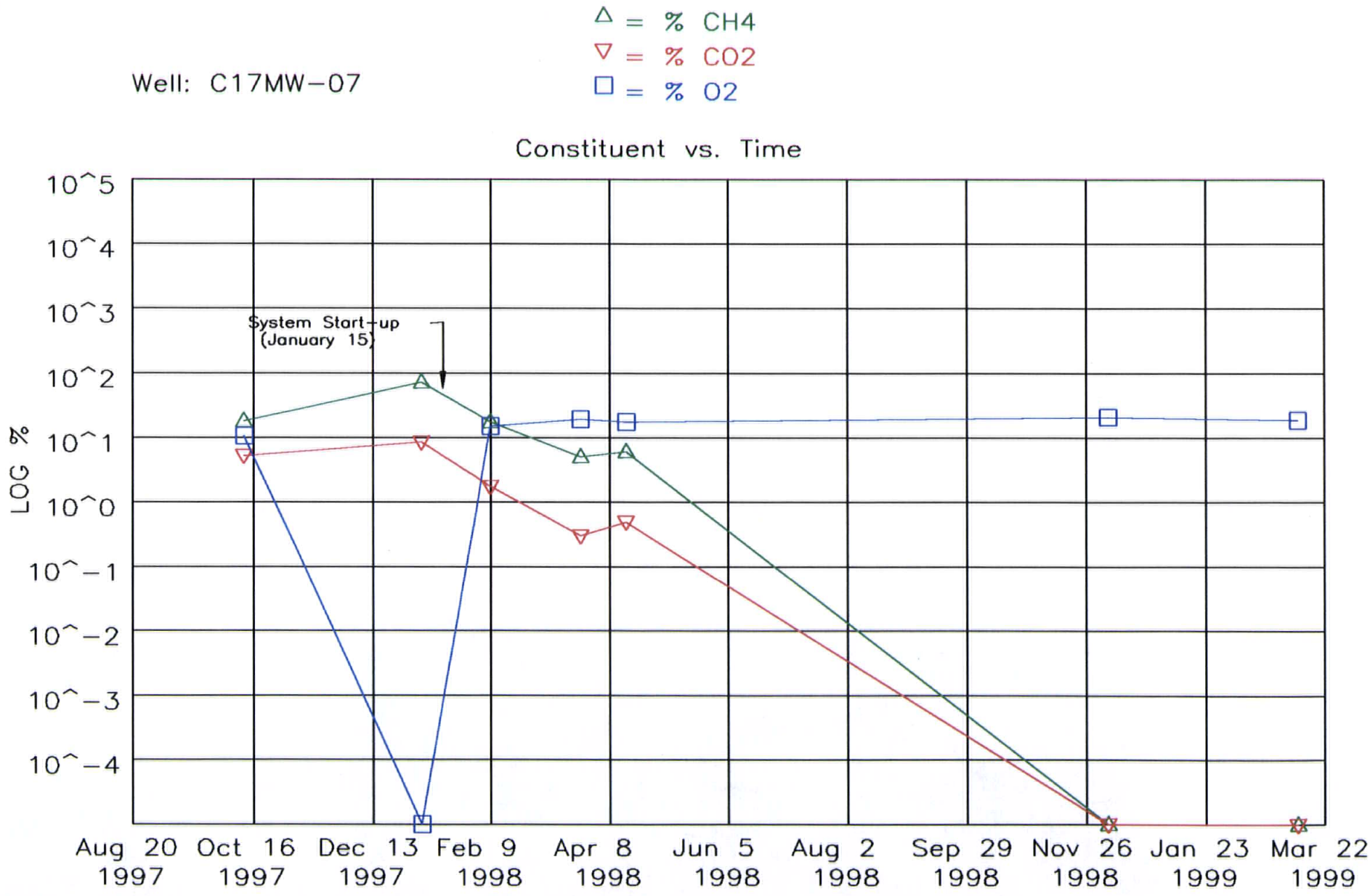
Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells



Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells

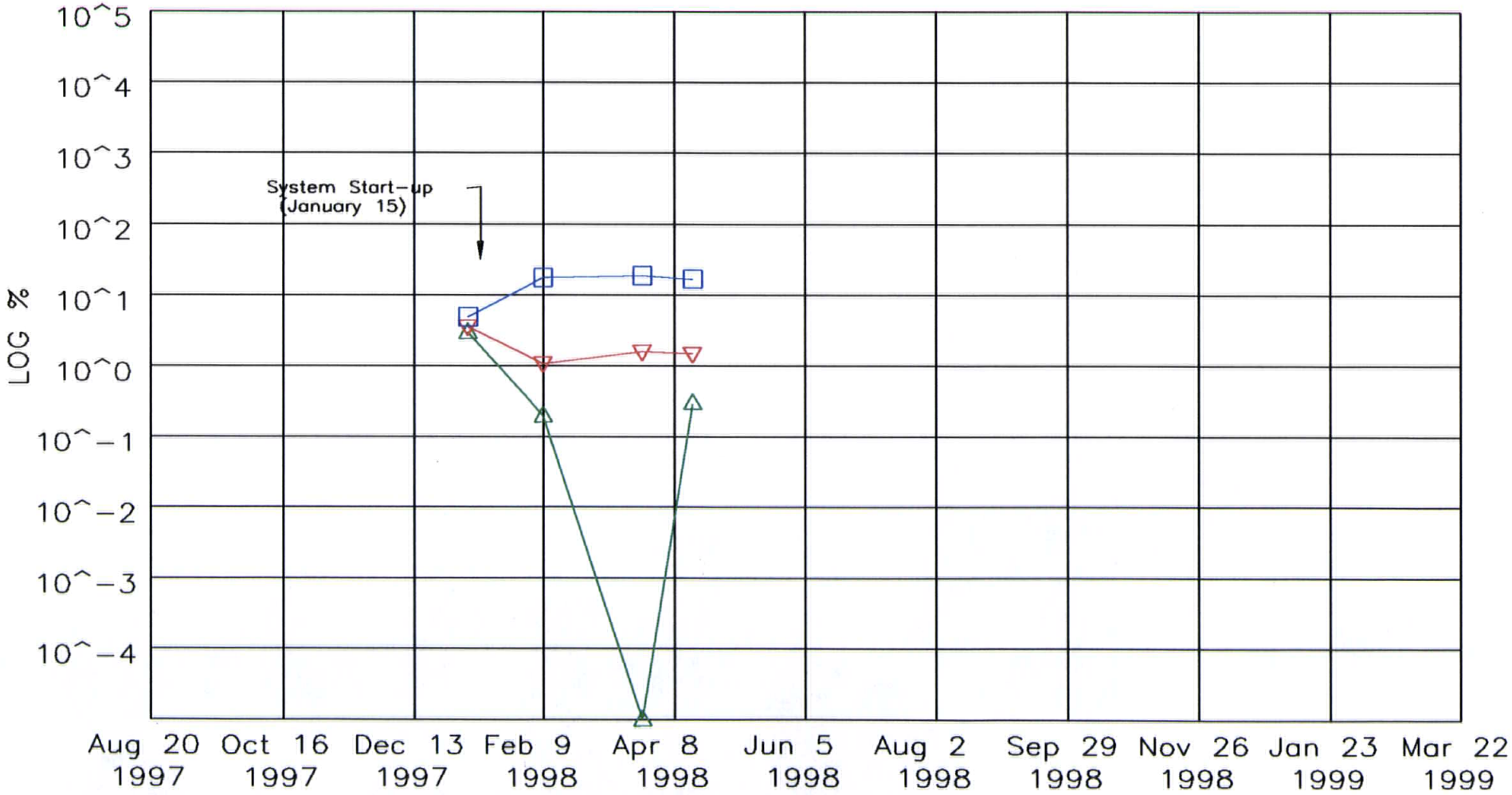


Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells



Naval Weapons Station - Earle
Air Data from Bioslurper Extraction Wells

Well: 16MW-21

△ = % CH4
▽ = % CO2
□ = % O2

Constituent vs. Time