N00129.AR.001249
NSB NEW LONDON
5090.3a

MONTHLY OPERATIONS SUMMARY FOR THE NAVAL EXCHANGE (NEX) AND DOLPHIN MART AIR SPARGING/SOIL VAPOR EXTRACTION SYSTEMS AND OT-8 PASSIVE FREE PRODUCT RECOVERY SYSTEM

NEW LONDON SUBMARINE BASE
GROTON, CONNECTICUT

Month: January 1998

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Fluor Daniel GTI, Inc.
Reviewed by:

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Lead Engineer

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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 January 22, 1998, thirteen (13) horizontal vapor extraction trenches (VET-1, VET-2, VET-3, VET-4, VET-5, VET-6, VET-7, VET-8, VET-9, VET-10, VET-11, VET-12, and VET-17) and seven (7) air sparge points (ASP-A, ASP-B, ASP-C, ASP-D, ASP-E, ASP-F, and ASP-G were operating. VET-13 through VET-16 and air sparge points ASP-H through ASP-Q are currently not operating due to high groundwater conditions and low dissolved VOC concentrations in their vicinity. The SVE system is currently extracting subsurface air at a flow rate of approximately 471 scfm. The air sparge system is currently injecting air at a flow rate of approximately 27 scfm. A site map has been included as **Figure 1**. The site monitoring forms for O&M conducted during the month of January, 1998 are included in **Attachment 1**. A weekly break-down of the month's field activities has been included as **Attachment 2**.

Mass Removal - The total hydrocarbon mass removal rate, based on the SVE system influent sample collected January 22, 1998, was 0.05 lbs/hour. During the period from December 29, 1997 to January 22, 1998 approximately 24 lbs of hydrocarbons were extracted by the remediation system. The total hydrocarbon mass extracted by the remediation system, as of January 22, 1998, was approximately 1,945 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 CTDEP air quality guidelines was observed.

Carbon Usage - No carbon change-out occurred during the month of January, 1998. The last carbon change at the site occurred August 27, 1996.

Discharge Monitoring Sampling - Discharge sampling for the system was conducted on January 22, 1998.

Monitoring Well Gauging - The site monitoring wells were last gauged November 21,1997 during the quarterly groundwater sampling event. Depth to groundwater at the site ranged from 0.95 feet in OBG-9A to 8.86 feet in WE-3. The next well gauging event is currently scheduled during the February 1998 quarterly groundwater sampling event. Historical well gauging data has been included in **Attachment 4**.

Monitoring Well Sampling - Monitoring well sampling was last completed on November 21, 1997. The Quarterly Groundwater Sampling Report for the November sampling event was issued on January 14 1998. The next quarterly sampling event is scheduled for February, 1998. The historical groundwater sampling results have been summarized in **Attachment 5**.

Additional Activities - On January 20, 21, and 22, 1998 modifications were completed to eight of the valve vaults (handholes) located in Sailfish Drive and four roadboxes located in the Dolphin Mart parking areas. The asphalt was square cut a minimum distance of one foot around each vault/roadbox. The asphalt and underlying stone was removed to a depth of six inches surrounding the vaults/roadboxes. A six inch thick concrete collar was then installed around each vault/roadbox. Where necessary, additional asphalt was square cut and broken asphalt and/or asphalt mounds were removed. Where additional asphalt was removed, the concrete collar was extended to cover the affected area.

NEX AIR SPARGE/SVE SYSTEM

System Status - The remediation system at the site has been operating since July 31, 1996. As of January 22, 1998, all thirty-five (35) soil vapor extraction wells were operating. The SVE system is currently extracting subsurface air at an average flow rate of approximately 545 scfm. The air sparge system was activated April 17, 1997. As of January 22, 1998, twenty-one (21) air sparge points (SPA-28 through SPA-34, SPA-36, SPA-37, and SPB-15 through SPB-26) were operating. The air sparge system is currently injecting air at a flow rate of approximately 53 scfm. As dewatering of the remedial area progresses, additional sparge points will be activated.

A site map has been included as **Figure 2**. The site monitoring forms for O&M conducted during the month of January, 1998 are included in **Attachment 1**. A weekly break-down of the monthly field activities has been included in **Attachment 2**.

Mass Removal - The total hydrocarbon mass removal rate, based on the SVE system influent sample collected January 22, 1998, was 1.00 lbs/hour. During the period from December 22, 1997 to January 22, 1998, an estimated 63 lbs of hydrocarbons were extracted by the remediation system. The total hydrocarbon mass extracted by the remediation system, as of January 22, 1998, is approximately 1,648 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 - No carbon change-out occurred during the month of January, 1998. The last carbon change occurred August 8, 1996.

Discharge Monitoring Sampling - Discharge monitoring sampling at the site was conducted on January 22, 1998.

Monitoring Well Gauging - The last complete round of well gauging occurred on November 20, 1997 during the quarterly groundwater sampling event. A round of gauging of the wells that historically have contained LNAPL was conducted on January 22, 1998. Depth to groundwater ranged from 6.39 feet in OBG-9 to 8.18 feet in ERM-16. An LNAPL sheen was detected in ERM-12. Historical well gauging data is included in **Attachment 4**. A complete round of well gauging is scheduled during the February 1998 quarterly groundwater sampling event.

Monitoring Well Sampling - Monitoring well sampling was completed on November 20, 1997. The Quarterly Groundwater Sampling Report for the November sampling event was issued on January 1, 1998. The next quarterly sampling event is scheduled for February, 1998. The historical groundwater sampling results are summarized in **Attachment 5**.

Additional Activities - On January 22, 1998, a malfunctioning pump in the moisture separator for SVE blower V-3 was replaced. The new sump pump is currently working properly. Also, the formula used to calculate the total mass removal was revised using the extraction air flowmeter totalizer readings. The cumulative total increased by approximately 40 lbs.

OT-8 PASSIVE FREE PRODUCT RECOVERY SYSTEM

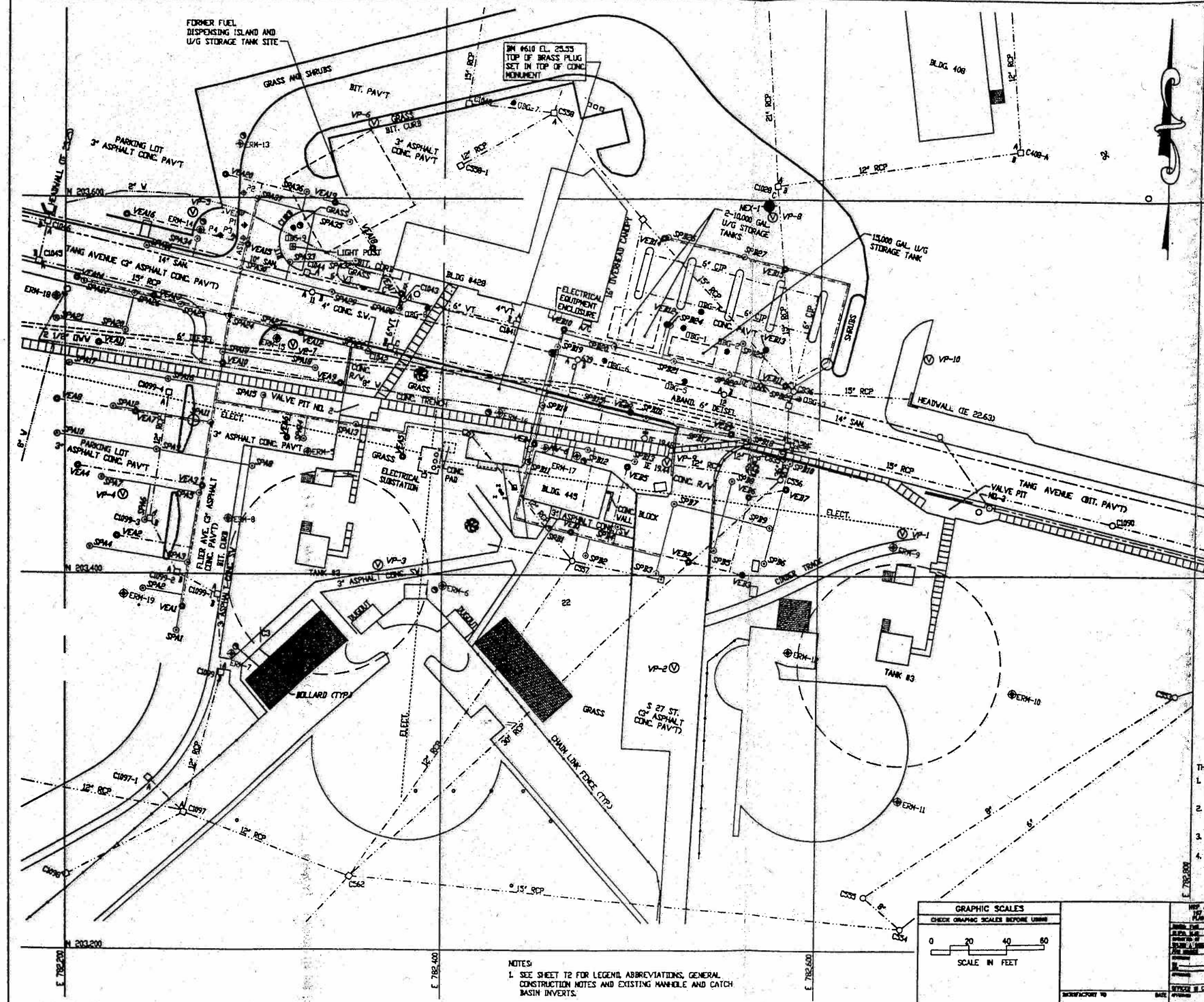
System Status - The OT-8 passive free product recovery system was activated on September 28, 1996. The system was active during the month of January 1998.

Product Recovery - As of January 22, 1998 a total of approximately 4.25 gallons of LNAPL have been recovered by the system. On January 22, 1998 the OT-8 system recovery drum and drum for bailed product were inspected. Liquid in both drums was found to be frozen, preventing gauging of the liquid levels.

Monitoring Well Gauging - MW-7 was gauged on January 20, 1998. No measurable floating product was detected. Depth to groundwater was 3.29 feet below grade. Historical gauging data for MW-7 is included in **Attachment 5**. The fluctuating groundwater table around MW-7 may lead to smearing of the LNAPL. A copy of the well construction log for MW-7 has been included as **Attachment 6**. *Please note: The screen interval of MW-7 begins at five feet below grade.*

Additional Activities - On January 30, 1998, the bleed valve for the OT-8 recovery system compressor was enclosed in ventilated 5-gallon bucket which was filled with oil absorbent material.

FIGURES



REVISIONS				
LTR	DESCRIPTION	PREP'D BY	DATE	APPROVED

HIGHEST RECORDED GROUND WATER ELEVATION

WELL NO.	GROUND WATER EL.	WELL NO.	GROUND WATER EL.
DBG-1	16.73	ERM-18	16.97
DBG-2	17.09	ERM-19	16.06
DBG-4	16.63	ERM-1	17.09
DBG-5	16.85	ERM-2	16.31
DBG-6	16.76	ERM-3	14.76
DBG-7	18.40	ERM-4	16.86
DBG-8	17.96	ERM-5	17.78
DBG-9	17.63	ERM-6	16.79
ERM-10	18.68	ERM-7	15.81
ERM-11	17.84	ERM-8	17.14
ERM-12	16.69	ERM-9	17.00
ERM-13	17.58		
ERM-14	17.46		
ERM-15	17.59		
ERM-16	17.71		
ERM-17	16.91		

NOTE:
GROUND WATER DATA SHOWN ON PLANS ARE APPROXIMATELY AS SHOWN FOR BIDDING PURPOSES. ACTUAL WELL ELEVATIONS TO BE DETERMINED IN FIELD BY CONTRACTOR.

THIS MAP WAS PREPARED FROM MAPS LISTED BELOW

1. EXISTING TOPOGRAPHY FROM MAP BY JAMES S. MINGES & ASSOCIATES, CARLSON & SWEATT FARMINGTON, CT & NEW YORK, N.Y. DATED 31 DEC. 1974.
2. EXISTING UTILITIES FROM 40 SCALE UTILITY MAPS SUPPLIED BY THE DEPARTMENT OF PUBLIC WORKS, NAVAL SUBMARINE BASE, NEW LONDON, GROTON, CT.
3. GROUND WATER ANALYTICAL RESULTS, JANUARY, 1992 NEX STATION SITE US SUBBASE, GROTON, CT PREPARED FOR ERM-PNC.
4. ALL TOPOGRAPHIC FEATURES AND INVERTS SHOWN HEREIN SHALL BE FIELD VERIFIED.

NOTES:
1. SEE SHEET T2 FOR LEGEND, ABBREVIATIONS, GENERAL CONSTRUCTION NOTES AND EXISTING MANHOLE AND CATCH BASIN INVERTS.

GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING
0 20 40 60
SCALE IN FEET

NAVY ASSOCIATES, INC.
NEW ENGLAND DIV.
PLAINVILLE, CT

DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
NORTHERN DIVISION — PENNSYLVANIA

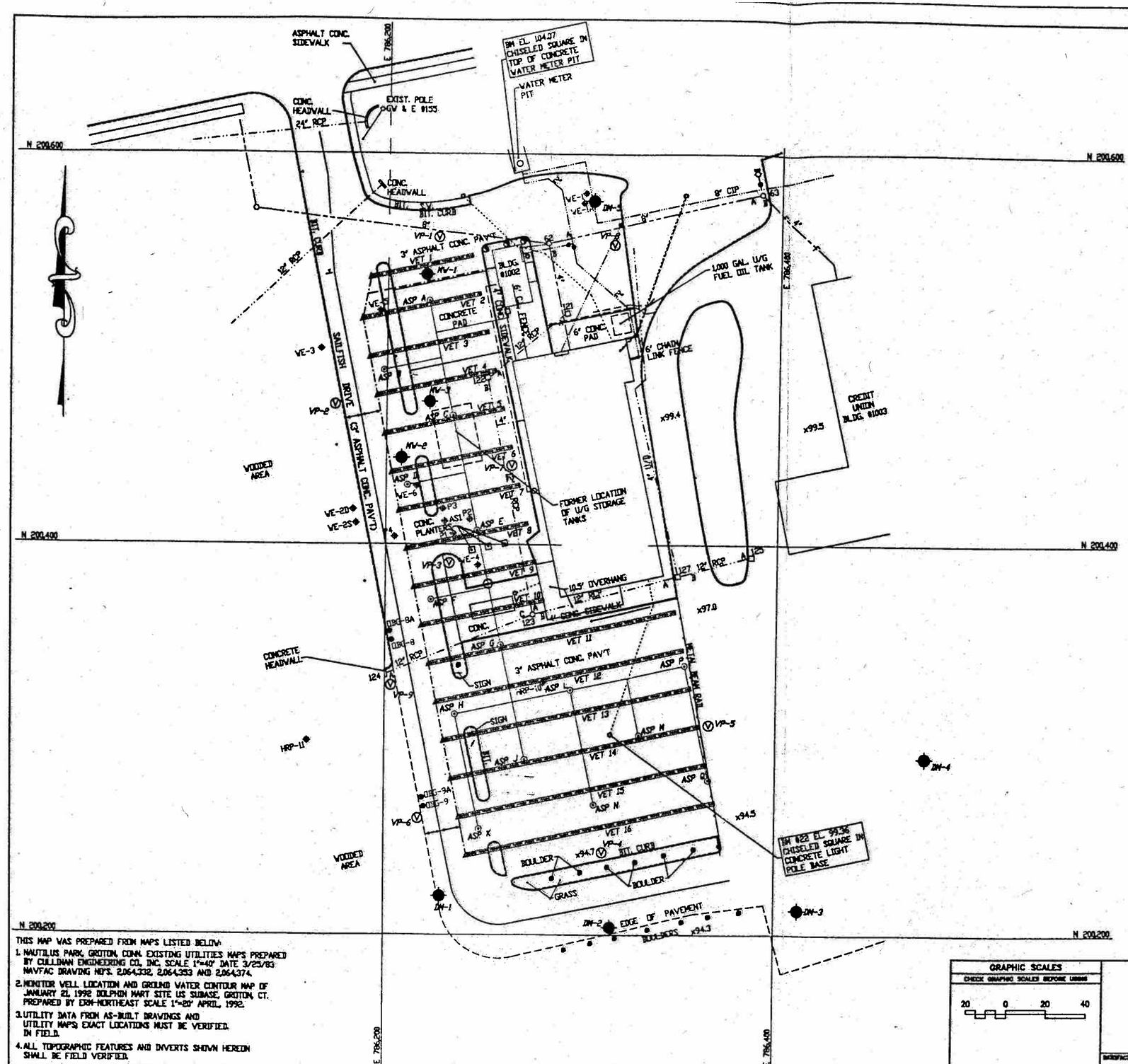
NAVAL SUBMARINE BASE — NEW LONDON, CONNECTICUT

REMEDIATION OF CONTAMINATED SOIL/GROUND WATER

FIGURE 2 - SITE PLAN
NAVAL EXCHANGE (NEX)

DSN. CODE	DWG. NO.	DRAFTING DRAWING NO.	DR. NO.
F	80091	2166439	C1-1

CONTR. CONTR. NO. N62472-88-C-0066
SPEC. NO. 84-88-0066 SHEET 4 OF 34



REVISIONS				
LTR	DESCRIPTION	PREP'D BY	DATE	APPROVED

HIGHEST RECORDED GROUND WATER ELEVATIONS

WELL NO.	GROUNDWATER ELEVATION
VE-1A	96.84
VE-2S	94.25
VE-2D	94.31
VE-3	93.93
VE-4	94.11
VE-5	95.40
VE-6	95.41
DBG-8A	93.70
DBG-9A	94.80
HRP-10	93.5 (ESTIMATED)
HRP-11	92.5 (ESTIMATED)

NOTE:
GROUND WATER DATA SHOWN ON PLANS ARE APPROXIMATELY AS SHOWN FOR BIDDING PURPOSES. ACTUAL WELL ELEVATIONS TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.

SOIL VAPOR EXTRACTION TRENCH PIPE ELEVATIONS - DOLPHIN MART

TRENCH NO.	INV. ELEV. 6" VAPOR COLLECTION PIPE	INV. ELEV. 2" PIPE @ WEST END OF TRENCH	INV. ELEV. 2" PIPE @ EAST END OF TRENCH
VET 1	94.64	99.41	99.46
VET 2	94.64	98.90	98.85
VET 3	94.48	98.19	98.24
VET 4	94.32	97.50	97.62
VET 5	94.16	96.78	97.30
VET 6	94.00	96.20	97.20
VET 7	93.84	95.65	97.00
VET 8	93.68	95.13	96.80
VET 9	93.52	94.62	96.60
VET 10	93.36	93.52	96.40
VET 11	93.20	93.37	95.80
VET 12	93.04	93.23	95.22
VET 13	92.88	93.09	94.64
VET 14	92.72	92.95	94.04
VET 15	92.56	92.80	93.56
VET 16	92.40	92.66	93.08

NOTES:
1. SEE SHEET T2 FOR LEGEND, ABBREVIATIONS GENERAL CONSTRUCTION NOTES AND EXISTING MANHOLE AND CATCH BASIN INVERTS.

THIS MAP WAS PREPARED FROM MAPS LISTED BELOW:
1. NAUTILUS PARK, GROTON, CONN. EXISTING UTILITIES MAPS PREPARED BY CULLINAN ENGINEERING CO, INC. SCALE 1"=40' DATE 3/23/83 NAVFAC 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, 1992 DOLPHIN MART SITE US SUBASE, GROTON, CT. PREPARED BY ERM-NORTHEAST SCALE 1"=20' APRIL, 1992.
3. UTILITY DATA FROM AS-BUILT DRAWINGS AND UTILITY MAPS; EXACT LOCATIONS MUST BE VERIFIED IN FIELD.
4. ALL TOPOGRAPHIC FEATURES AND INVERTS SHOWN HEREON SHALL BE FIELD VERIFIED.

GRAPHIC SCALES
CHECK GRAPHIC SCALES BEFORE USING
20 0 20 40

MAP ASSOCIATES, INC.
141 WEST MAIN AVE.
PLANTSVILLE, CT 06479

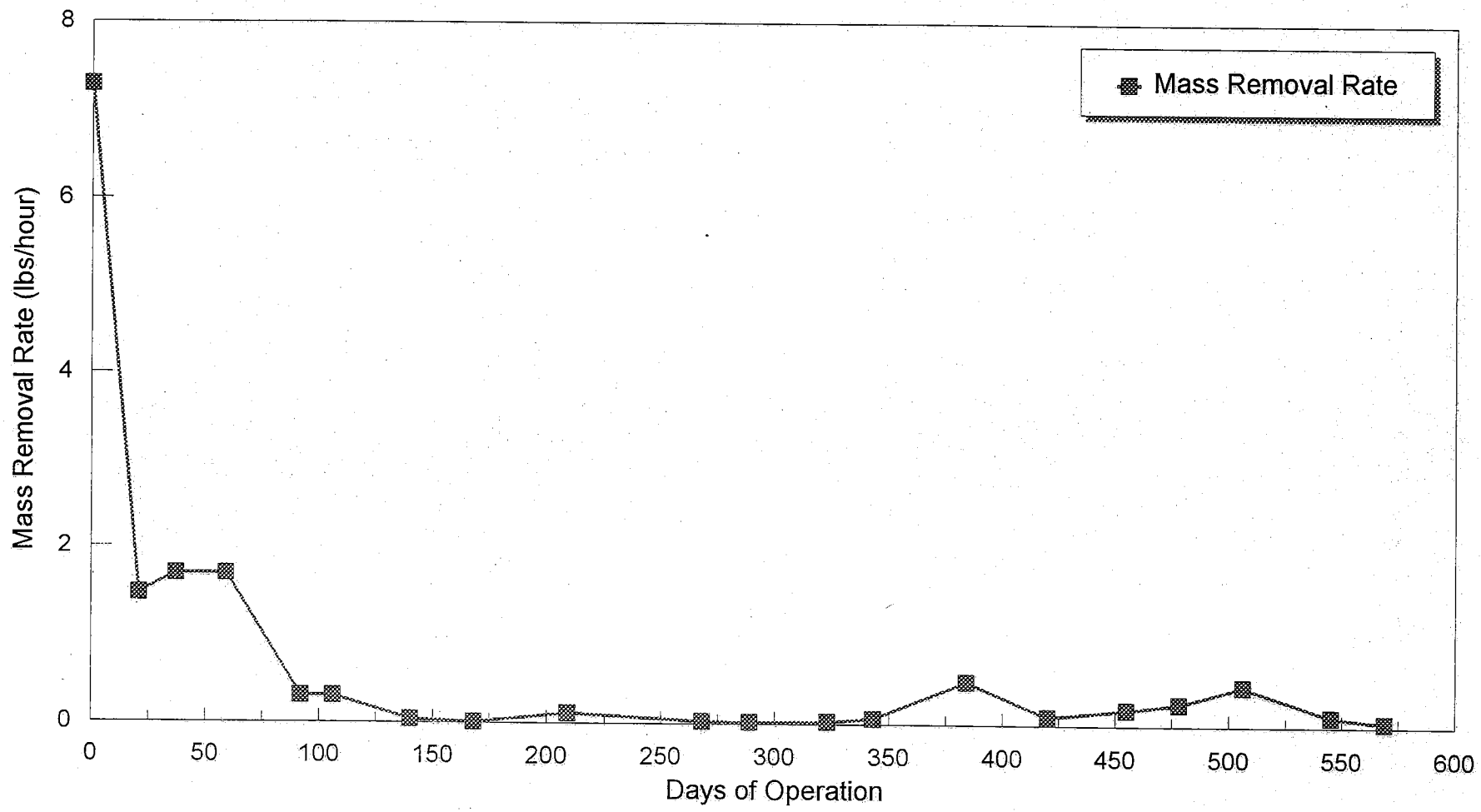
DEPARTMENT OF THE NAVY — NAVAL FACILITIES ENGINEERING COMMAND
LOCATION: NORTHERN DIVISION — PENNSYLVANIA
NAVAL SUBMARINE BASE — NEW LONDON, CONNECTICUT
REMEDIATION OF CONTAMINATED SOIL/GROUND WATER
FIGURE 1 - SITE PLAN
DOLPHIN MART

REV.	CODE IDENT. NO.	NAVFAC DRAWING NO.	DWG. NO.
F	80091	2166440	C2-1

CONTR. CONSTR. NO. N62472-89-C-0066
SPEC. NO. 84-88-0066 SHEET 5 OF 34

Figure 3A- Mass Removal Rate

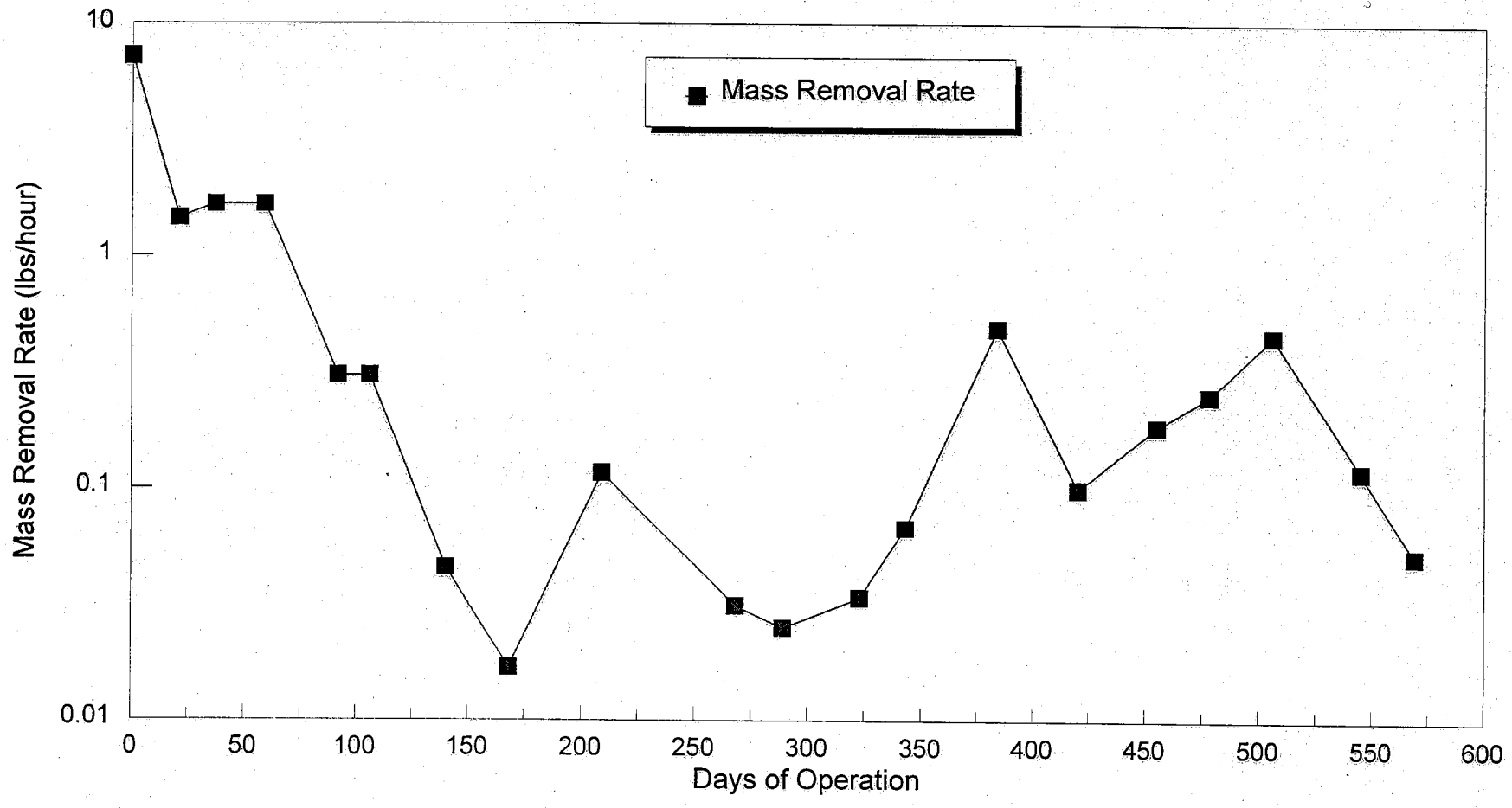
Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



MASSREM.WK4

Figure 3B- Mass Removal Rate

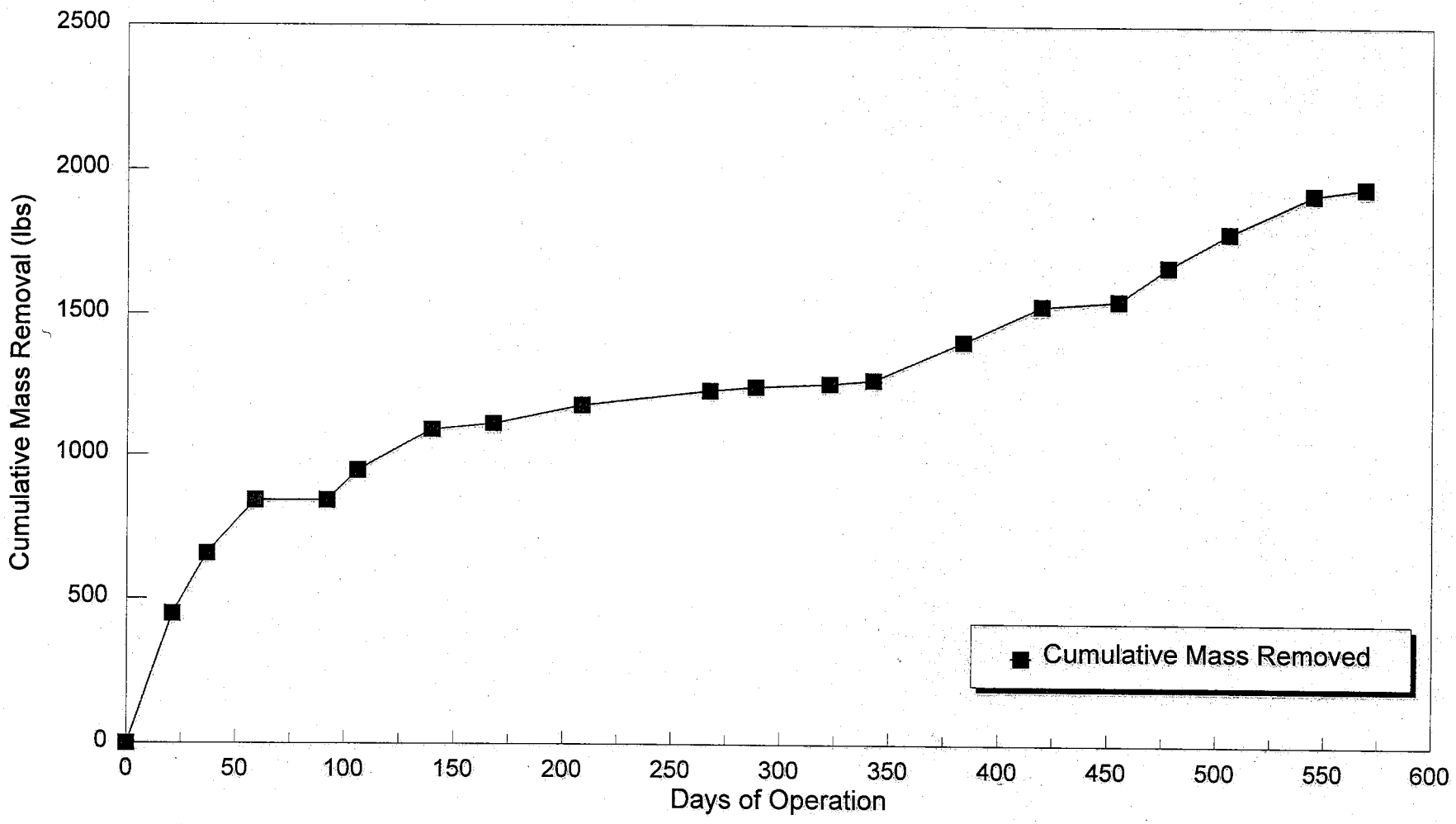
Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



MASSREM.WK4

Figure 4 - Cumulative Mass Removed versus Time

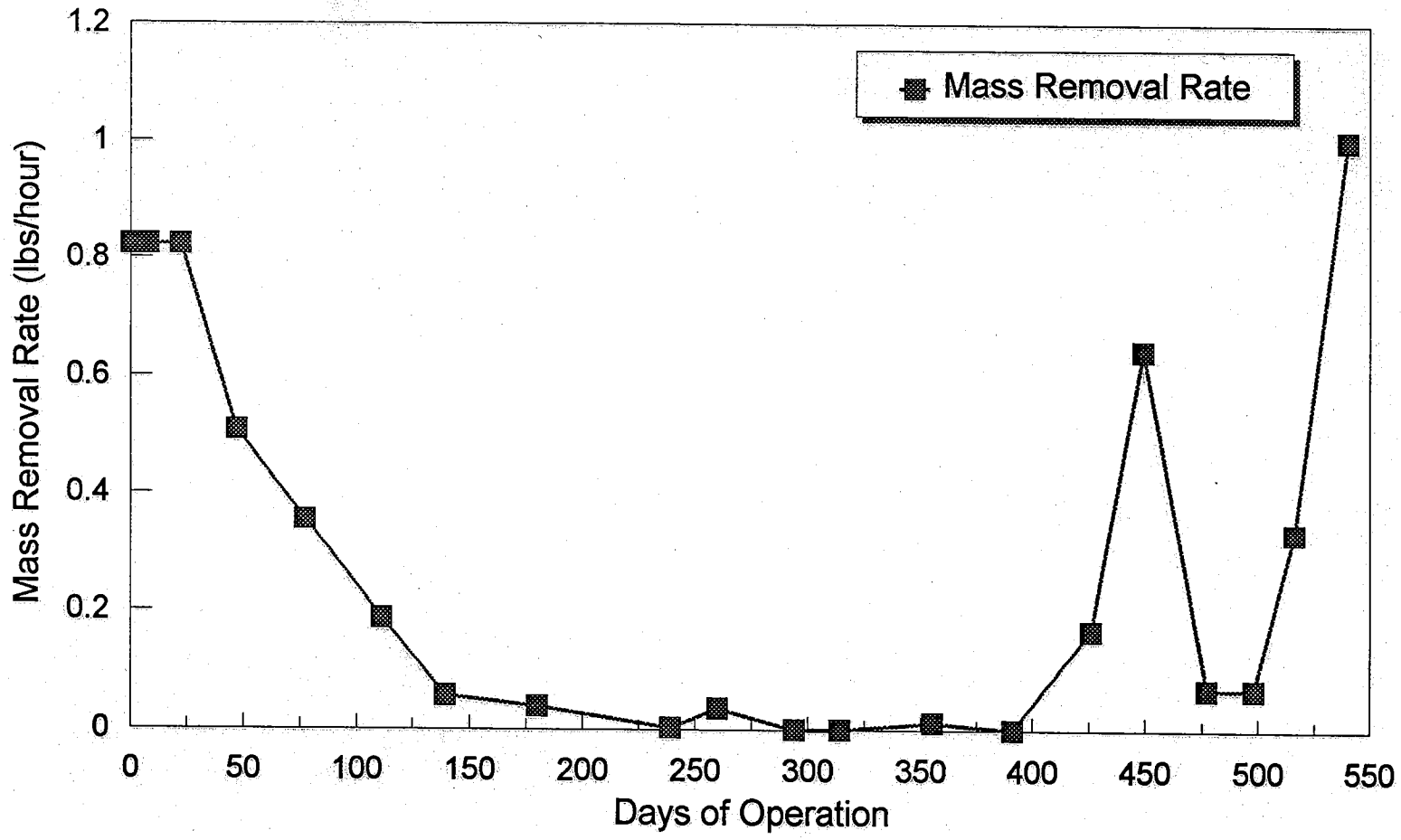
Dolphin Mart Site, New London Naval Submarine Base, Groton, CT



MASSREM.WK4

Figure 5A - Mass Removal Rate

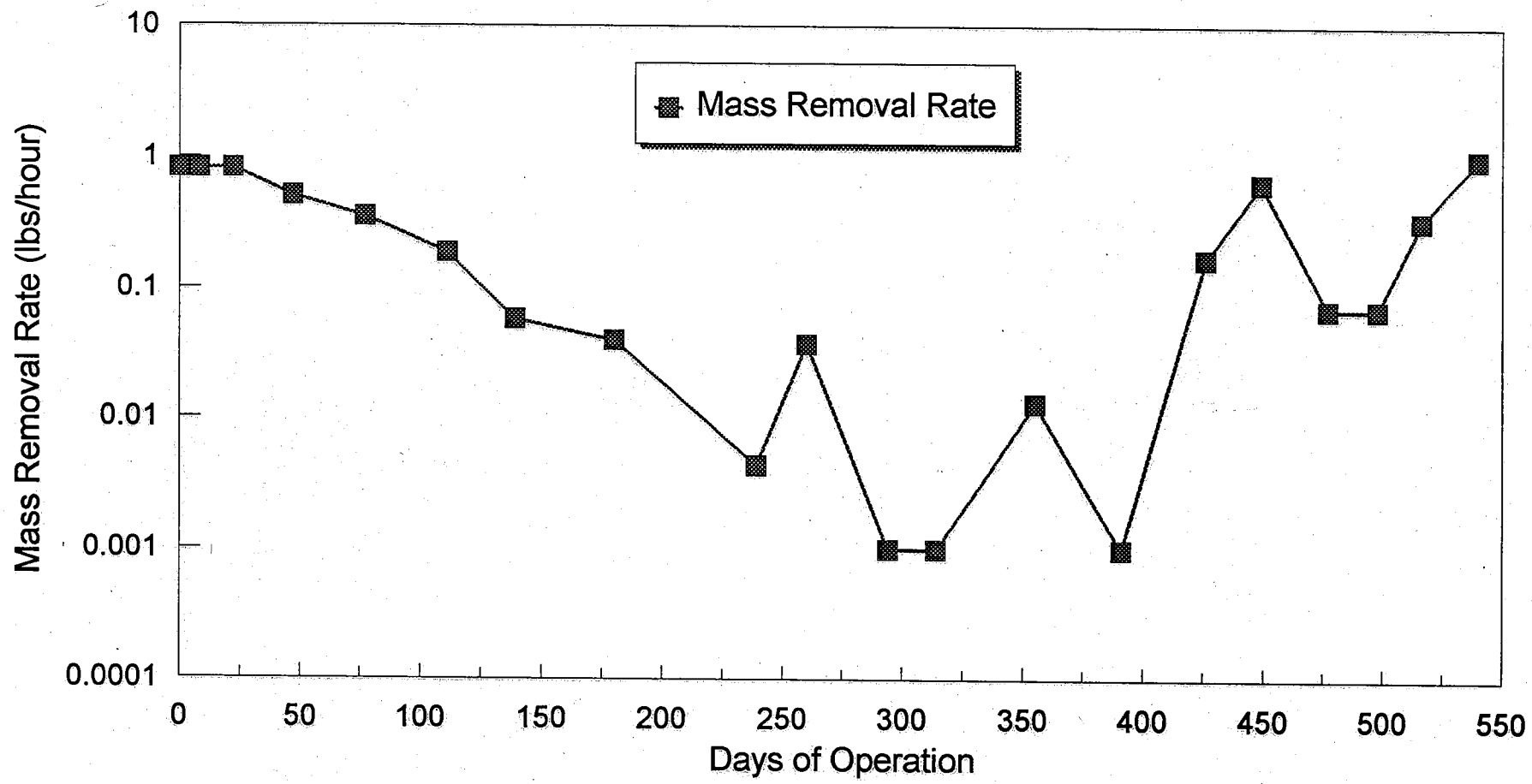
NEX Site, New London Naval Submarine Base, Groton, CT



MASSREM.WK4

Figure 5B - Mass Removal Rate

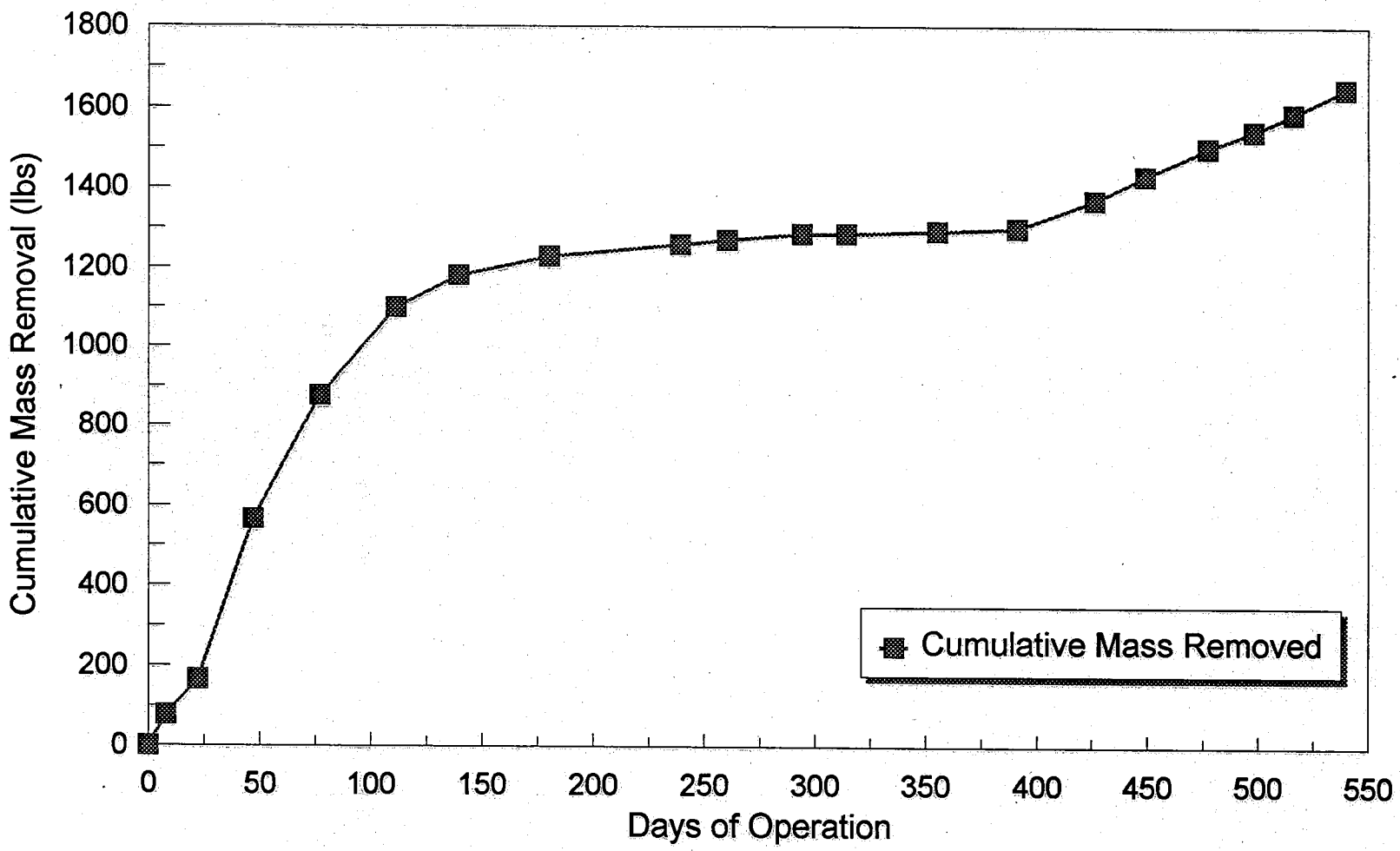
NEX Site, New London Naval Submarine Base, Groton, CT



MASSREM.WK4

Figure 6 - Cumulative Mass Removed versus Time

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



MASSREM.WK4

ATTACHMENT 1

SITE VISIT FORMS

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

Date: 1-20-98
Time:
Technician: John Kowzun, Jr.

AIR COMPRESSOR SYSTEM

Flow Rate 27 SCFM | Total Flow 1946525 SCFM

Air Compressor C-1		Air Compressor C-2	
Pressure	9 psi	Pressure	N/A psi
Temperature	178 °F	Temperature	°F
Flow Control Valve Setting	100 %	Flow Control Valve Setting	
Bleed Valve	50 %	Bleed Valve	
Radiator	(ON) OFF	Radiator	ON (OFF)

SOIL VAPOR EXTRACTION SYSTEM

Flow Rate — SCFM 2400 (use anemometer in hole in pipe near Hersey flowmeter)

Vacuum Pump V-1		Vacuum Pump V-2	
Vacuum	1 "Hg	Vacuum	3 "Hg
Temperature	120 °F	Temperature	118 °F
Particulate Filter	ok	Particulate Filter	ok
Flow Control Valve Setting	100 %	Flow Control Valve Setting	100 %
Bleed Air Valve Setting	25 %	Bleed Air Valve Setting	25 %
Liquid Level	0	Liquid Level	0

Vacuum Pump V-3		Vacuum Pump V-4	
Vacuum	N/A "Hg	Vacuum	N/A "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

Carbon Adsorber A/B		Carbon Adsorber C/D	
Pressure	N/A psi	Pressure	74 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	N/A	Change out Date	8-22-96

WATER TREATMENT

Flowmeter Reading 3203.5 Gallons After Discharge 3255.1

COMMENTS

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

Date: 1-22-98
Time: ~~1-2~~ 14:45
Technician: John Kolizun Jr.

AIR COMPRESSOR SYSTEM

Flow Rate	53 SCFM	Total Flow	351773 SCFM
Air Compressor C-1		**Air Compressor C-2**	
Pressure	10 psi	Pressure	NA psi
Temperature	258 °F	Temperature	°F
Flow Control Valve Setting	100 %	Flow Control Valve Setting	
Bleed Valve	50 %	Bleed Valve	
Radiator	(ON) OFF	Radiator	(ON) OFF

SOIL VAPOR EXTRACTION SYSTEM

Eastern Flow Rate	240 - 356 SCFM	Total Flow	67433320 SCFM
Western Flow Rate	151 - 216 SCFM	Total Flow	22726086 SCFM
Vacuum Pump V-1		**Vacuum Pump V-2**	
Vacuum	5.5 "Hg	Vacuum	5 "Hg
Temperature	120 °F	Temperature	126 °F
Particulate Filter	ok	Particulate Filter	ok
Flow Control Valve Setting	100 %	Flow Control Valve Setting	100 %
Bleed Air Valve Setting	25 %	Bleed Air Valve Setting	25 %
Liquid Level	0	Liquid Level	0
Vacuum Pump V-3		**Vacuum Pump V-4**	
Vacuum	5 "Hg	Vacuum	NA "Hg
Temperature	144 °F	Temperature	°F
Particulate Filter	ok	Particulate Filter	
Flow Control Valve Setting	100 %	Flow Control Valve Setting	
Bleed Air Valve Setting	25 %	Bleed Air Valve Setting	
Liquid Level	0	Liquid Level	

ACTIVATED CARBON ADSORPTION SYSTEM

Carbon Adsorber A/B		**Carbon Adsorber C/D**	
Pressure	10 psi	Pressure	70 psi
Inf. VOC Level	258 ppm	Inf. VOC Level	149 ppm
Mid. VOC Level	194 ppm	Mid. VOC Level	ppm
Eff. VOC Level	220 ppm	Eff. VOC Level	149 ppm
Change out Date	N/A	Change out Date	8-22-96

WATER TREATMENT

Flowmeter Reading N/A Gallons (prior to discharge) Flowmeter Reading 14451.6 Gallons (after discharge)

COMMENTS

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

NAVAL SUBMARINE BASE GROTON, CT. (NEX SITE)

OPERATIONAL DATA FORM OT-8\MW-7 PRODUCT RECOVERY SYSTEM Naval Submarine Base, Groton, Ct. Project # 87260014 Task #140	Date: 1-20-98 Time: Technician: John Kowzun, Jr.

Check compressor, pressure should be 80 psi.
Check air dryer panel, pressure should be 60 psi.
Drain moisture trap on panel dryer.
Gauge recovery tank: Total depth:
OT8 DTW: 0
DTP: 2.68

MW-7 DTW ~~0~~ 3.29
DTP 0

Drum for bailed product
DTW 0
DTP 0

Comments:
The drums for OT8 and for bailed product were frozen.

ATTACHMENT 2

MONTHLY FIELD ACTIVITY SUMMARY

Field Activity Summary

January 1998

New London Naval Submarine Base
Groton, Connecticut

Week Ending	Site	Period	Field Activities	Comments
1/23/98	Dolphin Mart	Monthly Monitoring	Conducted monthly system monitoring and effluent off-gas sampling. Modified/repaired eight valve vaults and four roadboxes. Conducted discharge monitoring sampling.	SVE blower V-2 down due to low air flow alarm.
	NEX		Conducted monthly system monitoring, effluent off-gas sampling, and discharge monitoring sampling. Replaced faulty discharge pump for blower V-3.	SVE blowers V-2 and V-3 down due to low air flow alarm.
	OT-8		Conducted monthly system monitoring, including gauging OT-8 system drum, MW-7, and bailed product drum.	OT-8 drum and bailed product drum were both frozen.
1/30/98	Dolphin Mart	Monthly Monitoring	Conducted system check.	
	NEX		Conducted system check.	
	OT-8		Modified bleed valve.	Bleed valve for the OT-8 recovery system compressor was enclosed in ventilated 5-gallon bucket which was filled with oil absorbent material.

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	Air Sparge Flowrate (scfm)	Extraction Flowrate (scfm)	Influent Concentration BTEX (ppmv)	Removal Rate BTEX (lb/hr)	Influent Concentration MTBE (mg/m3)	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 Concentratio TVPH (mg/m3)	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	25	450	24.00	0.187	NA	33.00	0.232	1000.00	6.876	0.00	0.000	—	—	0.000	7.295	0.00	0.00	
07/23/96	20	449	11.40	0.091	NA	0.00	0.000	200.00	1.375	0.00	0.000	—	—	0.000	1.467	446.86	446.86	system operated approx. 102 hrs between 7/2 and 7/23
08/08/96	32	454	18.00	0.142	NA	—	0.000	210.00	1.444	12.00	0.102	—	—	0.000	1.687	209.75	656.61	system operated approx. 133 hrs between 7/23 and 8/8
08/30/96	0	450	18.00	0.142	NA	—	0.000	210.00	1.444	12.00	0.102	—	—	0.000	1.687	187.31	843.92	system operated approx. 111 hrs between 8/8 and 8/30
10/02/96	30	448	2.30	0.019	NA	0.00	0.000	—	0.000	—	0.000	NA	36.00	0.287	0.306	0.00	843.92	system not in operation from 8/30 to 10/2 due to flow meter problem
10/16/96	30	450	2.30	0.019	NA	0.00	0.000	—	0.000	—	0.000	NA	36.00	0.287	0.306	102.81	946.74	system reactivated 10/2/96
11/19/96	30	450	0.38	0.003	0.00	0.00	0.000	—	0.000	—	0.000	22.00	5.29	0.042	0.045	143.33	1090.06	
12/17/96	30	450	0.12	0.001	0.00	0.00	0.000	—	0.000	—	0.000	8.20	1.97	0.016	0.017	20.84	1110.90	
01/27/97	30	450	1.35	0.011	0.00	0.00	0.000	—	0.000	—	0.000	55.00	13.23	0.106	0.117	65.56	1176.46	
03/27/97	30	450	0.00	0.000	NA	0.00	0.000	—	0.000	—	0.000	0.00	3.90	0.031	0.031	104.53	1228.73	assume 50% up-time, blowers shutting down due to influent water
04/17/97	30	450	0.00	0.000	NA	0.00	0.000	—	0.000	—	0.000	13.00	3.13	0.025	0.025	14.13	1242.86	
05/21/97	15	329	0.00	0.000	NA	0.00	0.000	—	0.000	—	0.000	24.00	5.77	0.034	0.034	11.96	1254.82	assume 50% up-time, blowers shutting down due to influent water
06/10/97	15	329	0.25	0.002	NA	0.00	0.000	—	0.000	—	0.000	47.00	11.31	0.066	0.067	12.14	1266.96	assume 50% up-time, blowers shutting down due to influent water
07/21/97	15	329	1.89	0.011	NA	0.00	0.000	—	0.000	—	0.000	340.00	81.79	0.477	0.488	136.76	1403.71	assume 50% up-time, blowers shutting down due to influent water
08/26/97	15	482	0.73	0.007	0.00	0.00	0.000	—	0.000	—	0.000	45.00	10.82	0.092	0.099	126.91	1530.63	assume 50% up-time, blowers shutting down due to influent water
09/30/97	15	482	0.34	0.003	0.00	0.00	0.000	—	0.000	—	0.000	88.00	21.17	0.181	0.184	17.84	1548.46	assume ~15% up-time, blowers shutting down due to influent water
10/23/97	14	589	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	100.00	24.06	0.251	0.251	120.10	1668.56	
11/20/97	32	590	0.00	0.000	20.00	5.45	0.050	—	0.000	—	0.000	160.00	38.49	0.403	0.453	118.28	1786.84	assume 50% up-time, blowers shutting down due to influent water
12/29/97	28	590	0.45	0.005	0.00	0.00	0.000	—	0.000	—	0.000	45.00	10.82	0.113	0.118	133.65	1920.49	assume 50% up-time, blowers shutting down due to influent water
01/22/98	27	471	0.32	0.003	0.00	0.00	0.000	—	0.000	—	0.000	24.00	5.77	0.048	0.051	24.38	1944.87	assume 50% up-time, blowers shutting down due to influent water

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 Mitkem Laboratory. Prior to 10/16/96 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) 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	Air Sparge Flowrate (scfm)	Extraction Flowrate (total) (scfm)	Extraction Flowrate (cfm)	Influent Concentration BTEX (ppmv)	Removal Rate BTEX (lb/hr)	Influent Concentration MTBE (mg/m3)	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 (mg/m3)	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	NA*	253	288.00	1.80	0.013	NA	—	0.000	130.00	0.810	0.00	0.000	—	—	0.000	0.823	0.00	0.00	
08/08/96	NA*	270	307.35	1.80	0.013	NA	—	0.000	130.00	0.810	0.00	0.000	—	—	0.000	0.823	78.21	78.21	system operated approx. 92 hrs between 7/31 and 8/8
08/22/96	NA*	270	307.35	1.80	0.013	NA	—	0.000	130.00	0.810	0.00	0.000	—	—	0.000	0.823	88.09	166.30	24-hour per day system operation began 8/8
09/16/96	NA*	320	364.27	2.70	0.021	NA	0.00	0.000	—	0.000	—	0.000	—	61.00	0.487	0.508	399.38	565.68	
10/16/96	NA*	320	364.27	2.50	0.020	NA	0.00	0.000	—	0.000	—	0.000	—	42.00	0.335	0.355	310.76	876.44	
11/19/96	NA*	324	368.83	0.95	0.008	0.00	0.00	0.000	—	0.000	—	0.000	94.00	22.61	0.180	0.188	221.67	1098.10	
12/17/96	NA*	310	352.89	0.18	0.001	0.24	0.07	0.000	—	0.000	—	0.000	29.00	6.98	0.056	0.058	82.54	1180.65	
01/27/97	NA*	321	365.41	0.14	0.001	0.00	0.00	0.000	—	0.000	—	0.000	20.00	4.81	0.038	0.040	47.78	1228.42	
03/27/97	NA**	384	437.13	0.00	0.000	NA	0.00	0.000	—	0.000	—	0.000	—	0.55	0.004	0.004	31.10	1259.52	
04/17/97	NA**	721	820.75	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	12.00	2.89	0.037	0.037	10.40	1269.92	
05/21/97	6***	360	409.81	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	0.00	0.00	0.000	0.00	15.46	1285.39	
06/10/97	2***	300	341.51	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	0.00	0.00	0.000	0.00	0.48	1285.87	
07/21/97	36***	358	407.53	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	8.50	2.04	0.013	0.013	6.88	1292.74	
08/26/97	28***	223	253.28	0.00	0.000	0.00	0.00	0.000	—	0.000	—	0.000	0.00	0.00	0.000	0.00	6.04	1298.78	One blower down due to high water level in moisture trap.
09/30/97	27***	221	251.58	2.37	0.016	22.00	6.00	0.021	—	0.000	—	0.000	140.00	33.68	0.132	0.169	71.24	1370.01	One blower down due to high water level in moisture trap.
10/23/97	47***	322	366.55	2.47	0.016	62.50	17.05	0.086	—	0.000	—	0.000	395.00	95.02	0.542	0.644	60.92	1430.93	Two blowers down due to high water level in moisture trap.
11/20/97	47***	213	242.47	0.50	0.004	4.10	1.12	0.004	—	0.000	—	0.000	68.00	16.36	0.062	0.069	70.19	1501.12	One blower down due to high water level in moisture trap.
12/11/97	47	213	242.47	0.50	0.004	4.10	1.12	0.004	—	0.000	—	0.000	68.00	16.36	0.062	0.069	41.42	1542.54	
12/29/97	47	520	591.37	0.78	0.006	8.00	2.18	0.018	—	0.000	—	0.000	140.00	33.68	0.310	0.334	42.40	1584.93	
01/22/98	53	479	544.70	2.46	0.019	16.50	4.50	0.034	—	0.000	—	0.000	465.00	111.86	0.949	1.002	62.99	1647.92	

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.
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 modificatons 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.

ATTACHMENT 4

HISTORICAL WELL GAUGING DATA

Well Gauging Data
Dolphin Mart Site
Groton Naval Submarine Base
Groton, Connecticut

Date	Depth to Water (ft) Well ID																			
	DM-1	DM-2	DM-3	DM-4	DM-5	HRP-10	HRP-11	MW-1	MW-2	MW-3	OBG8A	OBG9A	WE-1	WE-1A	WE-2D	WE-2S	WE-3	WE-4	WE-5	WE-6
07/02/96	6.37	NG	NG	NG	NG	4.65	NG	4.65	3.55	3.12	NG	0.82	DRY	DRY	6.56	6.78	8.67	4.24	4.80	3.40
07/03/96	NG	NG	NG	NG	NG	5.19	NG	4.63	2.86	0.00	NG	0.89	NG	NG	6.35	6.58	8.69	6.38	4.33	2.30
07/12/96	NG	NG	NG	NG	NG	5.81	NG	5.01	3.82	1.95	NG	1.85	NG	NG	6.83	6.96	8.93	6.38	4.98	3.60
07/16/96	NG	NG	NG	NG	NG	4.33	NG	4.55	2.89	0.74	NG	0.69	NG	NG	6.24	6.47	8.50	6.27	4.08	2.76
07/17/96	NG	NG	NG	NG	NG	2.73	NG	4.94	1.63	2.79	NG	0.00	NG	NG	5.88	6.30	8.62	6.47	3.62	1.72
07/19/96	NG	NG	NG	NG	NG	4.38	NG	5.21	0.61	0.00	NG	0.00	NG	NG	5.53	6.18	8.45	NG	3.19	1.08
07/22/96	NG	NG	NG	NG	NG	4.54	NG	4.82	1.95	1.17	NG	0.00	NG	NG	6.42	6.45	8.64	3.68	3.73	1.96
07/23/96	NG	NG	NG	NG	NG	4.55	NG	4.75	3.33	0.00	NG	0.20	NG	NG	6.33	6.70	8.72	8.72	4.49	2.40
07/24/96	NG	NG	NG	NG	NG	4.33	NG	5.22	1.18	0.00	NG	0.00	NG	NG	5.67	6.31	8.45	3.38	3.33	1.49
07/25/96	NG	NG	NG	NG	NG	4.46	NG	5.31	NG	NG	NG	0.16	NG	NG	NG	NG	NG	NG	NG	2.12
07/26/96	NG	NG	NG	NG	NG	4.43	NG	4.79	NG	NG	NG	0.00	NG	NG	NG	NG	NG	NG	NG	2.95
08/01/96	NG	NG	NG	NG	NG	3.93	NG	4.96	2.20	1.28	NG	NG	NG	NG	6.09	6.39	8.55	3.22	4.06	1.15
08/02/96	NG	NG	NG	NG	NG	4.08	NG	5.24	1.82	1.31	NG	0.00	NG	NG	5.73	6.30	8.56	2.96	3.76	0.86
08/05/96	NG	NG	NG	NG	NG	4.35	NG	5.08	NG	1.08	NG	0.00	NG	NG	NG	NG	NG	NG	NG	1.28
09/04/96	NG	NG	NG	NG	NG	5.43	NG	6.07	4.59	DRY	NG	NG	NG	NG	7.51	7.39	9.73	5.11	6.23	4.59
10/02/96	NG	NG	NG	NG	NG	3.53	NG	5.43	NG	3.86	NG	NG	NG	NG	5.82	6.41	8.41	3.11	3.96	1.60
10/21/96	NG	NG	NG	NG	NG	3.98	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	2.43
11/19/96	1.90	NG	2.06	2.68	5.37	4.15	NG	3.85	3.00	DRY	NG	NG	NG	NG	5.89	6.46	8.32	3.53	3.87	2.90
12/17/96	2.53	NG	1.60	NG	3.67	NG	NG	3.85	2.17	NG	NG	NG	NG	NG	NG	6.10	7.92	2.17	2.96	2.10
01/27/97	1.91	NG	1.89	NG	4.26	3.29	NG	2.53	2.13	NG	NG	NG	NG	NG	5.73	6.24	7.94	3.08	3.26	1.53
02/18/97	1.93	NG	1.90	2.04	NG	4.04	NG	2.98	2.56	2.28	NG	NG	NG	NG	5.84	6.32	7.95	3.49	3.21	2.55
03/27/97	1.89	2.27	1.86	2.41	4.60	4.04	3.21	2.91	1.86	1.27	NG	NG	5.03	DRY	5.45	6.21	8.08	1.66	3.51	1.15
04/17/97	NG	NG	NG	NG	NG	5.25	NG	3.48	1.94	1.39	NG	NG	NG	NG	NG	NG	NG	3.00	3.18	1.30
05/21/97	2.04	2.39	2.08	3.08	5.19	4.11	3.43	3.14	2.93	2.44	NG	NG	DRY	DRY	6.11	NG	8.20	3.73	4.07	2.84
08/27/97	NG	NG	NG	NG	NG	5.01	4.10	3.60	4.28	DRY	NG	2.46	NG	NG	7.03	NG	9.54	4.69	5.77	4.07
11/21/97	2.26	3.20	2.56	3.33	6.83	4.43	3.77	5.33	3.84	3.06	2.26	0.95	DRY	DRY	6.66	6.97	8.86	7.53	5.29	3.56

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

NG = Not Gauged

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Well Gau[illegible]a
NEX[illegible]
New London Naval Submarine Base
Groton, Connecticut

Date	Depth to Water/Depth to Product (ft) Well ID																								
	ERM-5	ERM-6	ERM-7	ERM-8	ERM-9	ERM-10	ERM-11	ERM-12	ERM-13	ERM-14	ERM-15	ERM-16	ERM-17	ERM-18	ERM-19	NEX-1	OBG-1	OBG-2	OBG-4	OBG-6	OBG-7	OBG-8	OBG-9	MW-4	MW-6
09/16/96	3.82	5.14	5.27	NG	NG	NG	NG	8.38	7.01	6.89	4.30	8.51	5.62	3.65	5.28	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
10/16/96	NG	4.82	4.75	NG	NG	NG	6.4	8.13	7.15	6.92	3.94	8.49	5.56	3.96	5.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
11/18/96	3.72	4.64	4.93	NG	NG	NG	6.36	8.09	7.13	7.10/6.91	4.03	8.43	5.53	NG	5.19	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
12/16/96	3.10	4.08	4.21	NG	NG	NG	5.02	7.83	6.55	6.35	NG	7.8	3.73	NG	4.23	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
02/17/97	3.00	4.34	4.29	NG	NG	NG	4.89	7.65	6.03	5.89	NG	7.85	4.53	NG	4.18	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
03/27/97	2.89	4.28	4.19	NG	NG	NG	5.19	7.63	5.98	5.82	NG	7.79	4.87	NG	4.06	5.81	8.12	7.95	7.75	7.95	5.61	NG	5.54	4.91	4.49
04/15/97	NG	NG	NG	NG	NG	NG	NG	NG	5.86	5.7	3.39	7.84	4.84	NG	NG	5.74	NG	7.92	7.75	NG	NG	NG	5.54	NG	NG
04/17/97	2.73	NG	NG	NG	NG	NG	NG	NG	NG	5.66	3.31	NG	4.67	NG	3.91	NG	NG	7.91	7.78	NG	NG	NG	5.58	NG	NG
04/24/97	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	7.74	NG	NG	NG	NG	NG	NG
05/21/97	NG	4.72	4.61	NG	NG	NG	6.27	7.81/7.80	6.15	6.04/5.99	NG	8.16	5.26	NG	4.46	5.80	7.98	7.81	7.64	NG	5.79	5.60	5.84/5.31	NG	4.85
08/28/97	NG	5.29	6.49	NG	NG	NG	7.65	NG	7.24	7.24/7.01	NG	sheen/8.63	5.77	NG	5.41	6.15	8.22	8.03	7.9	NG	6.49	NG	6.56/6.45	NG	5.34
11/20/97	4.35	5.24	5.35	NG	NG	NG	6.89	8.23	7.84	7.63	4.46	8.77	5.77	NG	5.79	6.45	8.43	8.23	8.07	NG	7.09	NG	7.06	NG	5.33

Notes:

NG = Not Gauged

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MW-7 Well Gauging Data
OT-8 Site
New London Naval Submarine Base
Groton, Connecticut

Date	Depth to Product (feet)	Depth to Water (feet)	LNAPL Thickness (feet)	LNAPL Recovered (gallons)	Cumulative LNAPL Recovered (gallons)
09/26/96	4.26	6.02	1.76	0.00	0.00
10/02/96	NS	NS	0.00	4.00	4.00
10/08/96	NS	NS	0.00	0.00	4.00
10/16/96	NS	NS	0.00	0.00	4.00
10/21/96	1.65	1.66	0.01	0.00	4.00
10/25/96	3.06	3.18	0.12	0.00	4.00
10/28/96	3.46	3.55	0.09	0.00	4.00
12/17/96	NA	0.00	0.00	0.00	4.00
01/13/97	7.76	7.86	0.10	0.00	4.00
01/27/97	NA	0.00	0.00	0.00	4.00
02/19/97	2.96	2.97	0.01	0.00	4.00
03/27/97	3.30	3.99	0.69	UNK*	4.00
04/17/97	3.12	3.34	0.22	0.00	4.00
05/21/97	4.09	5.07	0.98	0.25	4.25
06/10/97	sheen	4.64	sheen	0.00	4.25
07/21/97	5.43	5.55	0.12	0.00	4.25
08/04/97	5.62	5.73	0.11	0.00	4.25
08/26/97	5.28	5.31	0.03	0.00	4.25
10/09/97	6.14	6.75	0.61	0.00	4.25
10/23/97	6.38	6.75	0.37	0.00	4.25
11/20/97	4.73	4.74	0.01	0.00	4.25
01/20/98	NA	3.29	0.00	0.00	4.25

Notes: Gauging on 10/02/96 and 10/16/96 was with a clear bailer, to visually confirm product thickness.
The well and vault were flooded on 12/17/96
NA = Not Applicable
NG = Not Gauged
* Product was recovered, but the volume was insufficient to fill the product piping and discharge into the recovery drum.

ATTACHMENT 5

HISTORICAL GROUNDWATER SAMPLING RESULTS

Table 1
Historical Groundwater Sampling Results
Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
DM-1	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	4.0	<473	NS	NS	NS
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	5	1,000	<500
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
DM-2	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	4.0	<473	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	<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	<1.0	<1.0	<1.0	<1.0	8	<500	8	NS	NS

Notes: NS = Not sampled (NS results have been shaded)
Bold numbers indicate an exceedance of State of CT Clean-up Standards
B = Analyte detected in method blank, D = Analyte concentration was obtained from a diluted analysis, E = Analyte concentration exceeded the calibration range
DRO=Diesel Range Organics, GRO=Gasoline Range Organics

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Table 1
Historical Groundwater Sampling Results
Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediaiton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
DM-3	3/95	<1.0	<1.0	<1.0	<1.0	7.90	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	7	<500	<500
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
DM-4	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	5	600	<500
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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	**2**	<1.0	<1.0	<1.0	3	<500	5	NS	NS

Notes: NS = Not sampled (NS results have been shaded)
Bold numbers indicate an exceedance of State of CT Clean-up Standards
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DRO=Diesel Range Organics, GRO=Gasoline Range Organics

Table 1
Historical Groundwater Sampling Results
Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remedialton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
DM-5	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	6	<500	<500
	2/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	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	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
HRP-10	3/95	**304**	35.2	257	**1140**	<50	**6,080**	NS	NS	NS
	5/96	**125**	21	54	329	<20	**1,740**	NS	NS	NS
	11/96	**9**	<1.0	65	<1.0	7	<1,000	81	600	<500
	2/97	<1.0	<1.0	<1.0	<1.0	3	<500	3	<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	3.0	**800**	3.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS

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Bold numbers indicate an exceedance of State of CT Clean-up Standards
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Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediaiton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
HRP-11	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	1.0	<1.0	<1.0	3.0	<2.0	<473	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	<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
MW-1	11/96	**3**	<1.0	5	<1.0	<1.0	<1,000	11	1,000	<500
	2/97	<1.0	<1.0	4	<1.0	<1.0	<500	4	<500	600
	5/97	<1.0	<1.0	4	<1.0	<1.0	<500	6	700	760
	8/97	<1.0	<1.0	16	2B	<1.0	**1,000**	18	800	600
	11/97	**2**	<1.0	9	<1.0	<1.0	<500	11	NS	NS

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Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediaiton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
MW-2	11/96	**4**	<1.0	14	<1.0	4	<1,000	28	1,200	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	**1,000**	1 B	1,200	1,200
	5/97	<1.0	<1.0	3	<1.0	<1.0	<500	3	500	580
	8/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	<500	<500
	11/97	**2**	<1.0	3	1	3	<500	9	NS	NS
MW-3	2/97	**36**	23	72	500	5	**2,000**	645 B	3,300	1,600
	5/97	**60**	38	69	**730D**	<1.0	**5,000**	897D	7,900	<500
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	<1.0	2	3	56	<1.0	<500	61	NS	NS

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Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remedialton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
OBG-8A	3/95	**72**	24.6	25.9	62.4	9.29	<473	NS	NS	NS
	5/96	**12.0**	<1.0	9.0	4.0	<2.0	<473	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	**3**	25	5	5	<1.0	<500	38	NS	NS
OBG-9A	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	<473	NS	NS	NS
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	<473	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	<1.0	<1.0	<1.0	<1.0	<1.0	**3,000**	<1.0	<500	<500
	8/97	<1.0	<1.0	<1.0	<1.0	3.0	**11,000**	3.0	2,200	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS

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Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediaiton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
WE-2D(B)	11/96	1	<1.0	<1.0	<1.0	<1.0	<1,000	3	<500	<500
	2/97	**2**	<1.0	<1.0	<1.0	3	<500	5	<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	4.0	**11,000**	4.0	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS
WE-2S	3/95	**37.9**	24.2	60.3	126.4	21.3	**725**	NS	NS	NS
	5/96	**50**	22	101	144	<10	**1,570**	NS	NS	NS
	11/96	**7**	<1.0	9	4	14	<1,000	34	<500	<500
	2/97	**5**	<1.0	14	3	10	<500	32	500	600
	5/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/97	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS

Notes: NS = Not sampled (NS results have been shaded)
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DRO=Diesel Range Organics, **GRO**=Gasoline Range Organics

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Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remedialton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
WE-3	3/95	<1.0	<1.0	<1.0	<1.0	8.70	<473	NS	NS	NS
	5/96	**2.0**	<1.0	<1.0	<1.0	14.0	<473	NS	NS	NS
	11/96	NS	NS	NS	NS	NS	NS	NS	NS	NS
	2/97	<1.0	<1.0	<1.0	<1.0	6	<500	6	<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	**220**	**3,000**	220	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	38	<500	38	NS	NS
WE-4	3/95	**267**	29.8	392	**712**	<40	**5,180**	NS	NS	NS
	5/96	**160**	16	301	**617**	<40	**3,680**	NS	NS	NS
	11/96	**41**	1.0	100	2	19	<1,000	166	1,100	500
	2/97	**21**	<1	27	1	17	<500	66	500	700
	5/97	**13**	<1.0	13	<1.0	19	<500	45	700	540
	8/97	**7.0**	<1.0	19	3B	3B	**700**	44	<500	<500
	11/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	<1.0	NS	NS

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Historical Groundwater Sampling Results
Dolphin Mart - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

Compound		BTEX				MTBE	TPH (By EPA Method 418.1)	Total Volatiles (by EPA Method 8010/8020)	DRO (by EPA Method 8100M)	GRO (by EPA Method 8015M)
		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediaiton Standard		1.0	1,000	700	530	100	500	NA	NA	NA
Well	Date									
WE-5	11/96	**240D**	410D	**720D**	**4,300E**	27	**9,000**	5,697	12,000	8,900
	2/97	**42D**	10	89D	490D	6	**2,000**	637	2,000	1,200
	5/97	**370**	190	**840**	**3,900D**	<1.0	**4,000**	5,300	11,000	16,000
	8/97	**210D**	<1.0	210D	470DB	63D	**5,000**	953	3,900	2,500
	11/97	**11**	<1.0	2	6	27	**1,100**	46	NS	NS
WE-6	11/96	**5**	210D	71D	**630D**	<1.0	<1,000	916	2,000	1,400
	2/97	**3**	4	8	12	2	<500	29	800	700
	5/97	**3**	1.0	12	<1.0	<1.0	<500	15	1,200	1,200
	8/97	<1.0	1.0	<1.0	28	<1.0	**1,000**	29	<500	<500
	11/97	**2**	<1.0	3	2	4	<500	11	NS	NS

Notes: NS = Not sampled (NS results have been shaded)
Bold numbers indicate an exceedance of State of CT Clean-up Standards
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DRO=Diesel Range Organics, GRO=Gasoline Range Organics

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Table 2
Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	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	34	28	<10	NS	196	159	554
	11/96	**370D**	14	33	61D	<1.0	3,000	480	1,100	1,600
	2/97	**1,100**	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
ERM-6	5/96	15	<1.0	<1.0	<1.0	<2.0	NS	35	63	<473
	11/96	**610**	230	770	2,400E	<40	5,000	4,054	500	7,800
	2/97	**430D**	21	300	1,000D	<10	2,000	1,763 B	2,200	4,800
	5/97	**430D**	21	640D	2,300D	<1.0	1,000	3,391D	1,500	6,700
	8/97	**470**	90	650	2,000	<1.0	2,000	3,210	3,500	6,200
	11/97	**250D**	23	260D	530D	<1.0	<500	1,063	NS	NS

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DRO=Diesel Range Organics, GRO=Gasoline Range Organics
L P = Liquid-phase petroleum present; well could not be sampled

Table 2
Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	50,000	NA	NA	NA	NA
Well	Date									
ERM-7	5/96	5	<1.0	<1.0	<1.0	<2.0	NS	8	38	<473
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	4	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	1	<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
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

Notes: 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

Table 2
Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	50,000	NA	NA	NA	NA
Well	Date									
ERM-9	5/96	<1.0	<1.0	<1.0	<1.0	2	NS	4	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
ERM-11	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	3	<500	<500
	2/97	<1.0	<1.0	<1.0	<1.0	<1.0	<500	2	<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

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Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	50,000	NA	NA	NA	NA
Well	Date									
ERM-12	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	NS	1	27	<473
	5/96	1	2	7	14	<2.0	NS	61	4,300	1,390
	11/96	<1.0	2	<1.0	9	<1.0	3,000	16	7,300	6,700
	2/97	<1.0	1	2	9	<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	<1.0	7,100	4	NS	NS

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Table 2
Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	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	<100	<473
	11/96	<1.0	<1.0	<1.0	<1.0	<1.0	<1,000	2	<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

Notes: 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

Table 2
Historical Groundwater Sampling Results
NEX - March 1995 - November 1997
Naval Submarine Base, Groton, CT

(analytical results in µg/l)

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	21,300	50,000	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
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

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		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	21,300	50,000	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	<1.0	7	30	<1.0	15,000	42	NS	NS
ERM-17	11/96	10	<1.0	<1.0	<1.0	9	<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	<1.0	<1.0	<1.0	<1.0	<500	2	NS	NS

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		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	21,300	50,000	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	<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
MW-4	2/97	29	1	<1.0	3	<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
MW-6	2/97	<1.0	9	<1.0	<1.0	<1.0	NS	9	NS	NS
	5/97	18	<1.0	2	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	<1.0	<1.0	3	<1.0	<500	9	NS	NS

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		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	21,300	50,000	50,000	NA	NA	NA	NA
Well	Date									
NEX-1	3/95	<1.0	<1.0	<1.0	<1.0	<2.0	NS	7	35	<143
	5/96	<1.0	<1.0	<1.0	<1.0	<2.0	NS	8	<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	11	4	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
OBG-1	5/97	**480**	3,300D	1,100D	10,000D	540	110,000	15,420	260,000	49,000
	8/97	**1,600**	6,200	1,700	12,000	810	220,000	**22,310**	580,000	56,000
	11/97	**1,600**	8,800	2,300	16,000	38,000	21,000	66,700	NS	NS
OBG-2	5/97	77	280	530	9,800D	290	87,000	10,977	120,000	44,000
	8/97	**470**	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

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		Benzene	Toluene	Ethylbenzene	Xylenes					
Remediation Standard		215	23,500	21,300	50,000	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	<1.0	6,000	2	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	<1.0	7	8	NS	18	NS	NS
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
OBG-8	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
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

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ATTACHMENT 6

MW-7 WELL CONSTRUCTION LOG

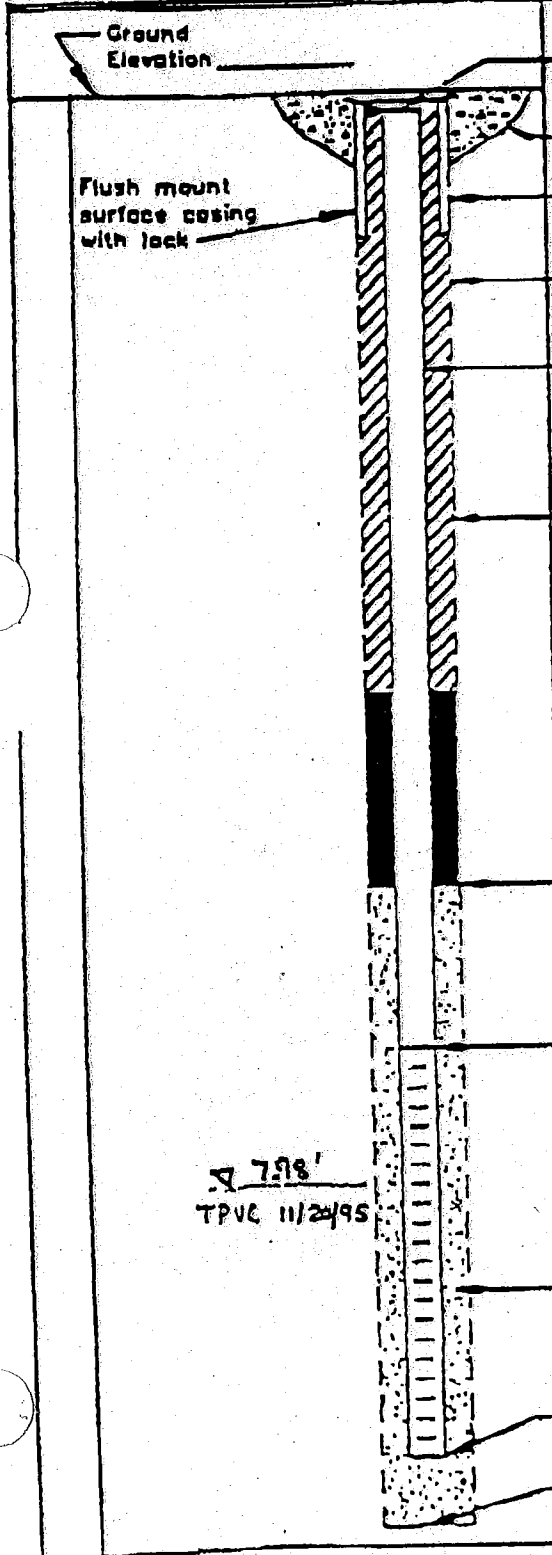
MONITORING WELL SHEET

TANK FARM WELLS

PROJECT NSB NLON
PROJECT NO. 4626
ELEVATION
FIELD GEOLOGIST CONTI

LOCATION GROTON, CT.
BORING HNUS-07
DATE 10-3-95

DRILLER SOILTEST, INC
DRILLING METHOD HSA
DEVELOPMENT METHOD PUMP



ELEVATION TOP OF RISER:

TYPE OF SURFACE SEAL: CONCRETE

TYPE OF PROTECTIVE CASING: FLUSH MOUNT

I.D. OF PROTECTIVE CASING: 4"

DIAMETER OF HOLE: 8"

TYPE OF RISER PIPE: PVC

RISER PIPE I.D.: 2" ϕ

TYPE OF BACKFILL/SEAL: CEMENT GROUT

DEPTH/ELEVATION TOP OF SAND: 3'

DEPTH/ELEVATION TOP OF SCREEN: 5'

TYPE OF SCREEN: PVC

SLOT SIZE x LENGTH: 10 SL X 10

TYPE OF SAND PACK: #20-30 SAND

DIAMETER OF HOLE IN BEDROCK: NA

DEPTH/ELEVATION BOTTOM OF SCREEN: 15'

DEPTH/ELEVATION BOTTOM OF SAND: 15'

DEPTH/ELEVATION BOTTOM OF HOLE: 15'

BACKFILL MATERIAL BELOW SAND: NA