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NSB NEW LONDON  
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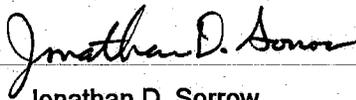
**MONTHLY OPERATIONS SUMMARY  
FOR THE NAVAL EXCHANGE (NEX) AND DOLPHIN MART  
AIR SPARGING/SOIL VAPOR EXTRACTION SYSTEMS**

**NEW LONDON NAVAL SUBMARINE BASE  
GROTON, CONNECTICUT**

**Month: June 1999**

**Prepared by:**

**IT Corporation  
Prepared by:**



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Lead Geologist**

**Reviewed By:**

**Foster Wheeler Environmental Corp.  
Reviewed by:**



**Susan R. Leach, P.E.  
Environmental Site Technical Manager**

## OPERATIONAL SUMMARY

### DOLPHIN MART AIR SPARGE/SVE SYSTEM

**System Status** - The remediation system at the site has been operating since June 29, 1996. As of May 26, 1999, eight (8) horizontal vapor extraction trenches (VET-1, VET-2, VET-3, VET-4, VET-5, VET-6, VET-7 and VET-8) were operating. They were not inspected in June 1999. At the conclusion of the site visit on May 21, 1999, the SVE system was deactivated. The air sparge system has been deactivated since January 30, 1999.

A site map has been included as **Figure 1**. The site monitoring forms for operation and maintenance (O&M) conducted during the month of June 1999 are included in **Attachment 1**. A weekly breakdown of the month's field activities has been included as **Attachment 2**.

**Mass Removal** - No SVE influent sample was collected for analysis during the June 4, 1999 site visit, therefore, no hydrocarbon mass removal rate was calculated. The total hydrocarbon mass extracted by the remediation system, as of April 1999, was approximately 2,153 lbs. The system database has been included in **Attachment 3**. Mass removal graphs have been included as **Figures 3A, 3B and 4**. Based on the hydrocarbon mass removal rate, no exceedance of the Connecticut Department of Environmental Protection (CTDEP) air quality guidelines were reported.

**Carbon Usage** - No carbon change-out occurred during the month of June 1999. The last vapor phase carbon change-out at the site occurred August 27, 1997. No liquid phase carbon change-out has occurred to date.

**Discharge Monitoring Sampling** - No air discharge sampling of the system was conducted during the June 4, 1999 site visit. In addition, no water discharge occurred during the month of June 1999.

**Monitoring Well Gauging** - The most recent round of site monitoring well gauging was conducted on May 21, 1999 during the quarterly groundwater sampling event. Depth to groundwater at the site ranged from 1.71 feet in OBG-8A to 8.57 feet in WE-3. Historical well gauging data has been included in **Attachment 4**.

**Monitoring Well Sampling** - The last round of site monitoring well sampling was conducted on May 21, 1999. The May Quarterly Groundwater Sampling Report will be issued under separate cover. The historical groundwater sampling results have been summarized in **Attachment 5**.

**Additional Activities** - None.

## NEX AIR SPARGE/SVE SYSTEM

**System Status** - The remediation system at the site has been operating since July 31, 1997. As of June 4, 1999, 17 vapor extraction points (VEA-12 through VEA-16, VEA-18 through VEA-20, VEB-4, and VEB-8 through VEB-15) and 19 air sparge points (SPA-30 through SPA-37, SPB-14, SPB-16, and SPB-19 through SPB-27) were operating. However, both systems remain deactivated at the conclusion of the June 1999 site visit pending repairs. Approximately 225,029 gallons of water had been extracted, treated, and discharged by the NEX system as of June 4, 1999.

A site map has been included as **Figure 2**. The site monitoring form for operation and maintenance (O&M) conducted during the month of June 1999 is included in **Attachment 1**. A weekly breakdown of the month's field activities has been included as **Attachment 2**.

**Mass Removal** - No SVE influent sample was collected for analysis during the June 4, 1999 site visit, therefore, no hydrocarbon mass removal rate was calculated. The total hydrocarbon mass extracted by the SVE system, as of April 1999, was approximately 3,780.15 lbs. The system database has been included in **Attachment 3**. Mass removal graphs have been included as **Figures 5A, 5B and 6**. Based on the hydrocarbon mass removal rate, no exceedance of CTDEP air quality guidelines was observed.

**Carbon Usage** - The liquid phase granular activated carbon was last changed-out on February 25, 1999. The last vapor-phase carbon change-out occurred September 8, 1997.

**Discharge Monitoring Sampling** - As indicated above, no air or water samples were collected for laboratory analysis.

**Monitoring Well Gauging** - The most recent round of site monitoring well gauging was conducted on May 26, 1999, during the quarterly groundwater sampling event. Depth to groundwater at the site ranged from 3.47 feet in ERM-15 to 9.02 feet in ERM-12. Suspected petroleum based sheens were detected in monitoring wells ERM-12 and ERM-16.

**Monitoring Well Sampling** - The most recent round of site monitoring well sampling was conducted on May 26, 1999. The May Quarterly Groundwater Sampling Report was issued under separate cover. SVE point VEA-7, which was omitted during the May 1999 quarterly groundwater sampling event, was sampled on June 4, 1999. An attempt was made to sample SVE point VEA-4, but gauging reported the point dry. The historical groundwater sampling results have been summarized in **Attachment 5**.

**Additional Activities** - Repair options are presently being assessed for both the SVE and AS systems.

**FIGURES**

IMAGE X-REF OFFICE DRAWN BY CHECKED BY APPROVED BY DRAWING NUMBER 1405-17

WIN L. Avery 3/20/99

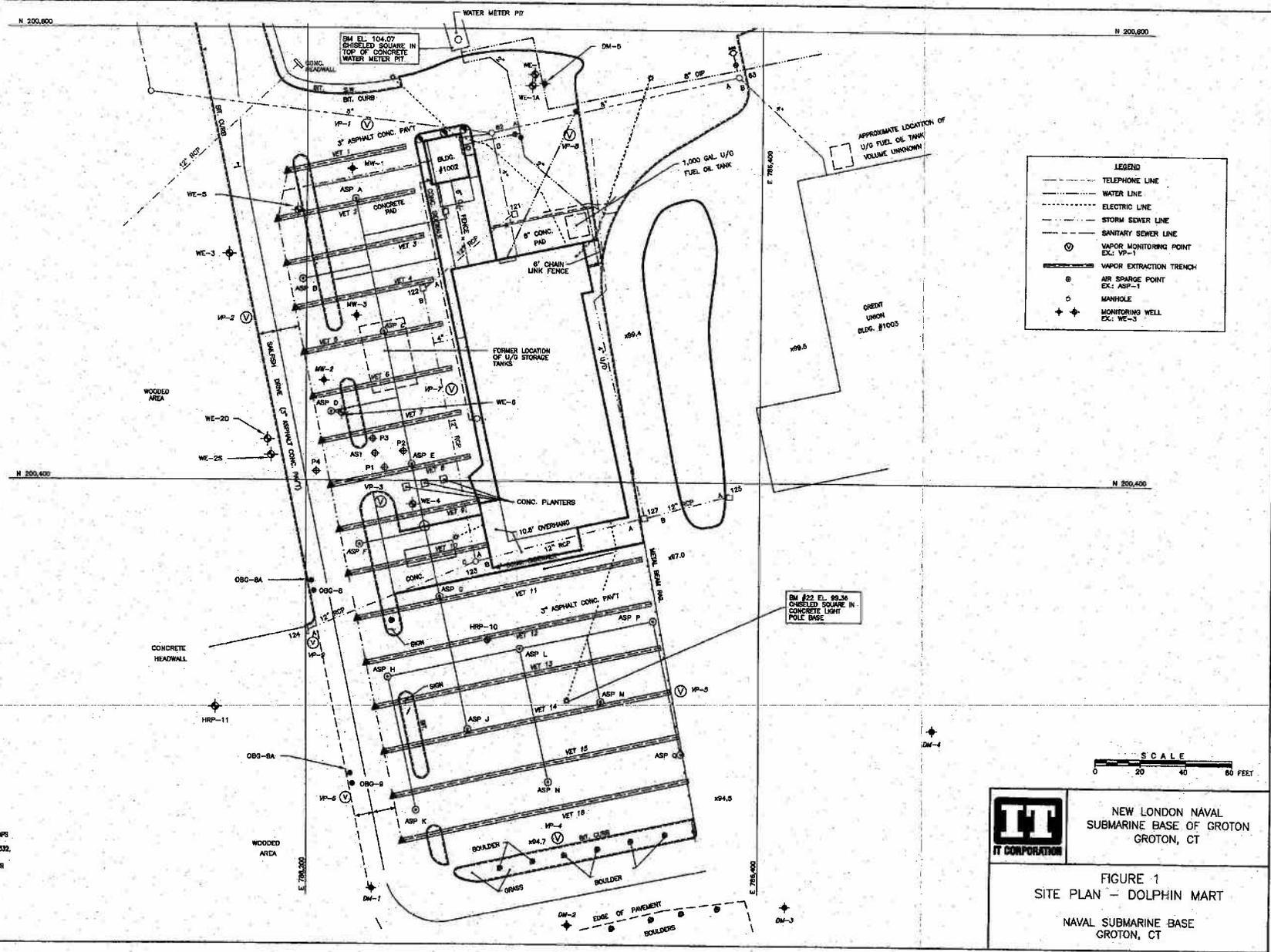
DATE: 3/20/99

FOR: NAVAL SUBMARINE BASE GROTON, CT

PROJECT: 2/28/98

THIS MAP WAS PREPARED FROM MAPS LISTED BELOW

1. MARSHALL ISLAND, GROTON, CONN. EXISTING UTILITIES MAPS PREPARED BY GULLAN ENGINEERING CO., INC. SCALE 1"=40' DATE 3/25/83 MAP#C DRAWING NO'S 2,064,332, 2,064,353 AND 2,064,374.
2. MONITOR WELL LOCATION AND GROUND WATER CONTOUR MAP OF JANUARY 21, 1982 DOLPHIN MART SITE US SANDS, GROTON, CT. PREPARED BY DM-NORTHWEST SCALE 1"=20' APRIL, 1982.
3. UTILITY DATA FROM AS-BUILT DRAWINGS AND UTILITY MAPS. EXACT LOCATIONS MUST BE VERIFIED IN FIELD.
4. ALL TOPOGRAPHIC FEATURES AND MONUMENTS SHOWN HEREON SHALL BE FIELD VERIFIED.



LEGEND	
---	TELEPHONE LINE
---	WATER LINE
---	ELECTRIC LINE
---	STORM SEWER LINE
---	SANITARY SEWER LINE
⊙	VAPOR MONITORING POINT EX.: VP-1
⊙	AIR SPARGE POINT EX.: ASP-1
⊙	MANHOLE
⊕	MONITORING WELL EX.: MW-3

SCALE  
0 20 40 60 FEET



NEW LONDON NAVAL  
SUBMARINE BASE OF GROTON  
GROTON, CT

FIGURE 1  
SITE PLAN - DOLPHIN MART

NAVAL SUBMARINE BASE  
GROTON, CT

APPROVED BY

CHECKED BY

DRAWN BY

OFFICE

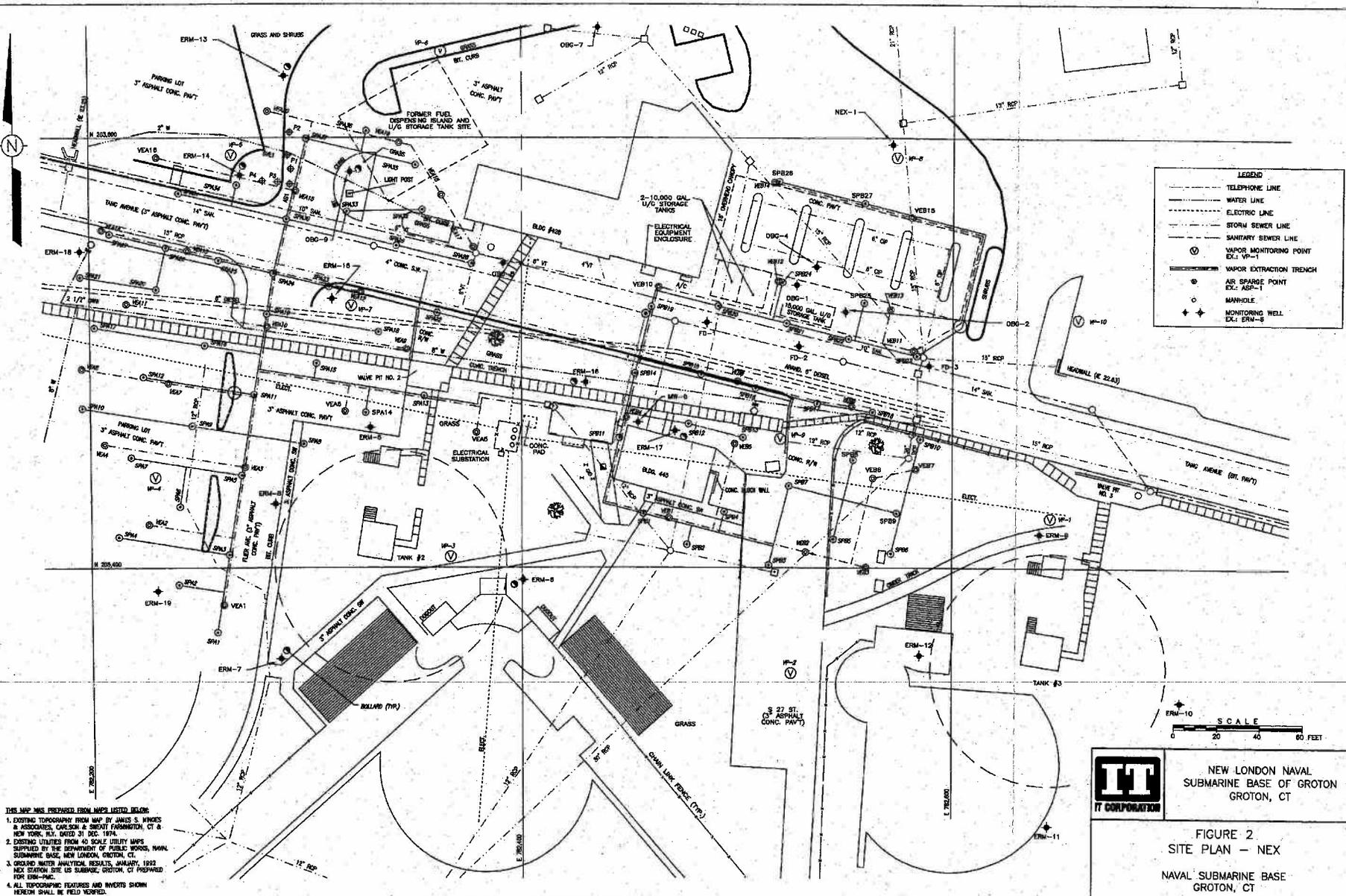
X-REF

WIN

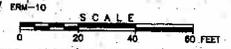
DATE: 5/25/89  
TIME: 2:07 PM  
FORM: REVISION 2/25/89

FORMAL REVISION 2/25/89

DRAWING NUMBER  
1405-16



LEGEND	
---	TELEPHONE LINE
---	WATER LINE
---	ELECTRIC LINE
---	STORM SEWER LINE
---	SANITARY SEWER LINE
⊙	VAPOR MONITORING POINT EX: VP-1
⊙	VAPOR EXTRACTION TRENCH
⊙	AIR SPARGE POINT EX: ASP-1
○	MANHOLE
+	MONITORING WELL EX: ERM-8

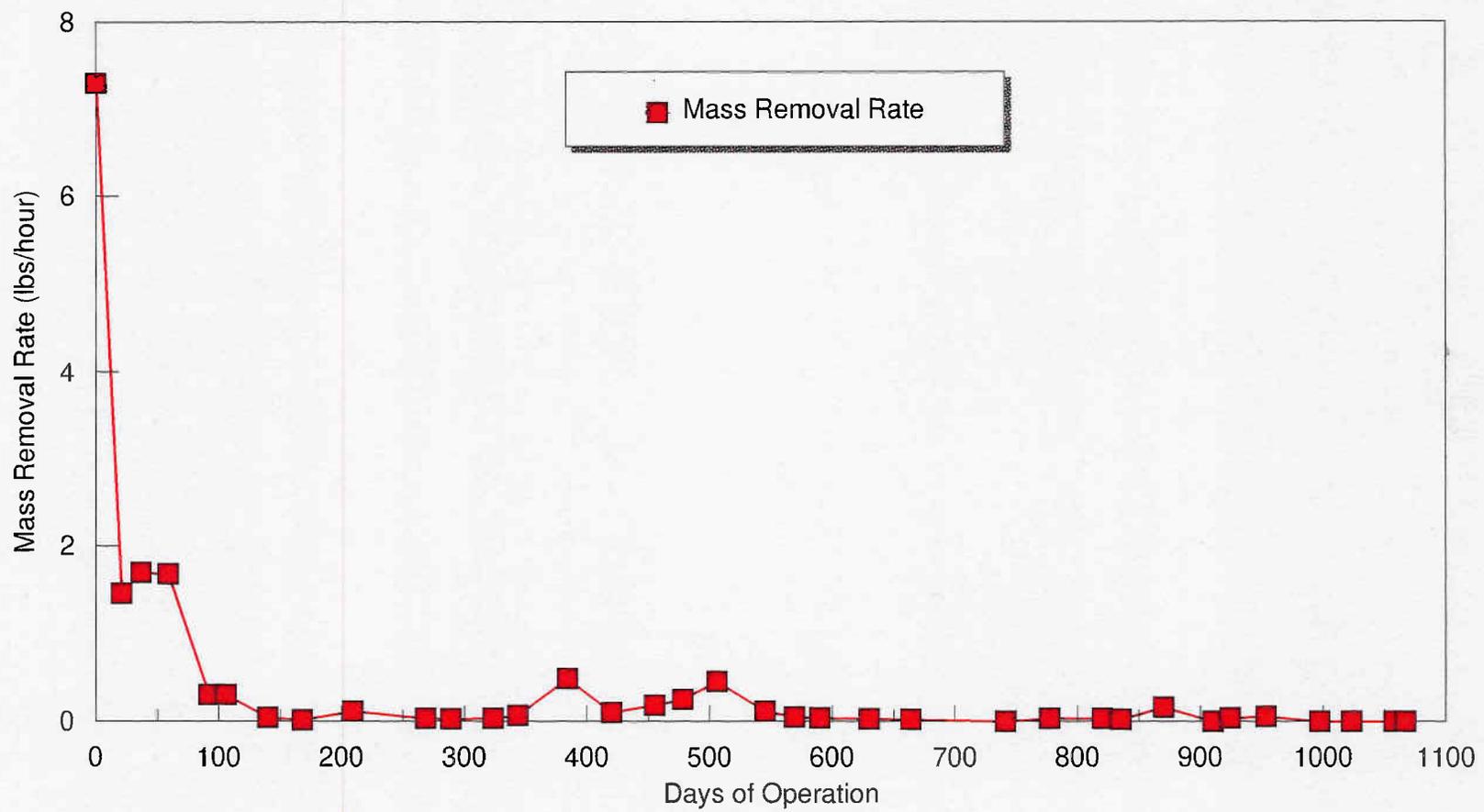


NEW LONDON NAVAL  
SUBMARINE BASE OF GROTON  
GROTON, CT

FIGURE 2  
SITE PLAN - NEX  
NAVAL SUBMARINE BASE  
GROTON, CT

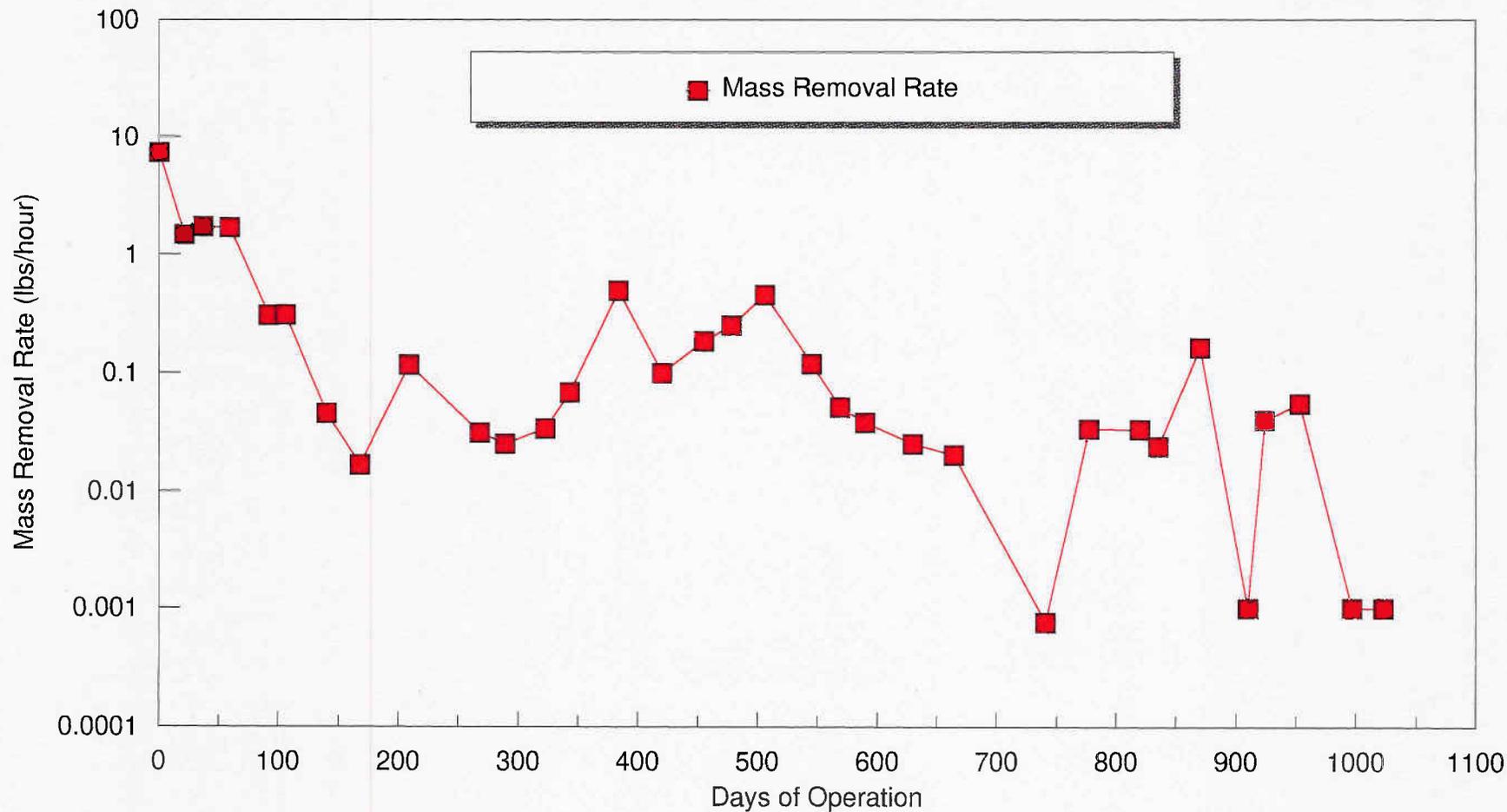
- THIS MAP WAS PREPARED FROM MAPS LISTED BELOW:
- EXISTING TOPOGRAPHY FROM MAP BY JAMES S. WINDES & ASSOCIATES, GROTON & BEWIT FARMINGTON, CT & NEW YORK, N.Y., DATED 31 DEC. 1974.
  - EXISTING UTILITIES FROM 40 SCALE UTILITY MAPS SUPPLIED BY THE DEPARTMENT OF PUBLIC WORKS, NAVAL SUBMARINE BASE, NEW LONDON, GROTON, CT.
  - GROUND WATER ANALYTICAL RESULTS, JANUARY, 1982 NEX STATION SITE US SUBBASE, GROTON, CT PREPARED FOR ERB-INC.
  - ALL TOPOGRAPHIC FEATURES AND INVENTS SHOWN HEREIN SHALL BE FIELD VERIFIED.

Figure 3A- Mass Removal Rate  
Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



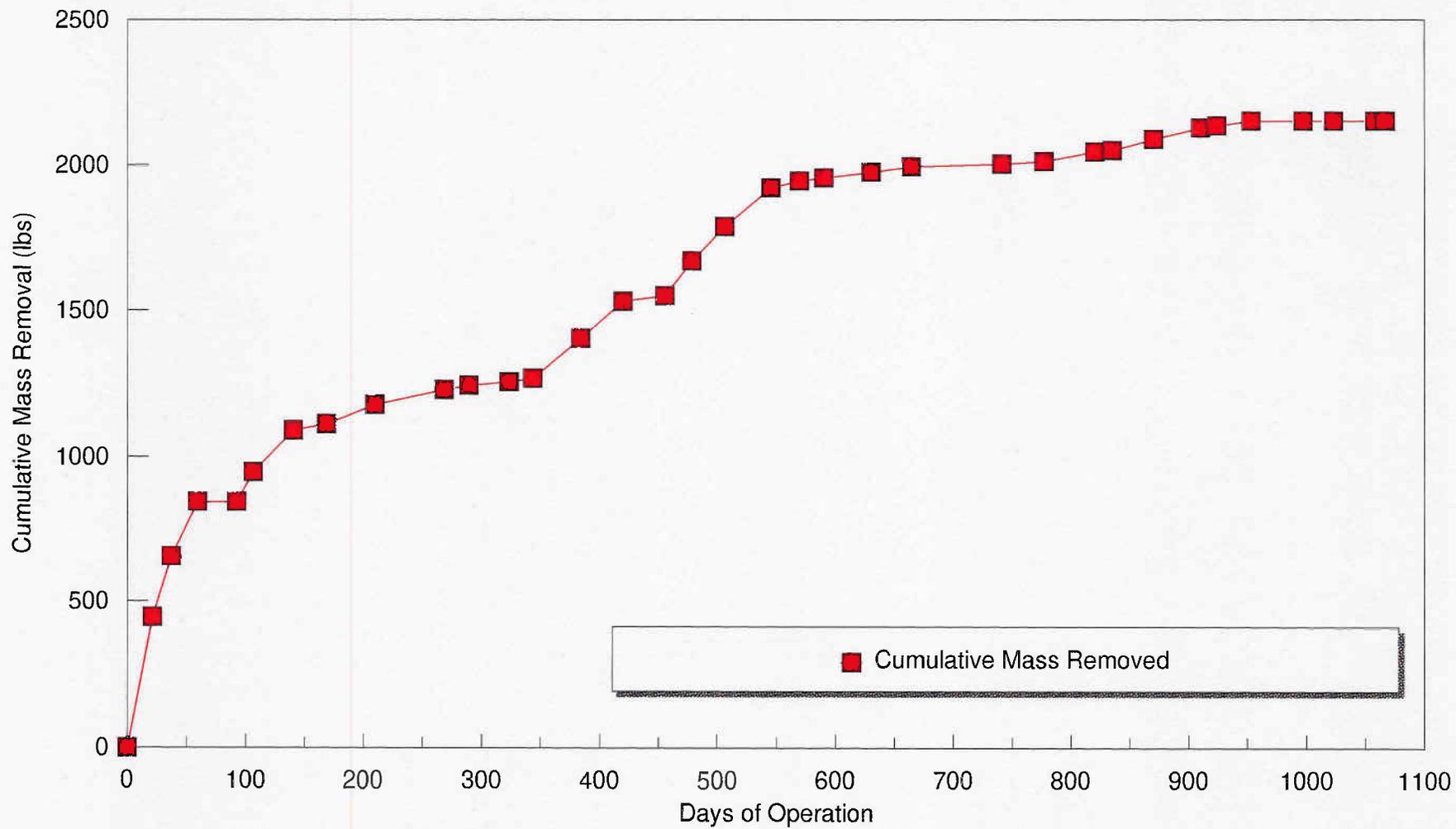
# Figure 3B- Mass Removal Rate

Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



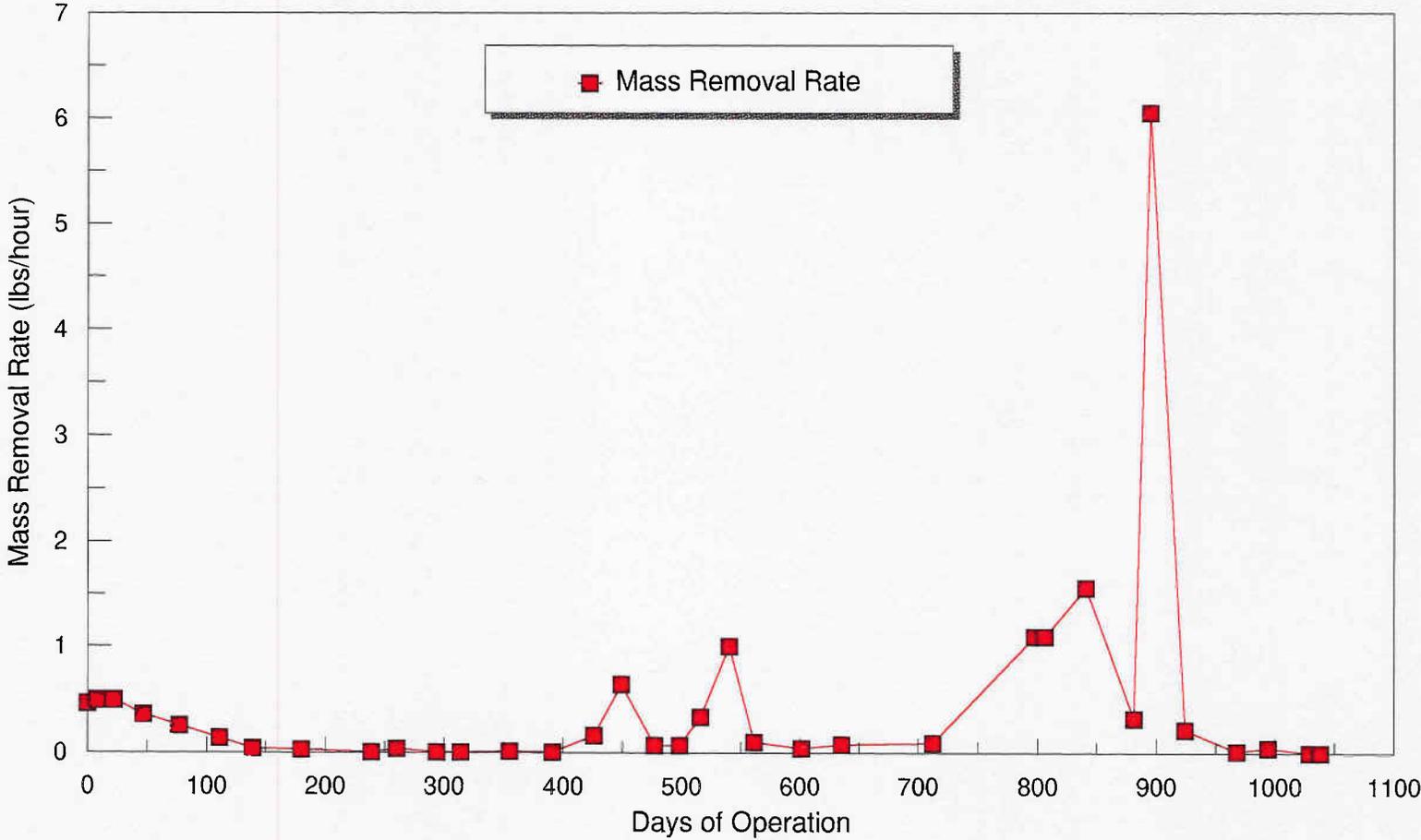
# Figure 4 - Cumulative Mass Removed versus Time

Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



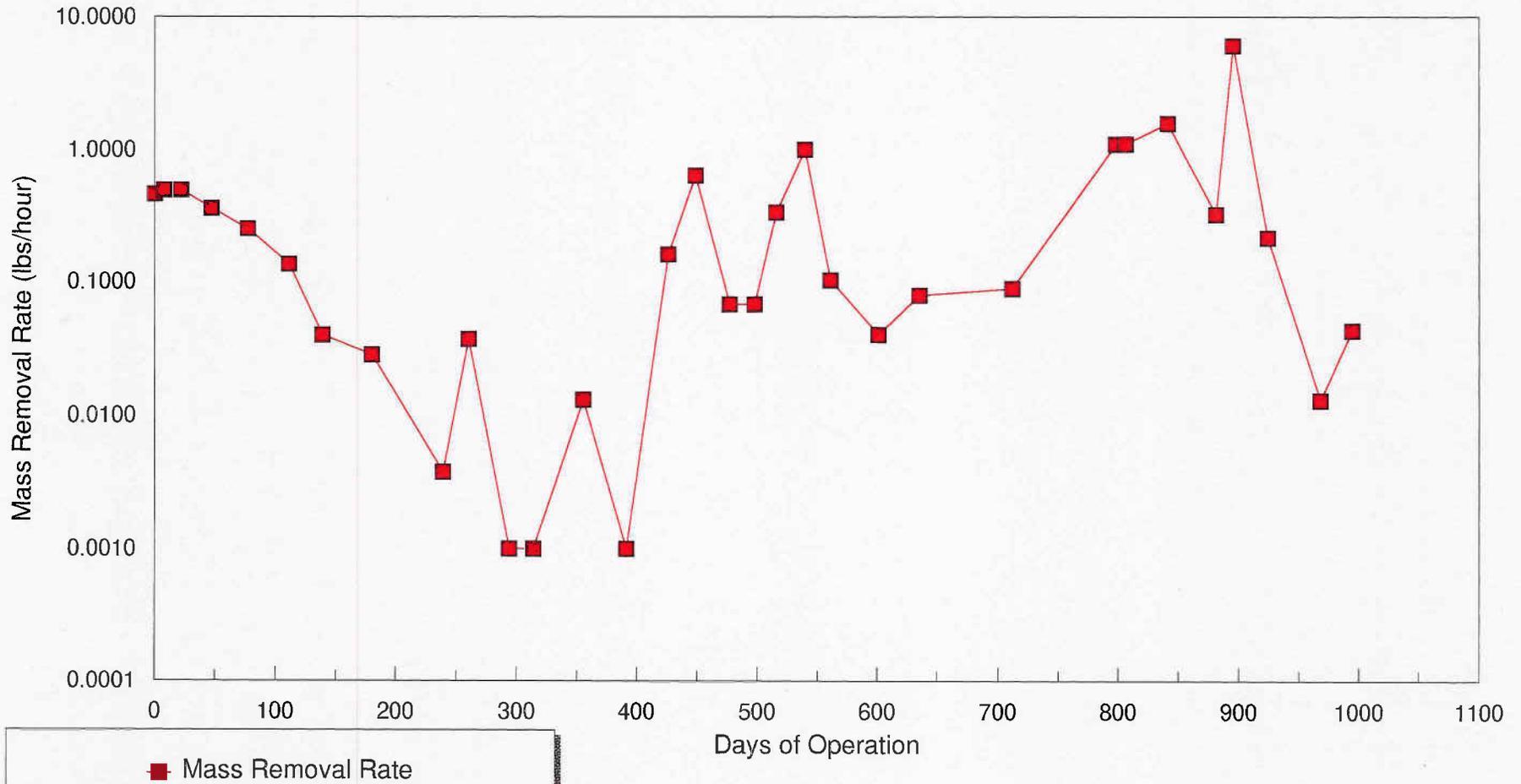
# Figure 5A - Mass Removal Rate

NEX Site, New London Naval Submarine Base, Groton, CT



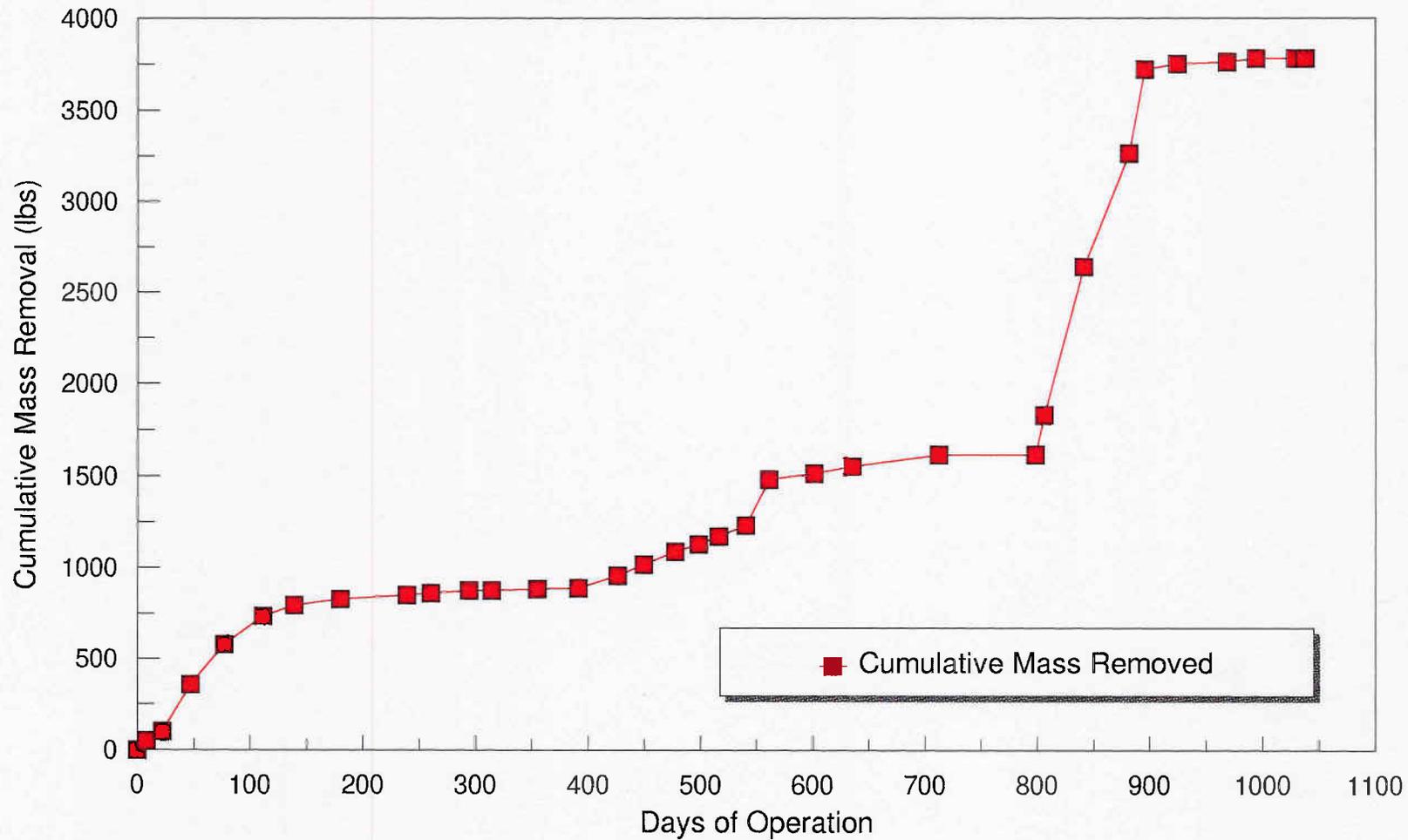
# Figure 5B - Mass Removal Rate

NEX Site, New London Naval Submarine Base, Groton, CT



# Figure 6 - Cumulative Mass Removed versus Time

NEX Site, New London Naval Submarine Base, Groton, CT



**ATTACHMENT 1**  
**SITE VISIT FORMS**

NAVAL SUBMARINE BASE  
GROTON, CT.  
87260014

Date: 6/4/99  
Project Number: 87260014  
DB/SCA Box Check: Yes / No  
Site Arrival Time: 13:00  
Total Hours on Site: 1.00

Staff: J.K. Jr  
Task Number: \_\_\_\_\_  
Bill Code Override: \_\_\_\_\_  
Site Departure Time: 14:00  
Total Hours Billed: 3.50

Please complete the following requested work scope and check off each task as it's completed:  
R = Requested C = Completed

**DOLPHIN MART:**

- COMPLETE OPERATIONAL DATA FORM
- GAUGE MONITORING WELLS
- MEASURE FID AND VACUUM AT VAPOR MONITORING WELLS
- COMPLETE SVE EXTRACTION POINT FORMS
- COMPLETE SPARGE POINT FORMS
- COLLECT AIR AND WATER DMR SAMPLES
- COMPLETE PH FORM
- COMPLETE QUARTERLY GROUNDWATER SAMPLING
- check fire extinguishers

**NEX:**

- COMPLETE OPERATIONAL DATA FORM
- GAUGE MONITORING WELLS
- MEASURE FID AND VACUUM AT VAPOR MONITORING WELLS
- COMPLETE SVE EXTRACTION POINT FORMS
- COMPLETE SPARGE POINT FORMS
- COLLECT AIR AND WATER DMR SAMPLES
- COMPLETE PH FORM
- COMPLETE QUARTERLY GROUNDWATER SAMPLING VET-7, VET-4
- check fire extinguishers

Fire extinguishers need to be serviced in October 1999

EQUIPMENT NEEDED: HASP, PPE, FID, PH METER, TEDLAR BAGS, VELOCITY METER, MAGNEHELICS, IP, SORBENT PADS, DMR SAMPLE COOLERS AND CONTAINERS

TASK NUMBERS: Monthly O&M	= 04010000	Unscheduled Maintenance	= 07010000
Quarterly Sampling	= 05010000	Sys. Modification/Roadbox Repair	= 08010000
Carbon Change-out	= 06010000		

Naval sub base

872600/4 - 050/0000

6/4/99

P.M. Barry Kline.

Tech. J.K. Jr

13:00 Arrived at Dolphin site and checked Fire extinguishers.  
The Fire extinguishers expire in October of 1999.

Depart Dolphin site and went to Nex Site. Arrived  
at Nex end found system, ~~not running~~ non operation.  
the SVE system can not run until the water  
treatment system is fixed.

Grabbed sample from Vea 7, Vea 4 was dry.  
checked fire extinguishers and they expire in October  
of 1999.

14:00 Depart Site and went back to Et Corp.  
placed sample in refig. along with COC.

**OPERATIONAL DATA FORM**  
 Air Sparging/Soil Vapor Extraction System  
 Naval Exchange  
 Naval Submarine Base -Groton, CT  
 Project #83001-9999

Date: 6/4/99  
 Time: \_\_\_\_\_  
 Technician: J.K.SR

**AIR COMPRESSOR SYSTEM**

Flow Rate	0	SCFM	Total Flow	17432448	SCFM
<b>Air Compressor C-1</b>			<b>Air Compressor C-2</b>		
Pressure	NA	psi	Pressure	NA	psi
Temperature		°F	Temperature		°F
Flow Control Valve Setting			Flow Control Valve Setting		
Bleed Valve			Bleed Valve		
Radiator	ON <input checked="" type="radio"/> OFF		Radiator	ON <input checked="" type="radio"/> OFF	

**SOIL VAPOR EXTRACTION SYSTEM**

Eastern Flow Rate	0	SCFM	Total Flow	128236639	SCFM
Western Flow Rate	0	SCFM	Total Flow	29441107	SCFM
<b>Vacuum Pump V-1</b>			<b>Vacuum Pump V-2</b>		
Vacuum	NA	"Hg	Vacuum	NA	"Hg
Temperature		°F	Temperature		°F
Particulate Filter			Particulate Filter		
Flow Control Valve Setting			Flow Control Valve Setting		
Bleed Air Valve Setting			Bleed Air Valve Setting		
Liquid Level	↓		Liquid Level	↓	
<b>Vacuum Pump V-3</b>			<b>Vacuum Pump V-4</b>		
Vacuum	NA	"Hg	Vacuum	NA	"Hg
Temperature		°F	Temperature		°F
Particulate Filter			Particulate Filter		
Flow Control Valve Setting			Flow Control Valve Setting		
Bleed Air Valve Setting			Bleed Air Valve Setting		
Liquid Level	↓		Liquid Level	↓	

**ACTIVATED CARBON ADSORPTION SYSTEM**

<b>Carbon Adsorber A/B</b>			<b>Carbon Adsorber C/D</b>		
Pressure	NA	psi	Pressure	NA	psi
Inf. VOC Level		ppm	Inf. VOC Level		ppm
Mid. VOC Level		ppm	Mid. VOC Level		ppm
Eff. VOC Level	↓	ppm	Eff. VOC Level	↓	ppm
Change out Date	_____		Change out Date	_____	

**WATER TREATMENT**

Flowmeter Reading \_\_\_\_\_ Gallons (arrival reading)      Flowmeter Reading \_\_\_\_\_ Gallons (departure reading)

**COMMENTS**

\* FILL IN ALL SPACES WITH THE APPROPRIATE READING OR "NA".

225029.6

**ATTACHMENT 2**  
**MONTHLY FIELD ACTIVITY SUMMARY**

**Field Activity Summary  
June 1999**

**New London Naval Submarine Base  
Groton, Connecticut**

<b>Week Ending</b>	<b>Site</b>	<b>Period</b>	<b>Field Activities</b>	<b>Comments</b>
6/4/99	Dolphin Mart	Monthly Monitoring	Conducted check of fire extinguishers.	Fire extinguishers due to be serviced in October 1999.
	NEX		Conducted check of fire extinguishers. Conducted select quarterly groundwater sampling.	Fire extinguishers due to be serviced in October 1999.

**ATTACHMENT 3**

**AIR SPARGE/SVE SYSTEM DATABASES**

**SYSTEM MONITORING DATA  
SOIL VAPOR EXTRACTION/AIR SPARGE SYSTEM**

New London Naval Submarine Base  
Dolphin Mart Site  
Groton, CT

Date	Days of Operation	Air Sparge Flowrate (scfm)	Extraction Flowrate (scfm)	Influent Concentration BTEX (ppmv)	Removal Rate BTEX (lb/hr)	Influent Concentration MTBE (ppmv)	Removal Rate MTBE (lb/hr)	Influent Concentration Aliphatics (ppmv)	Removal Rate Aliphatics (lb/hr)	Influent Concentration Aromatics (ppmv)	Removal Rate Aromatics (lb/hr)	Influent Concentration TVPH (ppmv)	Removal Rate TVPH (lb/hr)	Total Mass Removal Rate (lbs/hr)	Period Mass Removed (lbs)	Cumulative Mass Removed (lbs)	Comments
07/02/96	0	25	450	24.00	0.187	33.00	0.232	1000.00	6.876	0.00	0.000	---	0.000	7.295	0.00	0.00	
07/23/96	21	20	449	11.40	0.091	0.00	0.000	200.00	1.372	0.00	0.000	---	0.000	1.463	446.70	446.70	system operated approx. 102 hrs between 7/2 and 7/23
08/08/96	37	32	454	18.00	0.143	---	0.000	210.00	1.457	12.00	0.103	---	0.000	1.702	210.53	657.23	system operated approx. 133 hrs between 7/23 and 8/8
08/30/96	59	0	450	18.00	0.142	---	0.000	210.00	1.444	12.00	0.102	---	0.000	1.687	188.14	845.37	system operated approx. 111 hrs between 8/8 and 8/30
10/02/96	92	30	448	2.30	0.019	0.00	0.000	---	0.000	---	0.000	36.00	0.286	0.305	0.00	845.37	system not in operation from 8/30 to 10/2 due to flow meter problem
10/16/96	106	30	450	2.30	0.019	0.00	0.000	---	0.000	---	0.000	36.00	0.287	0.306	102.58	947.95	system reactivated 10/2/96
11/19/96	140	30	450	0.38	0.003	0.00	0.000	---	0.000	---	0.000	5.29	0.042	0.045	143.33	1091.28	
12/17/96	168	30	450	0.12	0.001	0.00	0.000	---	0.000	---	0.000	1.97	0.016	0.017	20.84	1112.12	
01/27/97	209	30	450	1.35	0.011	0.00	0.000	---	0.000	---	0.000	13.23	0.106	0.117	65.56	1177.68	
03/27/97	268	30	450	0.00	0.000	0.00	0.000	---	0.000	---	0.000	3.90	0.031	0.031	104.53	1229.95	assume 50% up-time, blowers shutting down due to influent water
04/17/97	289	30	450	0.00	0.000	0.00	0.000	---	0.000	---	0.000	3.13	0.025	0.025	14.13	1244.08	
05/21/97	323	15	329	0.00	0.000	0.00	0.000	---	0.000	---	0.000	5.77	0.034	0.034	11.96	1256.03	assume 50% up-time, blowers shutting down due to influent water
06/10/97	343	15	329	0.25	0.002	0.00	0.000	---	0.000	---	0.000	11.31	0.066	0.067	12.14	1268.17	assume 50% up-time, blowers shutting down due to influent water
07/21/97	384	15	329	1.89	0.011	0.00	0.000	---	0.000	---	0.000	81.79	0.477	0.488	136.76	1404.93	assume 50% up-time, blowers shutting down due to influent water
08/26/97	420	15	482	0.73	0.007	0.00	0.000	---	0.000	---	0.000	10.82	0.092	0.099	126.91	1531.85	assume 50% up-time, blowers shutting down due to influent water
09/30/97	455	15	482	0.34	0.003	0.00	0.000	---	0.000	---	0.000	21.17	0.181	0.184	17.84	1549.68	assume -15% up-time, blowers shutting down due to influent water
10/23/97	478	14	589	0.00	0.000	0.00	0.000	---	0.000	---	0.000	24.06	0.251	0.251	120.10	1669.78	
11/20/97	506	32	590	0.00	0.000	5.45	0.050	---	0.000	---	0.000	38.49	0.403	0.453	118.28	1788.06	assume 50% up-time, blowers shutting down due to influent water
12/29/97	545	28	590	0.45	0.005	0.00	0.000	---	0.000	---	0.000	10.82	0.113	0.118	133.65	1921.71	assume 50% up-time, blowers shutting down due to influent water
01/22/98	569	27	471	0.32	0.003	0.00	0.000	---	0.000	---	0.000	5.77	0.048	0.051	24.38	1946.09	assume 50% up-time, blowers shutting down due to influent water
02/12/98	590	23	295	0.23	0.001	0.00	0.000	---	0.000	---	0.000	6.98	0.036	0.038	11.19	1957.28	assume 50% up-time, blowers shutting down due to influent water
03/24/98	630	30	245	0.45	0.002	0.00	0.000	---	0.000	---	0.000	5.29	0.023	0.025	19.91	1977.19	system down for approximately one week due to influent water
04/27/98	664	30	215	0.00	0.000	0.00	0.000	---	0.000	---	0.000	5.29	0.020	0.020	18.47	1995.65	
07/13/98	741	13	294	0.14	0.001	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.001	9.67	2005.32	assume 50% up-time, blowers shutting down due to influent water
08/18/98	777	10	294	0.14	0.001	0.00	0.000	---	0.000	---	0.000	6.25	0.033	0.033	7.37	2012.69	assume 50% up-time, AS blower shut down due to high pressure
09/30/98	820	14	294	0.07	0.0004	0.00	0.000	---	0.000	---	0.000	6.25	0.033	0.033	34.22	2046.92	
10/15/98	835	0	231	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	5.77	0.024	0.024	5.10	2052.01	assume 50% up-time, AS blower shut down due to high pressure
11/19/98	870	14	223	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	40.89	0.162	0.162	38.89	2090.90	assume 50% up-time, AS blower shut down due to high pressure
12/29/98	910	0	442	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.001	39.01	2129.91	assume 50% up-time, AS blower shut down due to high pressure.
01/12/99	924	0	255	0.07	0.0003	0.00	0.000	---	0.000	---	0.000	8.66	0.039	0.040	6.81	2136.72	
02/10/99	953	0	346	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	8.90	0.055	0.055	16.37	2153.09	assume 50% up-time, blowers shutting down due to influent water
03/28/99	997	0	160	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.001	0.38	2153.47	
04/21/99	1023	0	160	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.001	0.38	2153.85	
05/26/99	1058	0	0	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.000	0.00	2153.85	system deactivated May 1999
06/04/99	1067	0	0	0.00	0.0000	0.00	0.000	---	0.000	---	0.000	0.00	0.000	0.000	0.00	2153.85	system deactivated May 1999

- Notes:
- 1) Aliphatics are weighted using a response factor of hexane. (MW = 86.2)
  - 2) Aromatics are weighted using a response factor of o-xylene. (MW=106.16)
  - 3) Analytical data for 8/30/96 is assumed based on results of sampling conducted 8/8/96. System was deactivated 8/30/96 due to flow meter failure.
  - 4) Flow rate of 10/16/96 through 4/17/97, 6/10/97 and 7/21/97 is assumed. Air flow meter not in operation.
  - 5) Analytical data for 10/2 is assumed based on data from 10/16/96.
  - 6) Beginning 10/16/96 lab analysis was performed by Miltek Laboratory. Prior to 10/16/96 air analysis performed by NEI/GTEL
  - 7) Miltek results report total volatile petroleum hydrocarbons, not misc. aromatics and aliphatics.  
Total Volatile Petroleum Hydrocarbons are weighted to molecular weight of 100.
  - 8) Laboratory results from 11/19/96 to present are reported in mg/m3.

**SYSTEM MONITORING DATA  
SOIL VAPOR EXTRACTION/AIR SPARGE SYSTEM**

New London Naval Submarine Base  
NEX Site  
Groton, CT

Date	Day of Operation	Air Sparge Flowrate (scfm)	Extraction Flowrate (total) (scfm)	Influent Concentration BTEX (ppmv)	Removal Rate BTEX (lb/hr)	Influent Concentration MTBE (ppmv)	Removal Rate MTBE (lb/hr)	Influent Concentration Aliphatics (ppmv)	Removal Rate Aliphatics (lb/hr)	Influent Concentration Aromatics (ppmv)	Removal Rate Aromatics (lb/hr)	Influent Concentration TVPH (ppmv)	Removal Rate TVPH (lb/hr)	Total Mass Removal Rate (lbs/hr)	Period Mass Removed (lbs)	Cumulative Mass Removed (lbs)	Comments
07/31/96	0	NA*	253	1.80	0.007	—	0.000	130.00	0.455	0.00	0.000	—	0.000	0.463	0.00	0.00	
08/08/96	8	NA*	270	1.80	0.008	—	0.000	130.00	0.486	0.00	0.000	—	0.000	0.494	46.93	46.93	system operated approx. 92 hrs between 7/31 and 8/8
08/22/96	22	NA*	270	1.80	0.008	—	0.000	130.00	0.486	0.00	0.000	—	0.000	0.494	52.85	99.78	24-hour per day system operation began 8/8
09/16/96	47	NA*	320	2.70	0.015	0.00	0.000	—	0.000	—	0.000	61.00	0.346	0.361	256.56	356.34	
10/16/96	77	NA*	320	2.50	0.014	0.00	0.000	—	0.000	—	0.000	42.00	0.238	0.253	220.98	577.32	
11/19/96	111	NA*	324	0.95	0.006	0.00	0.000	—	0.000	—	0.000	22.61	0.130	0.135	158.31	735.63	
12/17/96	139	NA*	310	0.18	0.001	0.07	0.000	—	0.000	—	0.000	6.98	0.038	0.040	58.83	794.47	
01/27/97	180	NA*	321	0.14	0.001	0.00	0.000	—	0.000	—	0.000	4.81	0.027	0.028	33.39	827.85	
03/27/97	239	NA**	384	0.00	0.000	0.00	0.000	—	0.000	—	0.000	0.55	0.004	0.004	22.62	850.47	
04/17/97	260	NA**	721	0.00	0.000	0.00	0.000	—	0.000	—	0.000	2.89	0.037	0.037	10.24	860.71	
05/21/97	294	6***	360	0.00	0.000	0.00	0.000	—	0.000	—	0.000	0.00	0.000	0.00	15.46	876.17	
06/10/97	314	2****	300	0.00	0.000	0.00	0.000	—	0.000	—	0.000	0.00	0.000	0.00	0.48	876.65	
07/21/97	355	36****	358	0.00	0.000	0.00	0.000	—	0.000	—	0.000	2.04	0.013	0.013	6.88	883.53	
08/26/97	391	28****	223	0.00	0.000	0.00	0.000	—	0.000	—	0.000	0.00	0.000	0.00	6.04	889.57	One blower down due to high water level in moisture trap.
09/30/97	426	27****	221	2.37	0.009	6.00	0.021	—	0.000	—	0.000	33.68	0.132	0.161	68.15	957.72	Two blowers down due to high water level in moisture trap.
10/23/97	449	47****	322	2.47	0.013	17.05	0.088	—	0.000	—	0.000	95.02	0.542	0.641	60.12	1017.84	Two blowers down due to high water level in moisture trap.
11/20/97	477	47****	213	0.50	0.002	1.12	0.004	—	0.000	—	0.000	16.36	0.062	0.067	69.68	1087.51	One blower down due to high water level in moisture trap.
12/11/97	498	47	213	0.50	0.002	1.12	0.004	—	0.000	—	0.000	16.36	0.062	0.067	40.27	1127.78	
12/29/97	516	47	520	0.78	0.007	2.18	0.018	—	0.000	—	0.000	33.68	0.310	0.335	42.29	1170.07	
01/22/98	540	53	479	2.46	0.020	4.50	0.034	—	0.000	—	0.000	111.86	0.949	1.003	63.09	1233.15	
02/12/98	581	NA****	324	0.77	0.004	1.05	0.005	—	0.000	—	0.000	16.24	0.093	0.103	248.54	1481.70	
03/24/98	601	53	249	0.44	0.002	0.82	0.003	—	0.000	—	0.000	7.94	0.035	0.040	32.99	1514.68	
04/27/98	635	53	170	0.57	0.002	8.32	0.022	—	0.000	—	0.000	18.40	0.055	0.079	36.71	1551.39	
07/13/98	712	53	154	1.96	0.005	0.00	0.000	39.42	0.084	0.00	0.000	0.00	0.000	0.089	63.76	1615.16	
10/07/98	798	0	278	8.40	0.042	0.00	0.000	0.00	0.000	0.00	0.000	214.19	1.054	1.096	0.00	1615.16	System modification/repair completed, system reactivated.
10/15/98	806	0	278	8.40	0.042	0.00	0.000	0.00	0.000	0.00	0.000	214.19	1.056	1.098	210.77	1825.92	
11/19/98	841	41	216	4.67	0.018	0.46	0.002	0.00	0.000	0.00	0.000	403.93	1.543	1.563	812.98	2638.91	
12/29/98	881	41	148	0.90	0.002	0.00	0.000	0.00	0.000	0.00	0.000	122.18	0.321	0.323	621.50	3260.40	One blower and air compressor down due to high water.
01/12/99	895	82	307	3.22	0.018	0.34	0.002	0.00	0.000	0.00	0.000	1108.41	6.032	6.052	459.46	3719.87	
02/10/99	924	70	294	0.81	0.004	0.54	0.002	0.00	0.000	0.00	0.000	39.88	0.207	0.214	31.67	3751.54	
03/26/99	968	79	255	0.08	0.000	0.27	0.001	0.00	0.000	0.00	0.000	2.53	0.011	0.013	8.31	3759.85	One blower and air compressor down due to tripped breaker
04/21/99	994	38	244	0.26	0.001	0.00	0.000	0.00	0.000	0.00	0.000	9.62	0.042	0.043	20.30	3780.15	
05/26/99	1029	***	0	0.00	0.00	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000	0.00	3780.15	
06/04/99	1038	***	0	0.00	0.00	0.00	0.000	0.00	0.000	0.00	0.000	0.00	0.000	0.000	0.00	3780.15	System is non-operational

Notes:

- \* Air sparge compressor not activated due to elevated SVE influent concentrations.
- \*\* Air sparge compressor not activated due to improperly sized pressure switch
- \*\*\* Air sparge compressor activated, but high water levels in the moisture separators cause frequent compressor shut-down.
- \*\*\*\* Air sparge compressor deactivated on 1/28/98 due to lack of vapor recovery from western portion of site.
- 1) Aliphatics are weighted using a response factor of hexane. (MW = 86.2)
- 2) Aromatics are weighted using a response factor of o-xylene. (MW=106.16)
- 3) Analytical data for 7/31/96 is assumed based on results of sampling conducted 8/8/96.
- 4) Analytical data for 8/22/96 is assumed based on results of sampling conducted 8/8/96.
- 5) Air flow rate from 10/16/96 assumed for 9/16/96, due to a broken flow meter
- 6) Beginning 9/16/96 lab analysis was performed by Mitkem Laboratory. Prior to 9/16/96 air analysis performed by NEI/GTEL
- 7) Mitkem results report total volatile petroleum hydrocarbons, not misc. aromatics and aliphatics.  
Total Volatile Petroleum Hydrocarbons are weighted to molecular weight of 100.
- 8) System modifications to allow continuous dewatering were conducted on December 11, 1997.  
The data for this date was assumed to be the same as November that for November 20, 1997.  
Flow rates for this date have been interpolated from 11/20/97 and 12/29/97 data.
- 9) 4/27/98 TVPH results reported as C5-C12 Aliphatics and C9-C10 Aromatics. Ppmv equivalents have been estimated.
- 10) The system was found to be inactive on 8/19/98 due to water in the moisture traps and was not restarted. No samples were taken.
- 11) System modifications and repairs completed on 10/7/98. System reactivated. Influent concentrations assumed to be the same as sampled on 10/15/98.
- 12) On 10/7/98 the east side flowmeter was found to be inoperable. West and East flowrates were subsequently assumed to be equal for mass removal calculation purposes.
- 13) A flow rate weighted average was used to calculate the SVE system influent beginning 10/15/98.
- 14) On 3/26/99 the air sparge compressor was not operating. The air sparge flow rate is based on the March 8 data.
- 15) Air flow data from 4/2/99 used for April's flow rate.

**ATTACHMENT 4**

**HISTORICAL WELL GAUGING DATA**

Well Gauging Data

Dolphin Mart Site

New London Naval Submarine Base, Groton, CT

Date	Date	DM-1			DM-2			DM-3			DM-4		
		Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation
07/02/96	07/02/96	94.23	6.37	87.86	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/03/96	07/03/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/12/96	07/12/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/16/96	07/16/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/17/96	07/17/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/19/96	07/19/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/22/96	07/22/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/23/96	07/23/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/24/96	07/24/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/25/96	07/25/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
07/26/96	07/26/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
08/01/96	08/01/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
08/02/96	08/02/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
08/05/96	08/05/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
09/04/96	09/04/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
10/02/96	10/02/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
10/21/96	10/21/96	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
11/19/96	11/19/96	94.23	1.90	92.33	94.30	NG	NA	94.02	2.06	91.96	94.81	2.68	92.13
12/17/96	12/17/96	94.23	2.53	91.70	94.30	NG	NA	94.02	1.60	92.42	94.81	NG	NA
01/27/97	01/27/97	94.23	1.91	92.32	94.30	NG	NA	94.02	1.89	92.13	94.81	NG	NA
02/18/97	02/18/97	94.23	1.93	92.30	94.30	NG	NA	94.02	1.90	92.12	94.81	2.04	92.77
03/27/97	03/27/97	94.23	1.89	92.34	94.30	2.27	92.03	94.02	1.86	92.16	94.81	2.41	92.40
04/17/97	04/17/97	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
05/21/97	05/21/97	94.23	2.04	92.19	94.30	2.39	91.91	94.02	2.08	91.94	94.81	3.08	91.73
08/27/97	08/27/97	94.23	NG	NA	94.30	NG	NA	94.02	NG	NA	94.81	NG	NA
11/21/97	11/21/97	94.23	2.26	91.97	94.30	3.20	91.10	94.02	2.56	91.46	94.81	3.33	91.48
02/11/98	02/11/98	94.23	1.79	92.44	94.30	2.63	91.67	94.02	1.61	92.41	94.81	1.84	92.97
05/11/98	05/11/98	94.23	1.80	92.43	94.30	1.85	92.45	94.02	1.50	92.52	94.81	2.34	92.47
08/17/98	08/17/98	94.23	2.70	91.53	94.30	3.75	90.55	94.02	3.30	90.72	94.81	1.25	93.56
11/18/98	11/18/98	94.23	2.32	91.91	94.30	2.88	91.42	94.02	2.60	91.42	94.81	3.35	91.46
02/19/99	02/19/99	94.23	2.06	92.17	94.30	2.61	91.69	94.02	1.88	92.14	94.81	2.03	92.78
05/21/99	05/21/99	94.23	2.04	92.19	94.30	2.57	91.73	94.02	2.26	91.76	94.81	3.83	90.98

Notes: WE-2D, WE-2S, and WE-3 are covered by stand pipes.

NG = Not Gauged

\* Possible interference due to AS/SVE system

## Well Gauging Data

## Dolphin Mart Site

## New London Naval Submarine Base, Groton, CT

Date	DM-5			HRP-10			HRP-11			MW-1		
	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation
07/02/96	101.06	NG	NA	97.05	4.65	92.40	96.79	NG	NA		4.65	
07/03/96	101.06	NG	NA	97.05	5.19	91.86	96.79	NG	NA		4.63	
07/12/96	101.06	NG	NA	97.05	5.81	91.24	96.79	NG	NA		5.01	
07/16/96	101.06	NG	NA	97.05	4.33	92.72	96.79	NG	NA		4.55	
07/17/96	101.06	NG	NA	97.05	2.73	94.32	96.79	NG	NA		4.94	
07/19/96	101.06	NG	NA	97.05	4.38	92.67	96.79	NG	NA		5.21	
07/22/96	101.06	NG	NA	97.05	4.54	92.51	96.79	NG	NA		4.82	
07/23/96	101.06	NG	NA	97.05	4.55	92.50	96.79	NG	NA		4.75	
07/24/96	101.06	NG	NA	97.05	4.33	92.72	96.79	NG	NA		5.22	
07/25/96	101.06	NG	NA	97.05	4.46	92.59	96.79	NG	NA		5.31	
07/26/96	101.06	NG	NA	97.05	4.43	92.62	96.79	NG	NA		4.79	
08/01/96	101.06	NG	NA	97.05	3.93	93.12	96.79	NG	NA		4.96	
08/02/96	101.06	NG	NA	97.05	4.08	92.97	96.79	NG	NA		5.24	
08/05/96	101.06	NG	NA	97.05	4.35	92.70	96.79	NG	NA		5.08	
09/04/96	101.06	NG	NA	97.05	5.43	91.62	96.79	NG	NA		6.07	
10/02/96	101.06	NG	NA	97.05	3.53	93.52	96.79	NG	NA		5.43	
10/21/96	101.06	NG	NA	97.05	3.98	93.07	96.79	NG	NA		NG	
11/19/96	101.06	5.37	95.69	97.05	4.15	92.90	96.79	NG	NA		3.85	
12/17/96	101.06	3.67	97.39	97.05	NG	NA	96.79	NG	NA		3.85	
01/27/97	101.06	4.26	96.80	97.05	3.29	93.76	96.79	NG	NA		2.53	
02/18/97	101.06	NG	NA	97.05	4.04	93.01	96.79	NG	NA		2.98	
03/27/97	101.06	4.60	96.46	97.05	4.04	93.01	96.79	3.21	93.58		2.91	
04/17/97	101.06	NG	NA	97.05	5.25	91.80	96.79	NG	NA		3.48	
05/21/97	101.06	5.19	95.87	97.05	4.11	92.94	96.79	3.43	93.36		3.14	
08/27/97	101.06	NG	NA	97.05	5.01	92.04	96.79	4.10	92.69		3.60	
11/21/97	101.06	6.83	94.23	97.05	4.43	92.62	96.79	3.77	93.02		5.33	
02/11/98	101.06	3.87	97.19	97.05	3.64	93.41	96.79	3.08	93.71		3.23	
05/11/98	101.06	2.41	98.65	97.05	3.65	93.40	96.79	3.16	93.63		1.81	
08/17/98	101.06	7.69	93.37	97.05	5.11	91.94	96.79	3.99	92.80		6.32	
11/18/98	101.06	7.46	93.60	97.05	5.13	91.92	96.79	3.85	92.94		5.74	
02/19/99	101.06	4.38	96.68	97.05	4.15	92.90	96.79	3.33	93.46		2.95	
05/21/99	101.06	5.63	95.43	97.05	4.36	92.69	96.79	3.55	93.24		3.96	

NA = Not Available NG = Not Gauged

## Well Gauging Data

## Dolphin Mart Site

## New London Naval Submarine Base, Groton, CT

Date	MW-2			MW-3			OBG8A			OBG9A		
	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation
07/02/96		3.55			3.12		95.20	NG	NA	94.67	0.82	93.85
07/03/96		2.86			0.00		95.20	NG	NA	94.67	0.89	93.78
07/12/96		3.82			1.95		95.20	NG	NA	94.67	1.85	92.82
07/16/96		2.89			0.74		95.20	NG	NA	94.67	0.69	93.98
07/17/96		1.63			2.79		95.20	NG	NA	94.67	0.00	94.67
07/19/96		0.61			0.00		95.20	NG	NA	94.67	0.00	94.67
07/22/96		1.95			1.17		95.20	NG	NA	94.67	0.00	94.67
07/23/96		3.33			0.00		95.20	NG	NA	94.67	0.20	94.47
07/24/96		1.18			0.00		95.20	NG	NA	94.67	0.00	94.67
07/25/96		NG			NG		95.20	NG	NA	94.67	0.16	94.51
07/26/96		NG			NG		95.20	NG	NA	94.67	0.00	94.67
08/01/96		2.20			1.28		95.20	NG	NA	94.67	NG	NA
08/02/96		1.82			1.31		95.20	NG	NA	94.67	0.00	94.67
08/05/96		NG			1.08		95.20	NG	NA	94.67	0.00	94.67
09/04/96		4.59			DRY		95.20	NG	NA	94.67	NG	NA
10/02/96		NG			3.86		95.20	NG	NA	94.67	NG	NA
10/21/96		NG			NG		95.20	NG	NA	94.67	NG	NA
11/19/96		3.00			DRY		95.20	NG	NA	94.67	NG	NA
12/17/96		2.17			NG		95.20	NG	NA	94.67	NG	NA
01/27/97		2.13			NG		95.20	NG	NA	94.67	NG	NA
02/18/97		2.56			2.28		95.20	NG	NA	94.67	NG	NA
03/27/97		1.86			1.27		95.20	NG	NA	94.67	NG	NA
04/17/97		1.94			1.39		95.20	NG	NA	94.67	NG	NA
05/21/97		2.93			2.44		95.20	NG	NA	94.67	NG	NA
08/27/97		4.28			DRY		95.20	NG	NA	94.67	2.46	92.21
11/21/97		3.84			3.06		95.20	2.26	92.94	94.67	0.95	93.72
02/11/98		1.34			1.88		95.20	1.47	93.73	94.67	1.31	93.36
05/11/98		1.99			4.08		95.20	0.31	94.89	94.67	0.98	93.69
08/17/98		4.95			4.96		95.20	2.35	92.85	94.67	2.58	92.09
11/18/98		5.27			3.27		95.20	2.30	92.90	94.67	1.91	92.76
02/19/99		2.59			1.92		95.20	0.50	94.70	94.67	1.77	92.90
05/21/99		3.23			2.20		95.20	1.71	93.49	94.67	2.42	92.25

NA = Not Available NG = Not Gauged

## Well Gauging Data

## Dolphin Mart Site

## New London Naval Submarine Base, Groton, CT

Date	WE-1			WE-1A			WE-2D			WE-2S		
	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation
07/02/96		DRY			DRY		100.84	6.56	94.28	100.86	6.78	94.08
07/03/96		NG			NG		100.84	6.35	94.49	100.86	6.58	94.28
07/12/96		NG			NG		100.84	6.83	94.01	100.86	6.96	93.90
07/16/96		NG			NG		100.84	6.24	94.60	100.86	6.47	94.39
07/17/96		NG			NG		100.84	5.88	94.96	100.86	6.30	94.56
07/19/96		NG			NG		100.84	5.53	95.31	100.86	6.18	94.68
07/22/96		NG			NG		100.84	6.42	94.42	100.86	6.45	94.41
07/23/96		NG			NG		100.84	6.33	94.51	100.86	6.70	94.16
07/24/96		NG			NG		100.84	5.67	95.17	100.86	6.31	94.55
07/25/96		NG			NG		100.84	NG	NA	100.86	NG	NA
07/26/96		NG			NG		100.84	NG	NA	100.86	NG	NA
08/01/96		NG			NG		100.84	6.09	94.75	100.86	6.39	94.47
08/02/96		NG			NG		100.84	5.73	95.11	100.86	6.30	94.56
08/05/96		NG			NG		100.84	NG	NA	100.86	NG	NA
09/04/96		NG			NG		100.84	7.51	93.33	100.86	7.39	93.47
10/02/96		NG			NG		100.84	5.82	95.02	100.86	6.41	94.45
10/21/96		NG			NG		100.84	NG	NA	100.86	NG	NA
11/19/96		NG			NG		100.84	5.89	94.95	100.86	6.46	94.40
12/17/96		NG			NG		100.84	NG	NA	100.86	6.10	94.76
01/27/97		NG			NG		100.84	5.73	95.11	100.86	6.24	94.62
02/18/97		NG			NG		100.84	5.84	95.00	100.86	6.32	94.54
03/27/97		5.03			DRY		100.84	5.45	95.39	100.86	6.21	94.65
04/17/97		NG			NG		100.84	NG	NA	100.86	NG	NA
05/21/97		DRY			DRY		100.84	6.11	94.73	100.86	NG	NA
08/27/97		NG			NG		100.84	7.03	93.81	100.86	NG	NA
11/21/97		DRY			DRY		100.84	6.66	94.18	100.86	6.97	93.89
02/11/98		NG			NG		100.84	5.49	95.35	100.86	6.29	94.57
05/11/98		NG			NG		100.84	5.16	95.68	100.86	6.18	94.68
08/17/98		NG			NG		100.84	7.50	93.34	100.86	7.53	93.33
11/18/98		DRY			DRY		100.84	7.23	93.61	100.86	7.62	93.24
02/19/99		NG			NG		100.84	5.72	95.12	100.86	6.44	94.42
05/21/99		NG			NG		100.84	6.26	94.58	100.86	6.69	94.17

NA = Not Available NG = Not Gauged

Date	WE-3			WE-4			WE-5			WE-6		
	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater	Groundwater Elevation
07/02/96	103.14	8.67	103.14	97.52	4.24	93.28	99.72	4.80	94.92	97.32	3.40	93.92
07/03/96	103.14	8.69	94.47	97.52	6.38	91.14	99.72	4.33	95.39	97.32	2.30	95.02
07/12/96	103.14	8.93	94.45	97.52	6.38	91.14	99.72	4.98	94.74	97.32	3.60	93.72
07/16/96	103.14	8.50	94.21	97.52	6.27	91.25	99.72	4.08	95.64	97.32	2.76	94.56
07/17/96	103.14	8.62	94.64	97.52	6.47	91.05	99.72	3.62	96.10	97.32	1.72	95.60
07/19/96	103.14	8.45	94.52	97.52	NG	NA	99.72	3.19	96.53	97.32	1.08	96.24
07/22/96	103.14	8.64	94.69	97.52	3.68	93.84	99.72	3.73	95.99	97.32	1.96	95.36
07/23/96	103.14	8.72	94.50	97.52	8.72	88.80	99.72	4.49	95.23	97.32	2.40	94.92
07/24/96	103.14	8.45	94.42	97.52	3.38	94.14	99.72	3.33	96.39	97.32	1.49	95.83
07/25/96	103.14	NG	NA	97.52	NG	NA	99.72	NG	NA	97.32	2.12	95.20
07/26/96	103.14	NG	NA	97.52	NG	NA	99.72	NG	NA	97.32	2.95	94.37
08/01/96	103.14	8.55	103.14	97.52	3.22	94.30	99.72	4.06	95.66	97.32	1.15	96.17
08/02/96	103.14	8.56	94.59	97.52	2.96	94.56	99.72	3.76	95.96	97.32	0.86	96.46
08/05/96	103.14	NG	NA	97.52	NG	NA	99.72	NG	NA	97.32	1.28	96.04
09/04/96	103.14	9.73	103.14	97.52	5.11	92.41	99.72	6.23	93.49	97.32	4.59	92.73
10/02/96	103.14	8.41	93.41	97.52	3.11	94.41	99.72	3.96	95.76	97.32	1.60	95.72
10/21/96	103.14	NG	NA	97.52	NG	NA	99.72	NG	NA	97.32	2.43	94.89
11/19/96	103.14	8.32	103.14	97.52	3.53	93.99	99.72	3.87	95.85	97.32	2.90	94.42
12/17/96	103.14	7.92	94.82	97.52	2.17	95.35	99.72	2.96	96.76	97.32	2.10	95.22
01/27/97	103.14	7.94	95.22	97.52	3.08	94.44	99.72	3.26	96.46	97.32	1.53	95.79
02/18/97	103.14	7.95	95.20	97.52	3.49	94.03	99.72	3.21	96.51	97.32	2.55	94.77
03/27/97	103.14	8.08	95.19	97.52	1.66	95.86	99.72	3.51	96.21	97.32	1.15	96.17
04/17/97	103.14	NG	NA	97.52	3.00	94.52	99.72	3.18	96.54	97.32	1.30	96.02
05/21/97	103.14	8.20	103.14	97.52	3.73	93.79	99.72	4.07	95.65	97.32	2.84	94.48
08/27/97	103.14	9.54	94.94	97.52	4.69	92.83	99.72	5.77	93.95	97.32	4.07	93.25
11/21/97	103.14	8.86	93.60	97.52	7.53	89.99	99.72	5.29	94.43	97.32	3.56	93.76
02/11/98	103.14	8.33	94.28	97.52	2.14	95.38	99.72	2.87	96.85	97.32	1.35	95.97
05/11/98	103.14	7.91	94.81	97.52	7.51	*	99.72	2.50	97.22	97.32	2.02	95.30
08/17/98	103.14	9.78	95.23	97.52	7.45	*	99.72	5.81	93.91	97.32	4.61	92.71
11/18/98	103.14	8.88	93.36	97.52	8.65	*	99.72	6.15	93.57	97.32	5.42	91.90
02/19/99	103.14	8.49	94.65	97.52	3.49	94.03	99.72	3.51	96.21	97.32	2.50	94.82
05/21/99	103.14	8.57	94.57	97.52	4.95	92.57	99.72	4.66	95.06	97.32	3.06	94.26

Date	ERM-5			ERM-6			ERM-7		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96		3.82		22.09	5.14	16.95	21.98	5.27	16.71
10/16/96		NG		22.09	4.82	17.27	21.98	4.75	17.23
11/18/96		3.72		22.09	4.64	17.45	21.98	4.93	17.05
12/16/96		3.10		22.09	4.08	18.01	21.98	4.21	17.77
02/17/97		3.00		22.09	4.34	17.75	21.98	4.29	17.69
03/27/97		2.89		22.09	4.28	17.81	21.98	4.19	17.79
04/15/97		NG		22.09	NG	NA	21.98	NG	NA
04/17/97		2.73		22.09	NG	NA	21.98	NG	NA
04/24/97		NG		22.09	NG	NA	21.98	NG	NA
05/21/97		NG		22.09	4.72	17.37	21.98	4.61	17.37
08/28/97		NG		22.09	5.29	16.80	21.98	6.49	15.49
11/20/97		4.35		22.09	5.24	16.85	21.98	5.35	16.63
02/12/98		3.59		22.09	4.68	17.41	21.98	4.71	17.27
05/12/98		2.09		22.09	2.69	19.40	21.98	3.32	18.66
08/19/98		3.43		22.09	5.26	16.83	21.98	5.19	16.79
11/19/98		4.58		22.09	5.80	16.29	21.98	5.80	16.18
02/18/99		3.80		22.09	4.74	17.35	21.98	NG	NG
05/26/99		3.52		22.09	5.16	16.93	21.98	5.02	16.96

Date	ERM-8			ERM-9			ERM-10		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96		NG			NG			NG	
10/16/96		NG			NG			NG	
11/18/96		NG			NG			NG	
12/16/96		NG			NG			NG	
02/17/97		NG			NG			NG	
03/27/97		NG			NG			NG	
04/15/97		NG			NG			NG	
04/17/97		NG			NG			NG	
04/24/97		NG			NG			NG	
05/21/97		NG			NG			NG	
08/28/97		NG			NG			NG	
11/20/97		NG			NG			NG	
02/12/98		NG			NG			NG	
05/12/98		NG			NG			NG	
08/19/98		NG			NG			NG	
11/19/98		NG			NG			NG	
02/18/99		NG			NG			NG	
05/26/99		NG			NG			NG	

Date	ERM-11			ERM-12			ERM-13		
	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation
09/16/96	23.19	NG	NA	23.16	8.38	14.78	26.01	7.01	19.00
10/16/96	23.19	6.4	16.79	23.16	8.13	15.03	26.01	7.15	18.86
11/18/96	23.19	6.36	16.83	23.16	8.09	15.07	26.01	7.13	18.88
12/16/96	23.19	5.02	18.17	23.16	7.83	15.33	26.01	6.55	19.46
02/17/97	23.19	4.89	18.30	23.16	7.65	15.51	26.01	6.03	19.98
03/27/97	23.19	5.19	18.00	23.16	7.63	15.53	26.01	5.98	20.03
04/15/97	23.19	NG	NA	23.16	NG	NA	26.01	5.86	20.15
04/17/97	23.19	NG	NA	23.16	NG	NA	26.01	NG	NA
04/24/97	23.19	NG	NA	23.16	NG	NA	26.01	NG	NA
05/21/97	23.19	6.27	16.92	23.16	7.81/7.80	15.35	26.01	6.15	19.86
08/28/97	23.19	7.65	15.54	23.16	NG	NA	26.01	7.24	18.77
11/20/97	23.19	6.89	16.30	23.16	8.23	14.93	26.01	7.84	18.17
02/12/98	23.19	5.04	18.15	23.16	7.99	15.17	26.01	6.71	19.30
05/12/98	23.19	4.39	18.80	23.16	7.90	15.26	26.01	5.23	20.78
08/19/98	23.19	7.56	15.63	23.16	8.34/sheen	14.82	26.01	6.51	19.50
11/19/98	23.19	7.65	15.54	23.16	8.22	14.94	26.01	8.06	17.95
02/18/99	23.19	NG	NG	23.16	8.37	14.79	26.01	NG	NG
05/26/99	23.19	6.92	16.27	23.16	9.02/sheen	14.14	26.01	6.88	19.13

Date	ERM-14			ERM-15			ERM-16		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96	25.56	6.89	18.67		4.30			8.51	
10/16/96	25.56	6.92	18.64		3.94			8.49	
11/18/96	25.56	7.10/6.91	18.61		4.03			8.43	
12/16/96	25.56	6.35	19.21		NG			7.8	
02/17/97	25.56	5.89	19.67		NG			7.85	
03/27/97	25.56	5.82	19.74		NG			7.79	
04/15/97	25.56	5.7	19.86		3.39			7.84	
04/17/97	25.56	5.66	19.90		3.31			NG	
04/24/97	25.56	NG	NA		NG			NG	
05/21/97	25.56	6.04/5.99	19.56		NG			8.16	
08/28/97	25.56	7.24/7.01	18.49		NG			8.63/sheen	
11/20/97	25.56	7.63	17.93		4.46			8.77	
02/12/98	25.56	6.59	18.97		3.54			8.18	
05/12/98	25.56	5.09	20.47		2.63			7.32	
08/19/98	25.56	6.37/sheen	19.19		4.02			8.79/8.75	
11/19/98	25.56	7.80	17.76		4.59			9.03/9.00	
02/18/99	25.56	7.47	18.09		4.29			8.00	
05/26/99	25.56	6.62	18.94		3.47			8.58/sheen	

Date	ERM-17			ERM-18			ERM-19		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96		5.62			3.65		22.42	5.28	17.14
10/16/96		5.56			3.96		22.42	5.17	17.25
11/18/96		5.53			NG		22.42	5.19	17.23
12/16/96		3.73			NG		22.42	4.23	18.19
02/17/97		4.53			NG		22.42	4.18	18.24
03/27/97		4.87			NG		22.42	4.06	18.36
04/15/97		4.84			NG		22.42	NG	NA
04/17/97		4.67			NG		22.42	3.91	18.51
04/24/97		NG			NG		22.42	NG	NA
05/21/97		5.26			NG		22.42	4.46	17.96
08/28/97		5.77			NG		22.42	5.41	17.01
11/20/97		5.77			NG		22.42	5.79	16.63
02/12/98		5.14			NG		22.42	4.44	17.98
05/12/98		2.98			NG		22.42	3.43	18.99
08/19/98		5.83			NG		22.42	5.11	17.31
11/19/98		6.05			NG		22.42	6.29	16.13
02/18/99		NG			NG		22.42	NG	NG
05/26/99		5.20			NG		22.42	5.06	17.36

Date	FD-1			FD-2			FD-3		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96	NI	NI	NI	NI	NI	NI	NI	NI	NI
10/16/96	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/18/96	NI	NI	NI	NI	NI	NI	NI	NI	NI
12/16/96	NI	NI	NI	NI	NI	NI	NI	NI	NI
02/17/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
03/27/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
04/15/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
04/17/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
04/24/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
05/21/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
08/28/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/20/97	NI	NI	NI	NI	NI	NI	NI	NI	NI
02/12/98	NI	NI	NI	NI	NI	NI	NI	NI	NI
05/12/98	NI	NI	NI	NI	NI	NI	NI	NI	NI
08/19/98	NI	NI	NI	NI	NI	NI	NI	NI	NI
11/19/98	NI	NI	NI	NI	NI	NI	NI	NI	NI
02/18/99	NI	NI	NI	NI	NI	NI	NI	NI	NI
05/26/99	14.80	8.05	6.75	14.76	8.26	6.50	14.20	8.43	5.77

NI = Not Installed

Date	MW-4			MW-6			NEX-1		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96		NG			NG		24.16	NG	NA
10/16/96		NG			NG		24.16	NG	NA
11/18/96		NG			NG		24.16	NG	NA
12/16/96		NG			NG		24.16	NG	NA
02/17/97		NG			NG		24.16	NG	NA
03/27/97		4.91			4.49		24.16	5.81	18.35
04/15/97		NG			NG		24.16	5.74	18.42
04/17/97		NG			NG		24.16	NG	NA
04/24/97		NG			NG		24.16	NG	NA
05/21/97		NG			4.85		24.16	5.80	18.36
08/28/97		NG			5.34		24.16	6.15	18.01
11/20/97		NG			5.33		24.16	6.45	17.71
02/12/98		NG			4.92		24.16	5.28	18.88
05/12/98		4.16			3.74		24.16	5.20	18.96
08/19/98		NG			5.41		24.16	5.99	18.17
11/19/98		6.99			5.64		24.16	6.31	17.85
02/18/99		6.12			4.72		24.16	NG	NG
05/26/99		6.02			4.83		24.16	6.42	17.74

Date	OBG-1			OBG-2			OBG-4		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96		NG		25.36	NG	NA	25.22	NG	NA
10/16/96		NG		25.36	NG	NA	25.22	NG	NA
11/18/96		NG		25.36	NG	NA	25.22	NG	NA
12/16/96		NG		25.36	NG	NA	25.22	NG	NA
02/17/97		NG		25.36	NG	NA	25.22	NG	NA
03/27/97		8.12		25.36	7.95	17.41	25.22	7.75	17.47
04/15/97		NG		25.36	7.92	17.44	25.22	7.75	17.47
04/17/97		NG		25.36	7.91	17.45	25.22	7.78	17.44
04/24/97		NG		25.36	NG	NA	25.22	7.74	17.48
05/21/97		7.98		25.36	7.81	17.55	25.22	7.64	17.58
08/28/97		8.22		25.36	8.03	17.33	25.22	7.9	17.32
11/20/97		8.43		25.36	8.23	17.13	25.22	8.07	17.15
02/12/98		8.19		25.36	8.01	17.35	25.22	7.84	17.38
05/12/98		7.88/7.87		25.36	7.71	17.65	25.22	7.51	17.71
08/19/98		8.13		25.36	7.94	17.42	25.22	7.76	17.46
11/19/98		8.21		25.36	8.03	17.33	25.22	7.91	17.31
02/18/99		7.97		25.36	7.78	17.58	25.22	7.26	17.96
05/26/99		8.35		25.36	8.17	17.19	25.22	8.05	17.17

Date	OBG-6			OBG-7			OBG-8		
	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/ Product	Groundwater Elevation
09/16/96	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
10/16/96	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
11/18/96	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
12/16/96	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
02/17/97	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
03/27/97	24.76	7.95	16.81	25.47	5.61	19.86	24.87	NG	NA
04/15/97	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
04/17/97	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
04/24/97	24.76	NG	NA	25.47	NG	NA	24.87	NG	NA
05/21/97	24.76	NG	NA	25.47	5.79	19.68	24.87	5.60	19.27
08/28/97	24.76	NG	NA	25.47	6.49	18.98	24.87	NG	NA
11/20/97	24.76	NG	NA	25.47	7.09	18.38	24.87	NG	NA
02/12/98	24.76	NG	NA	25.47	5.84	19.63	24.87	NG	NA
05/12/98	24.76	NG	NA	25.47	4.56	20.91	24.87	NG	NA
08/19/98	24.76	NG	NA	25.47	5.83	19.64	24.87	NG	NA
11/19/98	24.76	NG	NA	25.47	7.22	18.25	24.87	NG	NA
02/18/99	24.76	NG	NG	25.47	NG	NG	24.87	NG	NG
05/26/99	24.76	NG	NG	25.47	6.04	19.43	24.87	NG	NG

Date	OBG-9			VEA-4			VEA-7		
	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation	Well Casing Elevation	Depth to Groundwater/Product	Groundwater Elevation
09/16/96	24.93	NG	NA		NG			NG	
10/16/96	24.93	NG	NA		NG			NG	
11/18/96	24.93	NG	NA		NG			NG	
12/16/96	24.93	NG	NA		NG			NG	
02/17/97	24.93	NG	NA		NG			NG	
03/27/97	24.93	5.54	19.39		NG			NG	
04/15/97	24.93	5.54	19.39		NG			NG	
04/17/97	24.93	5.58	19.35		NG			NG	
04/24/97	24.93	NG	NA		NG			NG	
05/21/97	24.93	5.84/5.31	19.49		NG			NG	
08/28/97	24.93	6.56/6.45	18.45		NG			NG	
11/20/97	24.93	7.06	17.87		NG			NG	
02/12/98	24.93	NG	NA		NG			NG	
05/12/98	24.93	4.60/4.58	20.35		NG			NG	
08/19/98	24.93	5.81	19.12		NG			NG	
11/19/98	24.93	7.34	17.59		NG			NG	
02/18/99	24.93	6.36	18.57		NG			NG	
05/26/99	24.93	6.05	18.88	3.25	2.73	0.52		NG	

Date	VEA-14		VEB-6		Groundwater Elevation
	Well Casing Elevation	Depth to Groundwater/Product	Well Casing Elevation	Depth to Groundwater/Product	
09/16/96		NG		NG	
10/16/96		NG		NG	
11/18/96		NG		NG	
12/16/96		NG		NG	
02/17/97		NG		NG	
03/27/97		NG		NG	
04/15/97		NG		NG	
04/17/97		NG		NG	
04/24/97		NG		NG	
05/21/97		NG		NG	
08/28/97		NG		NG	
11/20/97		NG		NG	
02/12/98		NG		NG	
05/12/98		NG		NG	
08/19/98		NG		NG	
11/19/98		NG		NG	
02/18/99		NG		NG	
05/26/99	7.07	4.46	2.61	DRY	

**ATTACHMENT 5**

**HISTORICAL GROUNDWATER SAMPLING RESULTS**

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-5	3/95	967	431	390	1,340	<100	NS	3,295.1	430	8,250
	5/96	112	6.0	34	28	<10	NS	196	159	554
	11/96	<b>370D</b>	14	33	61 D	<1.0	3,000	480	1,100	1,600
	2/97	<b>1,100</b>	1,100	580	1,600	<50	3,000	4,440 B	3,900	9,100
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	730	250	870	620	<10	2,300	2,470	NS	NS
	2/98	310	460	300	710	<10	5,400	1,780	NS	NS
	5/98	790	280	1,200	4,900	<100	9,200	7,170	NS	NS
	8/98	130	16	330	1,100	<10	2,200	1,576	NS	NS
	11/98	140	8.0	32	75	<1.0	4,200	255	NS	NS
	2/99	56	2.0	2.0	3.0	2.0	1,900	65	NS	NS
	5/99	590	74	560	2,000	<20	1,900	3,224	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
page 2 of 25

Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-6	5/96	15	<1.0	<1.0	<1.0	<2.0	NS	35	63	<473
	11/96	<b>610</b>	230	770	2,400 E	<40	5,000	4,054	500	7,800
	2/97	<b>430 D</b>	21	300	1,000 D	<10	2,000	1,763 B	2,200	4,800
	5/97	<b>430 D</b>	21	640 D	2,300 D	<1.0	1,000	3,391 D	1,500	6,700
	8/97	<b>470</b>	90	650	2,000	<1.0	2,000	3,210	3,500	6,200
	11/97	<b>250 D</b>	23	260 D	530 D	<1.0	<500	1,063	NS	NS
	2/98	97 D	13	110 D	240 D	<1.0	<500	460	NS	NS
	5/98	21	4.0	28	78	<1.0	<500	131	NS	NS
	8/98	63	8.0	170D	<190 D	<1.0	800	431	NS	NS
	11/98	1.0	<1.0	3.0	<1.0	<1.0	<400	4.0	NS	NS
	2/99	<1.0	<1.0	<1.0	<1.0	2.0	<400	2.0	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	5.0	<400	5.0	NA	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
page 3 of 25

Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-7	5/96	5.0	<1.0	<1.0	<1.0	<2.0	NS	8.0	38	<473
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	4.0	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	1.0	<500	<500
	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-8 (destroyed)	3/95	109	11.5	272	157	<50	NS	665.4	464	2,350
	5/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS	

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-9 (destroyed)	5/96	<1.0	<1.0	<1.0	<1.0	2.0	NS	4.0	3,310	<473
	11/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-11	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	3.0	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	2.0	<500	<500
	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-12	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	NS	1.0	27	<473
	5/96	1.0	2.0	7.0	14	<2.0	NS	61	4,300	1,390
	11/96	<1.0	2.0	<1.0	9.0	<1.0	3,000	16	7,300	6,700
	2/97	<1.0	1.0	2.0	9.0	<1.0	15,000	13	4,800	1,300
	5/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	<1.0	<1.0	<1.0	4.0	<1.0	7,100	4.0	NS	NS
	2/98	<1.0	<1.0	<1.0	1.0	<1.0	23,000	1.0	NS	NS
	5/98	<1.0	<1.0	2.0	2.0	<1.0	5,400	4.0	NS	NS
	8/98	<5.0	<5.0	<5.0	<5.0	<5.0	5,200	<5.0	NS	NS
	11/98	<1.0	<1.0	<1.0	2.0	<1.0	5,100	2.0	NS	NS
	2/99	<1.0	<1.0	<1.0	<1.0	<1.0	1,000	<1.0	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	<1.0	1,000	<1.0	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
page 8 of 25

Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-13	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	NS	534	50	<473
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	NS	9.0	<100	<473
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	2.0	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	<1.0	<1.0	<1.0	1.0	<1.0	<500	1.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS	

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-14	3/95	292	4,880	8,190	6,020	<2.0	NS	19,995	4,840	3,670
	5/96	305	5,670	1,250	8,350	<2.0	NS	22,543	7,290	3,890
	11/96	270	8,300D	1,700D	11,000D	<25	7,000	21,270	12,000	30,000
	2/97	140	4,500D	980	7,100	<100	60,000	12,840	20,000	20,000
	5/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	8/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	11/97	40	2,300D	700D	2,500D	<1.0	4,600	5,540	NS	NS
	2/98	<1.0	930	210	2,800	<1.0	28,000	3,940	NS	NS
	5/98	80	2,200	690	5,400	<1.0	11,000	8,370	NS	NS
	8/98	270	5,900	1,600	16,000	<100	24,000	23,770	NS	NS
	11/98	<50	1,000	730	7,300	<50	16,000	9,030	NS	NS
	2/99	<100	420	160	5,300	<100	20,000	5,880	NS	NS
	5/99	<50	590	500	4,200	<50	15,000	5,290	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-15	11/96	280	760	330	1,100	<40	1,000	2,517	2,300	4,500
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	210	630	240	120	<10	<500	1,200	NS	NS
	2/98	8.0	9.0	4.0	25	<1.0	600	46	NS	NS
	5/98	1,100	2,700	810	3,200	<50	11,000	7,810	NS	NS
	8/98	1,000	2,200	1,100	3,600	<100	5,900	7,900	NS	NS
	11/98	150 D	270 D	280 D	1,300 D	<1.0	3,100	2,000	NS	NS
	2/99	38	64	48	170	1.0	600	321	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	<1.0	<400	<1.0	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-16	11/96	37	<2.0	13	16	30	<1,000	68	4,400	2,000
	2/97	56D	<1.0	16	34	27	6,000	136	11,000	1,400
	5/97	34	<1.0	20	42	11	26,000	107	60,000	2,000
	8/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	11/97	5.0	<1.0	7.0	30	<1.0	15,000	42	NS	NS
	2/98	8.0	<1.0	3.0	15	6.0	25,000	32	NS	NS
	5/98	25	<1.0	9.0	18	13	4,800	65	NS	NS
	8/98	LP	LP	LP	LP	LP	LP	LP	LP	LP
	11/98	LP	LP	LP	LP	LP	LP	LP	LP	LP
	2/99	12	<1.0	7.0	29	9.0	57,000	57	NS	NS
	5/99	8.0	<1.0	2.0	3.0	14	1,900	27	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-17	11/96	10	<1.0	<1.0	<1.0	9.0	<1,000	11	600	600
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	1,000	<1.0	500	<500
	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	1,500	<500
	8/97	12	<1.0	<1.0	<1.0	<1.0	1,000	12	1,000	500
	11/97	2.0	<1.0	<1.0	<1.0	<1.0	<500	2.0	NS	NS
	2/98	3.0	<1.0	<1.0	<1.0	<1.0	<500	3.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	13	<1.0	<1.0	<1.0	3.0	900	16	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
ERM-19	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	1.0	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	<10	<10	<10	13	<10	<500	13	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.4) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
FD-1	5/98	210	3.0	140	29	66	48,000	448	NS	NS
	8/98	160	<10	55	<10	140	3,300	355	NS	NS
	11/98	42	<5.0	5.0	<5.0	220	9,000	267	NS	NS
	2/99	<50	<50	<50	<50	780	38,000	780	NS	NS
	5/99	160	6.0	55	11	410	11,000	642	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
FD-2	5/98	63	<1.0	<1.0	3.0	31	14,000	97	NS	NS
	8/98	62	1.0	3.0	<1.0	36	3,300	102	NS	NS
	11/98	<1.0	<1.0	<1.0	<1.0	4.0	4,000	4.0	NS	NS
	2/99	<1.0	<1.0	<1.0	<1.0	25	5,000	25	NS	NS
	5/99	58	<1.0	1.0	<1.0	30	2,500	89	NS	NS
FD-3	5/98	<1.0	<1.0	<1.0	<1.0	9.0	<500	9.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	4.0	<600	4.0	NS	NS
	11/98	<1.0	<1.0	<1.0	<1.0	3.0	<1,300	4.0	NS	NS
	2/99	<1.0	<1.0	<1.0	<1.0	10	<400	10	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	4.0	<400	4.0	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
MW-4	2/97	29	1.0	<1.0	3.0	<1.0	NS	33	NS	NS
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	15	2.0	<1.0	<1.0	<1.0	1,000	17	NS	NS
	8/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/98	<b>490</b>	3,000	280	3,100	<50	NS	6,870	NS	NS
	2/99	<250	6,500	470	6,500	<250	8,800	13,470	NS	NS
	5/99	<b>230</b>	1,000	410	3,700	<20	NA	5,340	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
MW-6	2/97	<1.0	9.0	<1.0	<1.0	<1.0	NS	9.0	NS	NS
	5/97	18	<1.0	2.0	8.0	<1.0	<500	28	<500	<500
	8/97	35D	1.0	<1.0	8.0	<1.0	<500	46	<500	<500
	11/97	6.0	<1.0	<1.0	3.0	<1.0	<500	9.0	NS	NS
	2/98	8.0	<1.0	<1.0	3.0	<1.0	<500	11	NS	NS
	5/98	1.0	<1.0	<1.0	<1.0	<1.0	<500	1.0	NS	NS
	8/98	170	8.0	13	62	<2.0	<500	253	NS	NS
	11/98	5.0	<1.0	<1.0	2.0	<1.0	<400	7.0	NS	NS
	2/99	71	<1.0	<1.0	3.0	3.0	<400	77	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	<1.0	<400	<1.0	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
NEX-1	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	NS	7.0	35	<143
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	NS	8.0	<122	<143
	11/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/97	2.0	11	4.0	34	<1.0	<500	57	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	3.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	<1.0	<1.0	<1.0	<1.0	<1.0	<400	<1.0	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-1	5/97	<b>480</b>	3,300 D	1,100D	10,000 D	540	110,000	15,420	260,000	49,000
	8/97	<b>1,600</b>	6,200	1,700	12,000	810	220,000	<b>22,310</b>	580,000	56,000
	11/97	<b>1,600</b>	8,800	2,300	16,000	38,000	21,000	66,700	NS	NS
	2/98	<b>1,400</b>	7,100 D	2,200	15,000 D	24,000 D	160,000	49,700	NS	NS
	5/98	LP	LP	LP	LP	LP	LP	LP	LP	LP
	8/98	<b>340</b>	1,400	790	5,000	1,600	25,000	9,130	NS	NS
	11/98	<b>13,000</b>	<b>51,000</b>	15,000	<b>110,000</b>	1,000	86,000	190,000	NS	NS
	2/99	<b>2,500</b>	16,000	1,600	15,000	4,600	40,000	39,700	NS	NS
	5/99	130	840	270	7,000	720	27,000	8,960	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-2	5/97	77	280	530	9,800 D	290	87,000	10,977	120,000	44,000
	8/97	<b>470</b>	410	1,100	11,000	830	180,000	13,990	99,000	75,000
	11/97	370	380	960	9,200	40,000	23,000	50,910	NS	NS
	2/98	410	340	680	7,900	26,000 D	120,000	35,330	NS	NS
	5/98	570	<1.0	650	6,300	15,000	33,000	22,520	NS	NS
	8/98	330	620	760	5,300	27,000 D	25,000	34,010	NS	NS
	11/98	<250	300	480	5,600	2,000	25,000	8,380	NS	NS
	2/99	<100	500	220	4,100	1,600	39,000	6,420	NS	NS
	5/99	<50	58	290	3,700	2,000	29,000	6,048	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-4	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	NS	<1.0	NS	NS
	5/97	<1.0	<1.0	<1.0	2.0	<1.0	6,000	2.0	3,100	<500
	8/97	<1.0	<1.0	<1.0	<1.0	4.0	1,000	4.0	3,500	<500
	11/97	<1.0	3.0	<1.0	7.0	8.0	NS	18	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	5.0	4,100	5.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	5.0	6,100	5.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	<250	3,100	1,200	11,000	<250	160,000	15,300	NS	NS
	5/99	<100	<100	<100	1,400	<100	NA	1,400	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-7	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	2/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	5/98	<1.0	<1.0	<1.0	<1.0	<1.0	900	<1.0	NS	NS
	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
L P = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-8 (destroyed)	5/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/99	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/99	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes: NA = Not Analyzed  
NS = Not sampled (NS results have been shaded)  
Bold numbers indicate an exceedance of State of CT Clean-up Standards  
D = Analyte concentration was obtained from a diluted analysis, B = Analyte detected in method blank, E = Analyte concentration exceeded the calibration range  
DRO=Diesel Range Organics, GRO=Gasoline Range Organics  
LP = Liquid-phase petroleum present; well could not be sampled  
<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M

**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
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Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/B020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
OBG-9	5/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	8/97	LP	LP	LP	LP	LP	LP	LP	LP	LP
	11/97	490	4,800	2,100	16,000	<200	24,000	23,390	NS	NS
	2/98	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/98	LP	LP	LP	LP	LP	LP	LP	LP	LP
	8/98	56	280	250	2,300	23	NS	2,909	NS	NS
	11/98	31	97	120	1,200	<5.0	5,800	1,448	NS	NS
	2/99	77	190 D	32	340 D	1.0	2,900	640	NS	NS
	5/99	140	4,700	2,500	12,000	<100	1,800	19,340	NS	NS

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LP = Liquid-phase petroleum present; well could not be sampled  
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**Table 2**  
**Historical Groundwater Sampling Results**  
**NEX - March 1995 - June 1999**  
**Naval Submarine Base, Groton, CT**

(analytical results in µg/l)  
page 25 of 25

Compound		BTEX				MTBE	TPH (By EPA Method 418.1) <sup>1</sup>	Total Volatiles (by EPA Method 8010/8020)	DRO	GRO
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	50,000	21,300	50,000	NA	NA	NA	NA
Well	Date									
VEA-4	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<600	<1.0	NS	NS
	11/98	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)
	2/99	<1.0	<1.0	<1.0	<1.0	<1.0	<400	<1.0	NS	NS
	5/99	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)
	6/99	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS	NS
VEA-7	8/98	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
	11/98	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)
	2/99	<1.0	<1.0	<1.0	<1.0	1.0	<400	1.0	NS	NS
	5/99	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)	NS (dry)
	6/99	<1.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0	NS	NS
VEA-14	8/98	<10	<10	410	1,000	<10	<500	1,410	NS	NS
	11/98	<1.0	<1.0	16	44	<1.0	1,800	60	NS	NS
	2/99	<1.0	<1.0	21	23	<1.0	5,000	44	NS	NS
	5/99	<1.0	<1.0	48	<1.0	1.0	3,800	49	NS	NS

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<sup>1</sup> = Beginning 5/98, TPH was analyzed using EPA Method 8100M