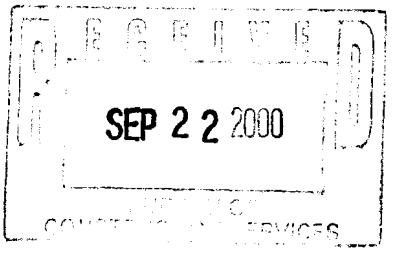
R. Kinek

FOSTER WHEELER ENVIRONMENTAL CORPORATION

25 August 2000
File #: 1284-0004-00-0312

Mr. Steve Lehman, P.E. (Code 4022)
U.S. Navy Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mail Stop #82
Lester, PA 19113-2090



SUBJECT: U.S. NAVY CONTRACT N62472-94-D-0398
DELIVERY ORDER NO. 0004
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK
JULY 2000 MONTHLY OPERATIONS SUMMARY

Dear Mr. Lehman:

This letter and its attachments document the operational activities performed during the period of 1 July 2000 through 31 July 2000 at the Bethpage NWIRP Soil Vapor Extraction/Air Sparging System and presents the results of the associated sampling events. Attachment 1 contains the Monthly Operations Summary, Attachment 2 summarizes Monthly Monitoring Data, and Attachment 3 contains a plot of the influent concentrations of the four constituents and total VOCs of concern over time.

The soil vapor extraction (SVE) system operated for approximately 706 hours. The system had two non-maintenance shutdowns. The shutdowns were due to the power being disabled at the site by Grumman personnel. The average system extraction-rate at the blower was 261 scfm at a vacuum of 1.5 inches of water. An average influent VOC level of 2.53 ppm was drawn into the treatment system. The valves at EW-17 and EW-18 were closed from 100% open to 25% open on 6 July 2000. This was due to the wells being shallow screened wells which caused a great portion of the flow into the system to come from those two wells. Extraction wells EW-12 and EW-13 were shutoff completely on 19 July 2000. The valves were closed because of the low levels of contaminants found in the wells. Extraction well EW-16 had very low flow rates. This is most likely due to the wells close proximity to EW-17 and the fact that EW-16 is a deep screened well and that EW-17 is a shallow screened well. The flow in EW-16 did increase initially after EW-17 was closed to 25% open, but then the flow rate dropped of to levels observed previously. The vacuum in the well has been increasing since EW-17 was closed.

The air sparging system (AS) operated for approximately 706 hours. The average injection rate for the system at the blower was 110 scfm @ 3.58 psig. Injection wells Iw-10 and IW-11 were shutoff on 19 July 2000. This was due to the shutting off of EW-12 and EW-13. Although IW-3 is near an extraction well that is shutoff and IW-7 is very close to EW-14, they were opened to 50% and 25%, respectively, to allow for reduction of the flow going to the other injection wells.

1000 The American Road, Morris Plains, NJ 07950
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The maintenance activities performed for the month of July are documented in Attachment 1. Such maintenance activities include preventive maintenance of the blowers, changing of the air filters, and aesthetic maintenance of the site grounds. No moisture was detected in the extraction or injection system piping.

The results of the extracted vapor sampling, which is conducted every other week, are presented in the Vapor Monitoring Table in Attachment 2. The data includes the list of contaminants and concentrations in the air stream. The concentrations of the four primary constituents of concern and the total quantity removed for the month of July 2000 and the total quantity removed are listed below:

Contaminant	July 2000 Average Daily Concentration (ppbv)	July 2000 Total Influent Flow (scfm)	July 2000 Removal (pounds)	Previous Removal (pounds)	Cumulative Removal (pounds)
1,1-Dichloroethane	0.00	261	0.00	3.35	3.35
Trichloroethene	973	261	3.71	74.20	77.91
Trichloroethane	577	261	2.17	121.79	123.96
Tetrachloroethene	1,582	261	7.31	308.28	315.59
Total VOCs	3,132		13.19	507.61	520.80

Attachment 2 also provides the total VOC concentrations from screenings at three sample locations using a photoionization detector. The pressure and vacuum readings at both the injection and extraction wells, the vacuum readings and smoke test results at the soil vapor pressure monitors, the laboratory results of biweekly extracted vapor samples collected prior to the carbon units, and the laboratory results of the quarterly groundwater sampling from the monitoring wells.

The results of the extracted vapor sampling are shown over time in Attachment 3. This graph shows that the concentrations of volatile organic compounds being pulled into the system have been fluctuating, with most of the concentrations of contaminants remaining lower than the levels at start-up for this year. It is anticipated that if there are more system enhancements that the compound concentrations will increase at first but then decrease. This is due to the system being more effective in the removal of contaminants.

Sincerely,

Marlene T Lindhardt for

Marlene Lindhardt, CHMM
Delivery Order Manager

cc: J. Colter (Northdiv)
C. Davis (Northdiv)
R. Ingram (Northdiv)
D. Brayack (TTNUS)
M. Helmset (NYSDEC)
A. Holcomb (FWENC)

ATTACHMENT 1
MONTHLY OPERATIONS SUMMARY
BETHPAGE NWIRP SOIL VAPOR EXTRACTION/ AIR SPARGING SYSTEM

July 2000

Bethpage NWIRP Soil Vapor Extraction and Air Sparging System
Monthly Operations Summary

Month: July 2000

Hours Operational	
Extraction System	706 hours
Injection System	706 hours
Average Extraction Rate (at blower)	261 scfm @ 1.51" Hg
Average Injection Rate (at blower)	110.5 scfm @ 3.575 psig
Average Influent VOC Level	2.525 ppm
Average Effluent VOC Level	0.375 ppm
Carbon Changeout	No
Condensate Volume Discharged	0 gallons
Vacuum Capture Confirmation	Yes
LEL% and O_2%	Normal

Operational Notes:

1) The soil vapor extraction and air sparging systems experieinced two shutdowns during the month of July. Both shutdowns were the cause of power being shut off to the building by the site. The system was restarted the next morning after both shutdowns.

2) Maintenance was performed on the blowers where the oil and filters were changed.

3) Vegetative growth was cut during several site visits. Additional visits will still be required to remove al the vegetative growth.

4) Groundwater sampling was performed on July 10, 2000.

ACTION ITEMS FOR NEXT MONTH

1) Continue cutting vegetative growth.

2) Arrange for the return of the activated carbon unit that was determined to be leaking.

ATTACHMENT 2
TREATMENT PLANT DATA
BETHPAGE NWIRP SOIL VAPOR EXTRACTION/ AIR SPARGING SYSTEM

July 2000

NWIRP-BETHPAGE
Monthly Monitoring Data
Extraction Well Operation

Date	EW-01			EW-02			EW-03			EW-04			EW-05		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	1000	100	3.50	1000	100	4.00	0	0	0.00	1150	100	4.20	0	0	0.00
07/11/2000	1250	100	4.00	1300	100	5.00	0	0	0.00	1500	100	5.00	0	0	0.00
07/19/2000	1250	100	3.75	1400	100	4.75	0	0	0.00	1500	100	5.00	0	0	0.00
07/25/2000	1225	100	4.00	1500	100	4.75	0	0	0.00	1500	100	5.25	0	0	0.00

Date	EW-06			EW-07			EW-08			EW-09			EW-10		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	1200	100	4.50	1050	100	4.00	1250	100	4.00	650	100	2.50	100	100	2.50
07/11/2000	1500	100	5.50	1250	100	5.00	1500	100	5.00	800	100	3.75	1250	100	3.75
07/19/2000	1550	100	5.50	1250	100	5.00	1500	100	5.00	800	100	3.75	1125	100	4.00
07/25/2000	1650	100	5.50	1475	100	5.00	1600	100	5.50	850	100	4.00	1500	100	4.25

Date	EW-11			EW-12			EW-13			EW-14			EW-15		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	800	100	2.00	725	50	1.50	600	50	1.50	600	100	2.50	800	100	2.25
07/11/2000	1050	100	3.00	700	50	1.75	700	50	2.00	725	100	3.00	1200	100	3.00
07/19/2000	1050	100	3.25	750	50	1.75	750	50	1.75	700	100	3.50	1000	100	3.50
07/25/2000	1225	100	3.25	0	0	0.00	0	0	0.00	750	100	3.25	1350	100	3.25

Date	EW-16			EW-17			EW-18		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	55	100	3.00	2100	100	2.50	2100	100	3.25
07/11/2000	150	100	4.50	700	25	1.00	600	25	1.50
07/19/2000	25	100	4.75	800	25	1.00	650	25	1.25
07/25/2000	75	100	4.75	700	25	1.00	650	25	1.50

NWIRP-BETHPAGE
Monthly Monitoring Data
System Operation

Date	B-01		B-02		VOC				LEL%	O_2%
	Vacuum ("Hg)	Flow (SCFM)	Pressure (psig)	Flow (SCFM)	Influent BV-18 (ppm)	Middle BV-32 (ppm)	Effluent BV-19 (ppm)	Background (ppm)		
07/06/2000	1.5	260	3.5	110	2.6	0.4	0.2	0.6	2.0	20.8
07/11/2000	1.8	260	3.6	112	3.1	1.2	0.9	1.0	1.0	20.25
07/19/2000	1.75	265	3.7	110	2.7	0.2	0.4	0.4	1.0	20.75
07/25/2000	1	260	3.5	110	1.7	0.3	0	0	1.5	21.0

Notes:
ND - Non-detected

NWIRP-BETHPAGE
Monthly Monitoring Data
Extraction Welll Operation

Date	EW-01			EW-02			EW-03			EW-04			EW-05		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	1000	100	3.50	1000	100	4.00	0	0	0.00	1150	100	4.20	0	0	0.00
07/11/2000	1250	100	4.00	1300	100	5.00	0	0	0.00	1500	100	5.00	0	0	0.00
07/19/2000	1250	100	3.75	1400	100	4.75	0	0	0.00	1500	100	5.00	0	0	0.00
07/25/2000	1225	100	4.00	1500	100	4.75	0	0	0.00	1500	100	5.25	0	0	0.00

Date	EW-06			EW-07			EW-08			EW-09			EW-10		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	1200	100	4.50	1050	100	4.00	1250	100	4.00	650	100	2.50	100	100	2.50
07/11/2000	1500	100	5.50	1250	100	5.00	1500	100	5.00	800	100	3.75	1250	100	3.75
07/19/2000	1550	100	5.50	1250	100	5.00	1500	100	5.00	800	100	3.75	1125	100	4.00
07/25/2000	1650	100	5.50	1475	100	5.00	1600	100	5.50	850	100	4.00	1500	100	4.25

Date	EW-11			EW-12			EW-13			EW-14			EW-15		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	800	100	2.00	725	50	1.50	600	50	1.50	600	100	2.50	800	100	2.25
07/11/2000	1050	100	3.00	700	50	1.75	700	50	2.00	725	100	3.00	1200	100	3.00
07/19/2000	1050	100	3.25	750	50	1.75	750	50	1.75	700	100	3.50	1000	100	3.50
07/25/2000	1225	100	3.25	0	0	0.00	0	0	0.00	750	100	3.25	1350	100	3.25

Date	EW-16			EW-17			EW-18		
	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O	Flow (ft/min)	Valve (%open)	Vacuum " H_2O
07/06/2000	55	100	3.00	2100	100	2.50	2100	100	3.25
07/11/2000	150	100	4.50	700	25	1.00	600	25	1.50
07/19/2000	25	100	4.75	800	25	1.00	650	25	1.25
07/25/2000	75	100	4.75	700	25	1.00	650	25	1.50

NWIRP-BETHPAGE
Monthly Monitoring Data
Injection Well Operation

Date	IW-01			IW-02			IW-03			IW-04		
	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)
07/06/2000	1300	100	3.10	700	100	3.00	70	100	3.00	0	0	0.00
07/11/2000	2500	100	3.30	1600	100	3.20	0	0	0.00	0	0	0.00
07/19/2000	3000	1000	3.10	2500	100	3.20	0	0	0.00	0	0	0.00
07/25/2000	1900	100	2.90	1225	100	2.90	750	50	3.00	0	0	0.00

Date	IW-05			IW-06			IW-07			IW-08		
	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)
07/06/2000	0	0	0.00	0	0	0.00	550	100	3.20	1900	100	2.80
07/11/2000	0	0	0.00	0	0	0.00	400	100	3.10	2350	100	2.80
07/19/2000	0	0	0.00	0	0	0.00	0	0	0.00	0	0	0.00
07/25/2000	0	0	0.00	0	0	0.00	375	25	2.90	2400	100	2.60

Date	IW-09			IW-10			IW-11		
	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)	Flow (ft/min)	Valve (%open)	Pressure (psig)
07/06/2000	1300	100	2.80	2000	100	3.10	1900	100	3.00
07/11/2000	0	0	0.00	2000	100	2.90	2050	100	2.80
07/19/2000	0	0	0.00	3000	100	3.50	2600	100	2.90
07/25/2000	1600	100	2.70	0	0	0.00	0	0	0.00

NWIRP-BETHPAGE
Monthly Monitoring Data
SVPM Operation

Date	SVPM-10		SVPM-10S		SVPM-11		SVPM-11S		SVPM-12		SVPM-12S	
	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)
07/06/2000	Pass	0.00	Pass	0.00	Fail	0.00	Pass	0.00	Pass	0.00	Pass	0.00
07/11/2000	Pass	0.00	Pass	0.00	Fail	0.00	Pass	0.00	Pass	0.00	Pass	0.00
07/19/2000	Pass	0.00	Pass	0.00	Fail	0.00	Pass	0.00	Pass	0.00	Pass	0.00
07/25/2000	Pass	0.00	Pass	0.00	Fail	0.00	Pass	0.00	Pass	0.00	Pass	0.00

Date	SVPM-13		SVPM-13S		SVPM-14		SVPM-14S		SVPM-15		SVPM-15S	
	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)	Smoke Test	Vacuum (" w.c.)
07/06/2000	Pass	0.00	Pass	0.00	Pass	1.00	Pass	0.00	Pass	0.60	Pass	0.00
07/11/2000	Pass	0.00	Pass	0.00	Pass	1.50	Pass	0.00	Pass	0.80	Pass	0.00
07/19/2000	Pass	0.00	Pass	0.00	Pass	1.80	Pass	0.00	Pass	0.80	Pass	0.00
07/25/2000	Pass	0.40	Pass	0.00	Pass	1.40	Pass	0.00	Pass	0.80	Pass	0.00

NWIRP-BETHPAGE
Monthly Monitoring Data
Vapor Monitoring

Parameter	Sampling Event	
	EV07071100 07/11/2000	EV-08-072800 07/28/2000
Freon 12		
Freon 114		
Chloromethane		
Vinyl Chloride		
Bromomethane		
Chloroethane		
Freon 11		
1,1-Dichloroethene		
Freon 113		
Methylene Chloride		
1,1-Dichloroethane		
cis-1,2-Dichloroethene	103	167
Chloroform		
1,1,1-Trichloroethane	614	540
Carbon Tetrachloride		
Benzene		
1,2-Dichloroethane		
Trichloroethene	1,010	936
1,2-Dichloropropane		
cis-1,3-Dichloropropene		
Toluene		
trans-1,3-Dichloropropene		
1,1,2-Trichloroethane		
Tetrachloroethene	1,251	1,913
Ethylene Dibromide		
Chlorobenzene		
Ethyl Benzene		
m+p-Xylene		
o-Xylene		
Styrene		
1,1,1,2-Tetrachloroethane		
1,3,5-Trimethylbenzene		
1,2,4-Trimethylbenzene		
1,3-Dichlorobenzene		
1,4-Dichlorobenzene		
Chlorotoluene		
1,2-Dichlorobenzene		
1,2,4-Trichlorobenzene		
Hexachlorobutadiene		
Propylene		
1,3-Butadiene		
Acetone		
Carbon Disulfide		
2-Propanol		

NWIRP-BETHPAGE
Monthly Monitoring Data
Vapor Monitoring

Parameter	Sampling Event	
	EV07071100 07/11/2000	EV-08-072800 07/28/2000
Trans-1,2-Dichloroethene		
Vinyl Acetate		
2-Butanone (Methyl Ethyl Ketone)		
Hexane		
Tetrahydrofuran		
Cyclohexane		
1,4-Dioxane		
Bromodichloromethane		
4-Methyl-2-pentanone		
2-Hexanone		
Dibromochloromethane		
Bromoform		
4-Ethyltoluene		
Ethanol		
Methyl tertiary butyl ether		
Heptane		
Total VOCs	2,978.0	3,556.0

Notes:

1) All results are expressed in parts per billion volume (ppbv).
2) A blank indicates that the compound was not detected.

NWIRP-BETHPAGE
Quarterly Groundwater Data

	10-Jul-00		
Parameter	BBMW101	BBMW102	BBMW103
Chloromethane			
Bromomethane			
Vinyl Chloride			
Chloroethane			
Methylene Chloride			
1,1-Dichloroethene			
Trichlorofluoromethane			
1,1-Dichloroethane			
Trans-1,2-Dichloroethene			
Chloroform			
1,2-Dichloroethane			
1,1,1-Trichloroethane			66
Carbon Tetrachloride			
Bromodichloromethane			
1,2-Dichloropropane			
Trichloroethene	23		
Dibromochloromethane			
1,1,2-Trichloroethane			
Benzene			
1,1-Dichloropropene			
2-2-Dichloropropane			
Bromoform			
Hexachlorobutadiene			
Isopropylbenzene			
Tetrachloroethene	65		5.3
Methyl tertiary butyl ether			
Toluene			
Chlorobenzene			
Ethyl Benzene			
p-Isopropyltoluene			
o-Xylene			
m+p-Xylene			
1,2-Dichlorobenzene			
1,3-Dichlorobenzene			
1,4-Dichlorobenzene			
Naphthalene			
n-Propylbenzene			
Bromobenzene			
Bromochloromethane			
n-Butylbenzene			
sec-Butylbenzene			
tert-Butylbenzene			
2-Chlorotoluene			
4-Chlorotoluene			
1,2-Dibromo-3-chloropropane			

1,2-Dibromomethane			
Dibromomethane			
Dichlorofluoromethane			
cis-1,2-Dichloroethene	21		
1,3-Dichloropropane			
1,1,1,2-Tetrachloroethane			
1,2,3-Trichlorobenzene			
1,1,2,2-Tetrachloroethane			
1,2,4-Trichlorobenzene			
1,2,3-Trichloropropane			
1,2,4-Trimethylbenzene			
1,3,5-Trimethylbenzene			
cis-1,3-Dichloropropene			
trans-1,3-Dichloropropene			
Styrene			
Total VOCs	109	0	71.3

Notes:

1) All results are expressed in parts per billion volume (ppbv).

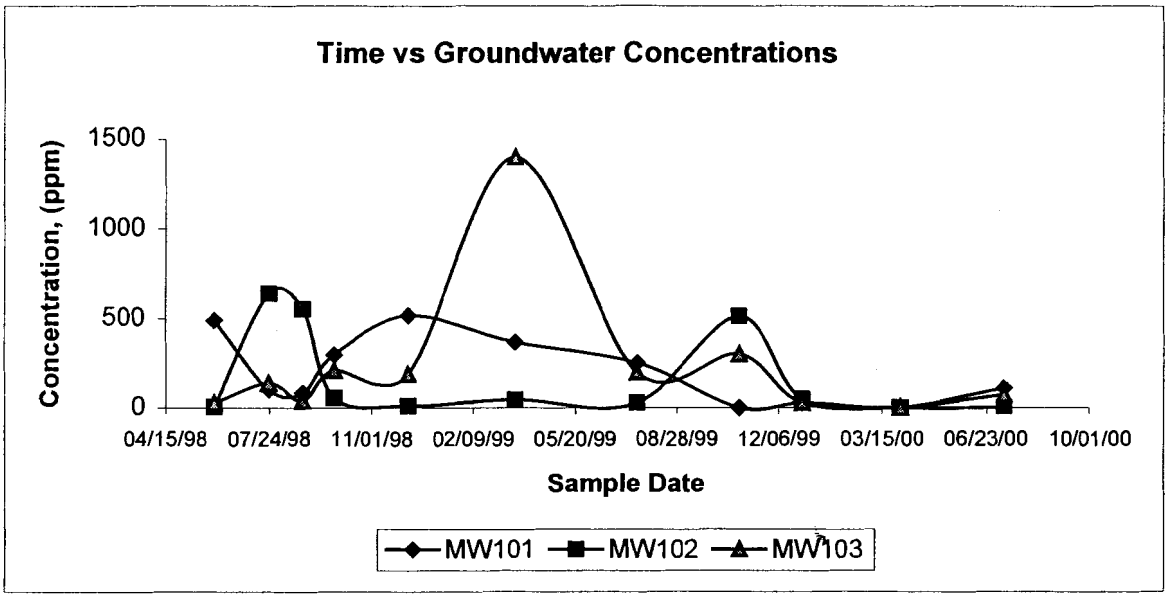
2) A blank indicates that the compound was not detected.

NWIRP-BETHPAGE
Quarterly Groundwater Data
History

Sample Date	MW101	MW102	MW103	Description
06/01/1998	487	5	27	Baseline
07/23/1998	101	635.5	137.2	Extraction Only
08/25/1998	81	550.8	38.2	Extraction and Injection
09/25/1998	296.1	54.8	208.3	Extraction and Injection
12/07/1998	513.8	10.6	186.4	Extraction and Injection
03/22/1999	365.4	45	1398.4	Extraction Only
07/20/1999	249	26.4	195.3	Extraction and Injection
10/28/1999	0	509.5	298	Extraction and Injection
12/29/1999	24.3	46.6	24.3	Extraction and Injection
04/01/2000	0	0	0	Extraction and Injection
07/10/2000	109	0	71.3	Extraction and Injection

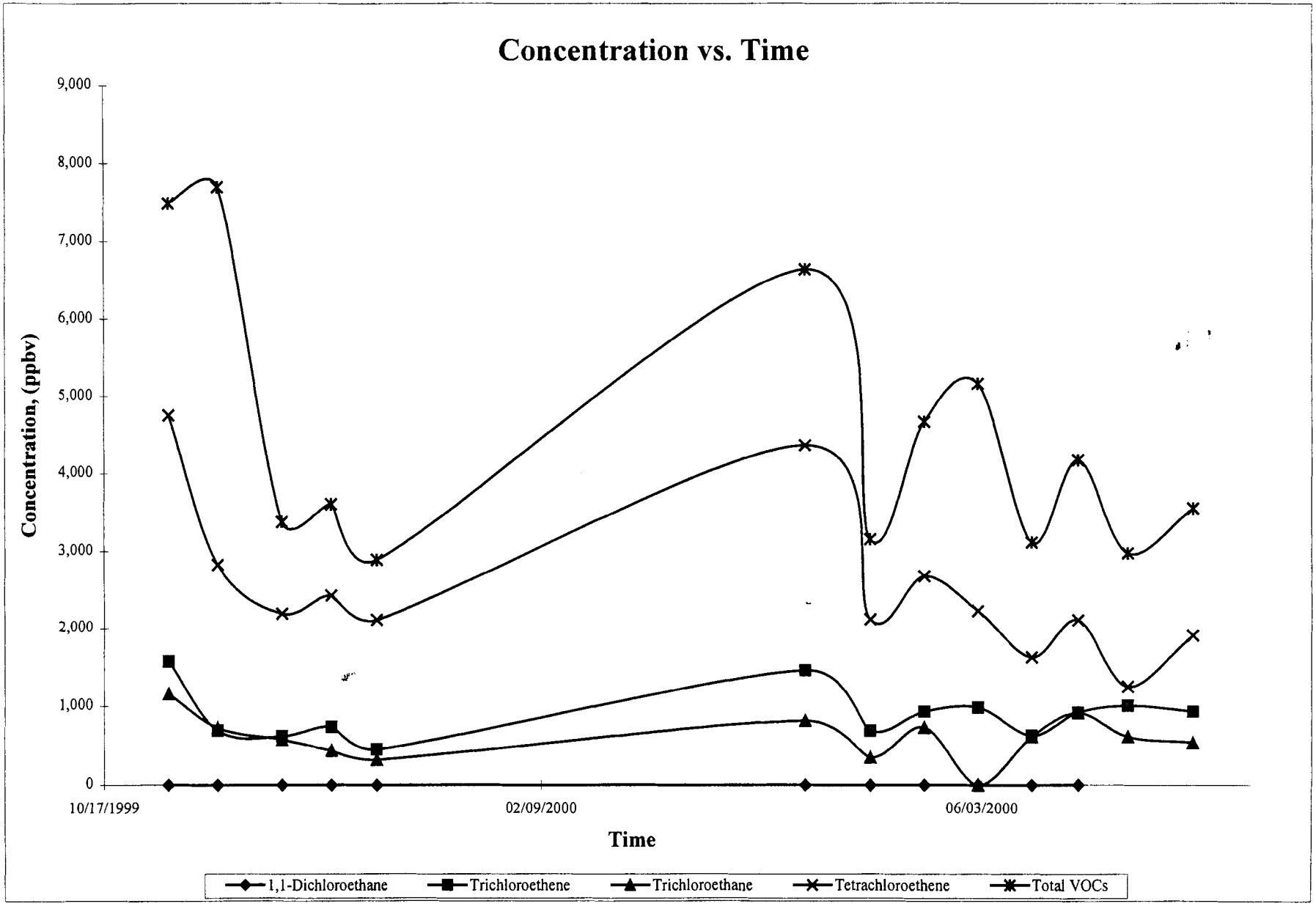
Notes:

1) Concentrations listed are for total VOCs.
2) All Concentrations are in ug/L.



ATTACHMENT 3
EXTRACTED VAPOR CONSTITUENTS OF CONCERN
BETHPAGE NWIRP SOIL VAPOR EXTRACTION/ AIR SPARGING SYSTEM

July 2000


Concentration vs. Time
Concentration, (ppbv)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
10/17/1999
02/09/2000
06/03/2000
Time
1,1-Dichloroethane
Trichloroethene
Trichloroethane
Tetrachloroethene
Total VOCs