FIREMEN'S TRAINING CENTER
GROUNDWATER REMEDIATION

DEPARTMENT OF PUBLIC WORKS

Nassau County

Long Island, New York

Periodic Review Report

2011

1.0 INTRODUCTION

A. The Fireman's Training Center (FTC) has conducted fire training activities for the County's seventy-one (71) fire districts since 1960. The site and facilities are owned by Nassau County, and the training activities and administrative functions are directed by the Vocational Education and Extension Board of Nassau County. Site operations have consisted of fire fighting exercises in open burn areas and building Mock-ups. Fuel oil (No. 2) and gasoline are the primary sources of ignition for training fires. From 1970 to 1980 various combustible organic solvents were also reported to have been mixed with oil and used in the structures being burned.

Training is presently conducted in three building mockups and three open burn areas, propane training areas were also added to the north side of the site in 1991. Until 1984, unburned fuel and solvents that mixed with fire fighting and cleanup wash water flowed over the FTC surface directly into nearby drywells. The dry wells were constructed with unlined, open bottoms and were conduits for downward migration of the liquids through the subsurface soils into the ground water. Additional subsurface contamination may have occurred by leakage of gasoline and oil from shallow underground pipes used to supply fuels to some burn area mock-ups.

Remedial activities at the site began in 1984 with the implementation of a drainage improvement contract. Work conducted under this contract segregated the storm water runoff from the active burn areas to a concrete holding basin and an oil/water separator that removed the oil prior to discharge into the sanitary sewer. This project eliminated all onsite drywells which had previously received contaminated runoff and separated clean surface runoff from water derived from training activities. All contaminated soils encountered during construction were stockpiled and removed. This project was completed in 1988 and the system is still in operation.

The RI/FS for the site was conducted between 1988 and 1992. Construction of the groundwater treatment facility and installation of all onsite and offsite groundwater recovery wells began in 1996. Groundwater treatment activities began in July 1999 and are ongoing.

B. Treatment of both onsite and offsite groundwater at the site have been ongoing for over eleven years. Over this time period progress in meeting remedial objectives has been made in the following areas:

- Over 4500 gallons of "floating" petroleum product (gasoline / No. 2 fuel oil) have been removed from onsite groundwater.
- Onsite soil conditions have improved to the point were deed restrictions could be removed from two former "Burn Areas" (Appendix A).
- Total offsite influent concentrations have been reduced from a maximum concentration of 1,005 ppb (6/20/2000) to a minimum of 9 ppb (3/7/2011).
- Total Volatile Organic Compound (TVOC), concentrations in offsite groundwater has been reduced from over 1400 ppb to less than 50 ppb, meeting groundwater cleanup criteria established for the site at six of the seven Offsite Recovery Well (ORW) locations.
- Total Volatile Organic Compound (TVOC), concentrations in onsite groundwater has been reduced from parts per million (ppm) levels to less than 250 ppb (RW-1).
- **Onsite Groundwater Quality** has improved dramatically, data collected from eleven (11) monitoring wells in the spring of 2011 found ten wells with TVOC and SVOC concentrations below detectable limits (BDL) and one well (W-35) with detectable levels of TVOC's and SVOC's below all individual and total volatile organic concentration guidelines. Groundwater monitoring well (W-35) originally had a Total Volatile Organic Concentration of 2,784 ppb in June, 1999.
- **Offsite Groundwater Quality** has improved dramatically, data collected from fifthteen (15) monitoring wells in March 2011 found five wells with TVOC concentrations below detectable limits (BDL), seven wells with TVOC concentrations (< 5ppb) and three wells with TVOC concentrations ranging from 19 to 154 ppb. Fourteen of the fifteen offsite monitoring wells sampled had TVOC concentrations below the groundwater cleanup criteria (50 ppb) established for the site. Original TVOC concentrations in the offsite plume exceeded 1,000 ppb at some well locations.

C. The County of Nassau believes that treatment of the original offsite plume of volatile organic compounds which emanated from the Nassau County Fireman's Training Center also known as the Nassau County Fire Service Academy is essentially complete. This assertion is supported by the extremely low concentrations of TVOC's observed in the offsite influent. It is also supported by the results of the groundwater model prepared for the County by CDM in April 2008. *The County believes that the majority of the volatile organic contamination which is currently being treated by the groundwater remediation facility originated from sources other than the FTC located to the north (American Louvre, Claremont Polychemical) and east of the offsite recovery well network.*

2.0 SITE OVERVIEW

A. The FTC is located on a 12-acre site on Winding Road near Round Swamp Road in Old Bethpage, New York. It is bordered on the north and west by the former Old Bethpage Landfill and on the south and east by Bethpage State Park (Figure 1). The site has been used since 1960 to conduct advanced fire fighting training for volunteer firemen, and continues today to serve these activities. Training exercises occur in open burn areas and in mock-up buildings located across the site (Figure 2).

Between 1970 and 1980, waste solvents, in addition to fuel oil and gasoline, were accepted at the site for use in training exercises. This practice was discontinued in 1980 and, since then, training exercises have been performed using only fuel oil and gasoline to ignite wooden pallets and straw.

The site contamination occurred primarily in the open burn areas, where fuel was poured directly onto the ground, and in the mock-up fields. In the mock-up buildings, unburned fuel and solvents were washed out of the buildings into drywells after each training session. These unlined drywells inadvertently served as conduits, carrying contamination down to the groundwater and contaminating the soils beneath the site.

B. In 1984, site improvements were made by the County to cap the burn areas and seal the drainage system leading to the drywells. A new drainage system was installed, including a concrete holding basin and an oil/water separator to treat training site runoff. The discharge from the oil/water separator is connected to the sanitary sewer system.

Based on the County's investigations conducted at the site, the New York State Department of Environmental Conservation (NYSDEC) added the FTC site to the States Registry of Inactive Hazardous Waste Disposal Sites in December 1987, and upgraded the site to Class 2 level, one that poses a significant threat to the public or the environment, in March 1988. The County signed an Order of Consent in February 1989, requiring a Remedial Investigation/Feasibility Study (RI/FS) to be performed. The RI/FS was completed in 1992.

A record of decision (ROD) that described the remedial program for the site was subsequently approved by the NYSDEC in February 1993. The ROD called for an asphalt/concrete cap with institutional controls for shallow soils, pumping and treating on-site groundwater using up to three extraction wells, and pumping and treating off-site groundwater using up to seven extraction wells. Remedial operations began in July 1999. The County of Nassau received notification of a site re-classification from class 2 to class 4 from the NYSDEC, Division of Environmental Remediation in May 2011 (appendix C).

Figure 1

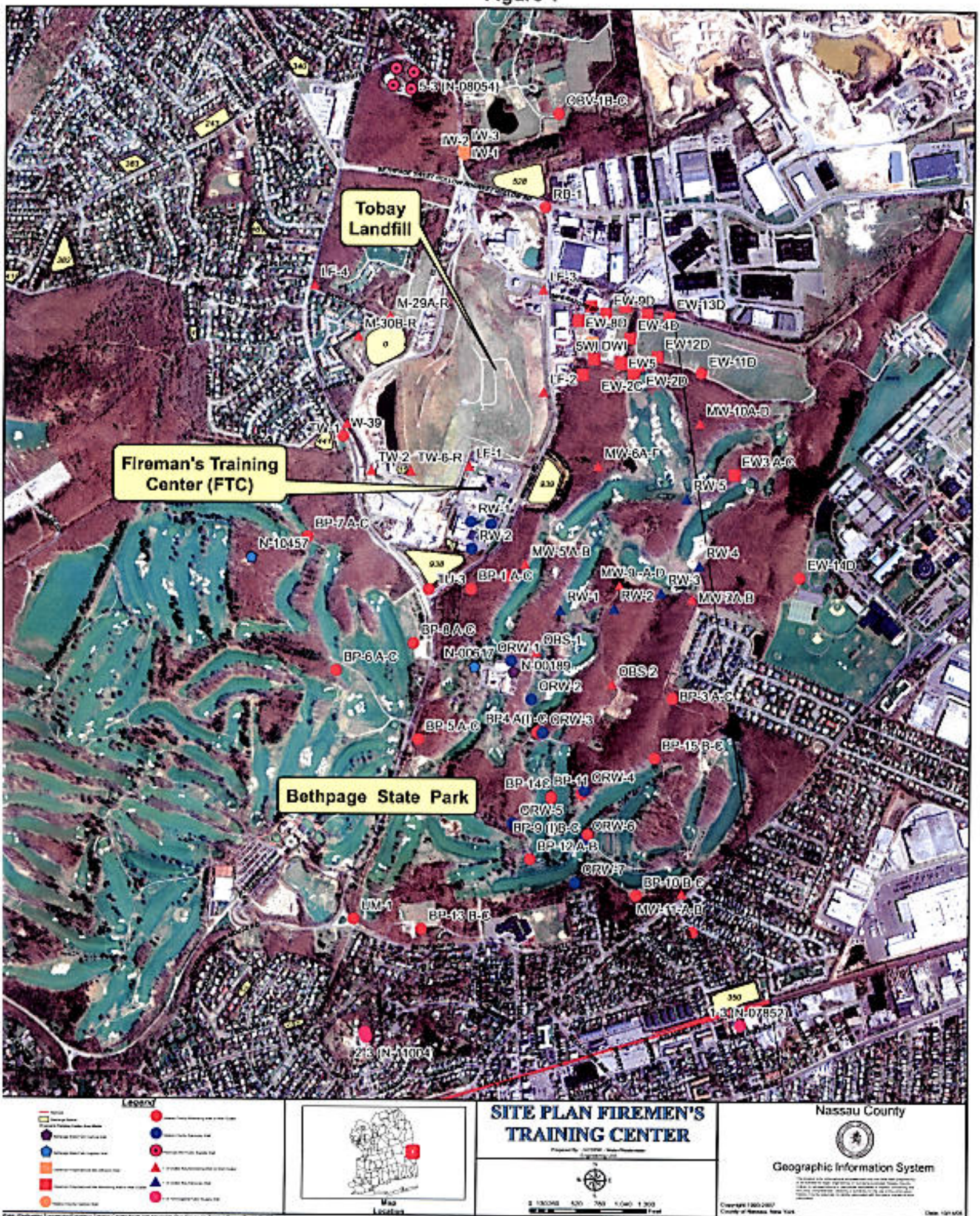

Tobay Landfill
Fireman's Training Center (FTC)
Bethpage State Park
S-3 (N-08054)
CSW-1B-C
MW-2
MW-3
MW-1
RB-1
LF-4
LF-3
M-29A-R
M-30B-R
EW-9D
EW-13D
EW-8D
EW-4D
SWL DWL
EW12D
EW5
EW-11D
LF-2
EW-2C
EW-2D
MW-10A-D
TW-1
MW-39
TW-2
TW-6-R
LF-1
MW-6A-F
EW3 A-C
RW-5
RW-1
RW-2
BP-7 A-C
N-10457
MW-5W-B
RW-4
EW-14D
TW-3
BP-1 A-C
MW-1-A-D
RW-3
RW-1
RW-2
MW-7A-B
BP-8 A-C
ORW-1
OBS-1
N-00517
N-00189
BP-6 A-C
OBS-2
ORW-2
BP-3 A-C
BP-5 A-C
BP-4 A-C
ORW-3
BP-15 B-C
BP-14B
BP-11
ORW-4
ORW-5
BP-9 B-C
ORW-6
BP-12 A-B
ORW-7
BP-10 B-C
MW-11-A-D
LM-1
BP-13 B-C
1-30 (N-07852)
213 (N-10004)
Legend
Map Location
SITE PLAN FIREMEN'S TRAINING CENTER
Nassau County
Geographic Information System

Figure 2


Propane Mockups
Extinguisher Area
Former Flammable Liquid Area
Taxpayer Mockup
LF-1
W-4B
W-4A
GW-8D
W-22
W-23
W-40
W-10
W-37
W-30
W-27
W-24
GW-5D
W-32
GW-4D
GW-6D
W-2
W-31
RW-1
W-29
W-11
W-28
W-17
RW-3
W-25
W-1
W-18
GW-2D
GW-1D
W-35
W-19
W-26
W-33
W-15
W-9A
W-9B
W-13
W-14B
W-14A
W-34
W-8A
W-8B
RW-2
W-7B
W-7C
W-7A
W-16
WINDING RD
939
938
MW-6A-B
Legend
Map Location
NASSAU COUNTY
FIREMAN'S TRAINING CENTER
SITE AREA
Old Bethpage
Nassau County
Geographic Information System

The cleanup goals and remedial system termination criteria for the Fireman's Training Center Remediation are included in appendix B. The only significant changes to the selected remedy (pump & treat); involve the number and pumping configuration of the offsite recovery wells (ORW's) used for treatment and the discharge of treated effluent. The original treatment scheme called for the continuous pumping of the three onsite recovery wells (RW-1,2 and 3) and the simultaneous pumping of all seven offsite recovery wells (ORW-1,2,3,4,5,6 and 7). Over time the absence of floating petroleum product and both semi-volatile and volatile organic compounds in groundwater collected from onsite recovery wells RW-2 and RW-3 led to these wells being turned off. RW-1, the original onsite source area recovery well was most recently operated intermittently from September 2006 through February 2010. The well became inoperable due to a massive screen failure on February 24, 2010.

The suspected presence of volatile organic compounds derived from non-FTC sources in the offsite plume, led to the County undertaking a Modeling effort. The results of the groundwater model prepared by Camp, Dresser and McKee (CDM), consultants also led to the development of a more efficient pumping scheme using only offsite recovery wells (ORW-3, 4, 6 and 7). The modeling effort also verified that there are non-FTC sources impacting the remediation.

In order to enhance groundwater treatment operations using multiple wells, the County added an effluent connection to the sanitary sewer in July 2006. This connection was necessary due to the poor seasonal recharge characteristics of the existing offsite recharge basin. The addition of this connection allows for the discharge of treated effluent to both the offsite recharge basin and the sanitary sewer which increases Plant's reliability.

Based upon the steady progress observed in the treatment of both offsite and onsite groundwater and the mechanical failure of onsite recovery well RW-1 and the high cost and technical infeasibility of its replacement, the NCDPW Water and Wastewater Engineering Unit issued an RFP for a review of overall remedial system (onsite / offsite) performance and a comparison with groundwater termination criteria in June 2010.

3.0 Remedy Performance, Effectiveness, and Protectiveness

The overall remedy performance selected for the FTC Remediation has been very effective over the past 11 years of treatment operations. The county of Nassau recently received notification of a site reclassification from ***Class 2*** to ***Class 4*** indicating that the site *no longer presents a significant threat to public health and the environment*. Both onsite and offsite groundwater quality have shown great improvement with several monitoring wells which formerly contained pure petroleum product or exhibited TVOC concentrations exceeding 1,000 ppb currently below detectable limits.

The 2011 sampling results for groundwater collected from both onsite and offsite monitoring wells are presented in the following tables. These tables list only those compounds that have historically been detected at the Firemen's Training Center site.

Table 1a

2008 - 2011 ONSITE GROUNDWATER SAMPLING RESULTS

	FTC-W-4A*			FTC-W-4B*			FTC-W-7B*			FTC-W-9A*		
	Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED	
VOLATILE ORGANICS COMPOUNDS	6/10/99	9/4/08	6/23/11	6/10/99	9/4/08	6/24/11	6/10/99	9/4/08	6/23/11	6/10/99	9/4/08	6/23/11
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4,5-Tetramethylbenzene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	2.7	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	BDL	BDL	BDL	2.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	7.2	BDL	BDL	BDL	4.2	2.2	BDL	BDL	BDL
2-Methylnaphthalene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
4-Isopropyltoluene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
Acetone	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	BDL	Not Sampled 5th qtr well	BDL	BDL	Not Sampled 5th qtr well	BDL	2.1	Not Sampled 5th qtr well	BDL	BDL	Not Sampled 5th qtr well	BDL
Chlorobenzene	BDL		BDL	1.8		BDL	BDL	3.6	4.9	BDL		BDL
Chloroform	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Ethyl Benzene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Hexachlorobutadiene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Isopropylbenzene	BDL		BDL	BDL		BDL	1.5	BDL	BDL	BDL		BDL
m,p-Xylene	BDL		BDL	BDL		BDL	6.6	BDL	BDL	BDL		BDL
Methyl t-Butylether (MTBE)	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Methylene Chloride	BDL		3.38	BDL		4.8	BDL	5.38	BDL	BDL		3.58
Naphthalene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
N-Butylbenzene	NA		BDL	BDL		BDL	NA	BDL	BDL	NA		BDL
n-Propylbenzene	BDL		BDL	BDL		BDL	1.4	BDL	BDL	BDL		BDL
o-Xylene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
p-Diethylbenzene	NA		BDL	BDL		BDL	NA	BDL	BDL	NA		BDL
p-Ethyltoluene	NA		BDL	BDL		BDL	NA	BDL	BDL	NA		BDL
p-Isopropyltoluene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
sec-Butyl Benzene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
tert-Butyl Benzene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Tetrachloroethene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Toluene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Trichloroethene	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
Vinyl Chloride	BDL		BDL	BDL		BDL	BDL	BDL	BDL	BDL		BDL
SEMI-VOLATILE ORGANIC COMPOUNDS												
1,2-Dichlorobenzene	BDL	BDL	BDL	2.3	1.3	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	B1J	BDL	2.3J	1.1J	BDL	BDL	BDL
2,4-Dinitrotoluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Methylnaphthalene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
2-Methylphenol	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
3+4-Methylphenol	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Bis(2-Ethylhexyl)Phthalate	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL
Diethyl Phthalate	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.9J	BDL	BDL	BDL	BDL
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
N-Nitroso-di-n-Propylamine	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
INORGANIC PARAMETERS												
ph	6.71	NA	7.2	7.02	NA	6.9	6.51	NA	6.5	6.26	NA	6.15
Specific Conductance	264	NA	192.0	1450	NA	1020	694	NA	2150	324	NA	430
Alkalinity as Calcium Carbonate	BDL	NA	28.0	414	NA	212.0	158	NA	450.0	88	NA	82
B.O.D.	BDL	NA	BDL	3	NA	52.5	3	NA	37.1	BDL	NA	BDL
Chemical Oxygen Demand	BDL	NA	BDL	60	NA	122.0	45	NA	226.0	BDL	NA	39.5
Hardness, Total	79.5	NA	56.0	151	NA	56.8	87.7	NA	223.0	55.7	NA	93.2
Nitrate as N	18.48	NA	5.0	1.02	NA	1.1	NA	NA	1.1	0.6	NA	1.12
Total Phosphorus as P	BDL	NA	BDL	BDL	NA	BDL	0.09	NA	BDL	0.02	NA	BDL
Sodium, Total	14.5	5.79	12.5	142	29.1	104.0	61.5	39.8	112.0	125	19.7	55.1
Total Kjeldahl	0.33	NA	3.4	45.1	NA	28.0	8.84	NA	42.6	0.42	NA	BDL
Ammonia as N	BDL	NA	3.7	35.3	NA	25.5	8.84	NA	16.5	0.35	NA	BDL
Sulfate	32.7	NA	32.6	39.5	NA	BDL	31.5	NA	18.9	24	NA	19.4
Chloride	5	NA	8.0	152	NA	145.0	95	NA	170.0	22.5	NA	52
Total Dissolved Solids	190	NA	80.0	430	NA	346.0	310	NA	569.0	144	NA	179
Total Suspended Solids	BDL	NA	BDL	5.5	NA	24.0	44	NA	21.0	6	NA	BDL
Arsenic	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Aluminum, Total	BDL	0.014	BDL	BDL	0.027	BDL	BDL	BDL	BDL	BDL	0.009	BDL
Iron, Total	0.052	0.476	0.20	2.4	16.9	25.6	31.3	9.36	15.1	0.638	0.02	0.011
Manganese, Total	0.034	0.036	0.064	3.09	1.26	2.9	3.1	1.49	2.2	0.565	0.011	2.51
Nickel, Total	0.010	BDL	BDL	0.022	0.014	0.013	0.008	0.013	BDL	0.023	BDL	BDL
Chromium, Total	BDL	BDL	BDL	0.009	BDL	0.012	0.009	BDL	BDL	BDL	BDL	BDL

LABORATORIES: Inorganics, VOAs & Semi-Vols - American Analytical Laboratories, Farmingdale, N.Y.

*In Quarter Well

VOC and Semi Vol results = ug/l

Inorganic = mg/l

Table 1b

2008 - 2011 ONSITE GROUNDWATER SAMPLING RESULTS

	FTC-W-14B*			FTC-W-23*			FTC-W-31*				FTC-W-32					FTC-W-35				
	Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED				Baseline Water Quality	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS	6/7/99	5/5/08	5/27/11	6/9/99	9/5/08	6/27/11	6/11/99	9/5/08	3/25/10	6/24/11	6/11/99	8/4/09	3/11/10	8/30/10	3/3/11	6/11/99	9/4/08	3/11/10	6/21/11	9/9/11
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,3-Trichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4,5-Tetramethylbenzene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	13.0	BDL	NA	6.4	BDL	BDL	BDL	NA	48	BDL	29	19
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	548	BDL	BDL	BDL	239	0.8	BDL	BDL	BDL	465	40	BDL	24	9.5
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	169	BDL	BDL	BDL	70.8	BDL	BDL	BDL	BDL	126	19	BDL	7.4J	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Methylnaphthalene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL
4-Isopropyltoluene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	NA	0.65	BDL	BDL	BDL
Acetone	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	BDL	17.4	1.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
c-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	112	BDL	BDL	BDL	13.3	4.9	BDL	BDL	BDL	311	BDL	BDL	BDL	5.1J
Hexachlorobutadiene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isopropylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	23.1	BDL	6.4	BDL	17.0	0.9	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	415	BDL	BDL	BDL	33.8	1.6	BDL	BDL	BDL	823	2.8	BDL	BDL	1.7J
Methyl t-Butyl ether (MTBE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	BDL	6.28	BDL	BDL	4.68	BDL	BDL	5	3.18	BDL	BDL	6.38	3.28	208	4.88	BDL	8.38	3.38	7.78	5.38
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	106	BDL	5.4	BDL	BDL	BDL	BDL	BDL	BDL	140	10	BDL	BDL	3.9
n-Butylbenzene	NA	BDL	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	NA	2.2	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	65.7	BDL	7.4	BDL	39.9	1.4	BDL	BDL	BDL	62.2	BDL	BDL	BDL	BDL
o-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	194	BDL	2	BDL	10.1	1.1	BDL	BDL	BDL	457	5.6	BDL	85J	BDL
p-Diethylbenzene	NA	BDL	BDL	BDL	BDL	BDL	NA	BDL	4.2	BDL	NA	0.7	BDL	BDL	BDL	NA	12	BDL	4	4
p-Ethyltoluene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	0.6	BDL	BDL	BDL	NA	11	BDL	5	3
p-Isopropyltoluene	BDL	BDL	BDL	BDL	BDL	BDL	21.8	BDL	BDL	BDL	12.7	BDL	BDL	BDL	BDL	73	BDL	BDL	BDL	BDL
sec-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	53J
tert-Butyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.6	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2.7	BDL	BDL	BDL	BDL	392	BDL	BDL	BDL	BDL
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SEMI-VOLATILE ORGANIC COMPOUNDS																				
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4-Dinitrotoluene	BDL	BDL	BDL	BDL	BDL	BDL	3.9	BDL	BDL	BDL	1.8	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2-Methylnaphthalene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	29.0	1.3	NA	20.0	BDL	BDL	BDL	NA	9.5	BDL	3.7J	2.8J
2-Methylphenol	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL
3+4-Methylphenol	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL
Acenaphthene	BDL	BDL	BDL	BDL	BDL	BDL	1.3	BDL	4.6J	BDL	BDL	4.1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Anthracene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Diethyl Phthalate	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	16	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Fluorene	BDL	BDL	BDL	BDL	BDL	BDL	2.0	BDL	2.4	BDL	1.8	1.7	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	61.8	BDL	4.8J	BDL	BDL	0.940	BDL	BDL	BDL	BDL	6.3	BDL	6.7	1.5
Nitrobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Phenanthrene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.66	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
INORGANIC PARAMETERS																				
ph	5.17	NA	6.91	6.99	NA	6.56	6.45	NA	6.57	6.89	6.64	6.68	6.84	6.56	6.34	5.83	6.41	6.19	6.08	6.51
Specific Conductance	569	NA	400	632	NA	648	632	NA	445	443	776	446	495	454	466	260	266	252	215	417
Alkalinity as Calcium Carbonate	60	NA	52	162	NA	114	71	NA	197	190	179	231	201	204	197	56	76.8	69.7	54.5	101.0
B.O.D.	BDL	NA	BDL	BDL	NA	BDL	7	NA	BDL	4.3	5.2	NA	BDL	BDL	4.30	6	BDL	BDL	BDL	BDL
Chemical Oxygen Demand	BDL	NA	28.9	BDL	NA	25.2	36	NA	14.5	28.9	54.9	43	BDL	17.70	4.51	BDL	BDL	BDL	BDL	BDL
Hardness, Total	190	NA	103	52.6	NA	75.2	50.8	NA	119	156	108	137	156	160	152	45	60.1	66.3	56.9	90.0
Nitrate as N	2.59	NA	1.24	4.07	NA	11.10	BDL	NA	0.84	2.25	BDL	0.270	0.482	0.61	0.36	1.72	1.78	3.96	1.74	0.82
Total Phosphorus as P	BDL	NA	BDL	BDL	NA	BDL	0.05	NA	BDL	BDL	0.06	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Sodium, Total	23.9	10.2	14.2	106	32.0	65.8	80.5	NA	13.1	25.0	56.7	21.9	6.49	15.50	BDL	16.4	8.02	5.830	12.3	18.0
Total Kjeldahl	0.42	NA	BDL	15.9	NA	6.23	NA	NA	3.51	BDL	2.70	6.14	1.08	1.10	3.85	0.99	BDL	0.294	0.57	2.87
Ammonia as N	BDL	NA	0.92	15.9	NA	BDL	6.24	NA	1.17	1.84	2.59	1.42	0.855	0.69	0.47	0.76	0.168	0.078	BDL	BDL
Sulfate	158	NA	36.7	24.9	NA	40.3	33.4	NA	BDL	BDL	48.1	10.50	29.90	15.60	6.59	26	18.5	11.2	BDL	6.87
Chloride	20	NA	40	100	NA	50	80	NA	22	3	90	22	20	48	11	20	24	14.5	21.6	44.0
Total Dissolved Solids	347	NA	291	354	NA	409	306	NA	236	186	377	217	276	299	240	140	115	132.0	147.0	207.0
Total Suspended Solids	1	NA	BDL	1	NA	BDL	40	NA	40	10	102	70	90	31	37	8	9	12.0	BDL	3.60
Arsenic	BDL	BDL	BDL	BDL	BDL	0.1	BDL	NA	0.028	BDL	BDL	0.025	0.038	BDL	0.037	BDL	BDL	BDL	BDL	BDL
Aluminum, Total	BDL	BDL	BDL	BDL	BDL	BDL	BDL	NA	0.006	BDL	0.013	0.074	0.184	0.010	0.007	BDL	0.0779	0.387	BDL	0.008
Iron, Total	0.422	0.025	0.018	0.013	0.026	0.100	24.3	NA	24.0	16.2	64.9	46.50	26.80	29.10	33.40	20.4	6.2	4.320	2.1	4.89
Manganese, Total	4.37	0.322	0.22	0.277	0.57	0.25	2.31	NA	10.60	1.35	5.39	1.49	1.71	1.28	1.48	3.25	0.54	0.525	0.05	0.492
Nickel, Total	BDL	BDL	BDL	0.014	BDL	BDL	0.026	NA	0.012	BDL	0.002	0.014	0.008	BDL	0.005	0.005	0.0114	0.008	BDL	BDL
Chromium, Total	0.002	BDL	BDL	BDL	BDL	BDL	0.04	NA	BDL	0.016	BDL	BDL	0.014	BDL	BDL	0.005	BDL	0.021	BDL	BDL

LABORATORIES: Inorganics, VOAs & Semi-Vols - American Analytical Laboratories, Farmingdale, N.Y

*5th Quarter Well

NOTE: VOC and Semi-Vol results = ug/l

Inorganic = mg/l

Table 2a

2011 OFFSITE GROUNDWATER SAMPLING RESULTS

	BP-3B*				BP-3C				BP-4B			
	Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED		
VOLATILE ORGANICS COMPOUNDS	11/00/92	4/8/10	7/15/10	3/3/11	11/00/92	4/7/10	7/12/10	3/2/11	6/8/99	3/18/10	9/2/10	3/7/11
1,1,1 Trichloroethane	BDL	BDL	BDL	BDL	2.0	1.0	0.6	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloromethane	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-Trifluorethane	NA	BDL	BDL	BDL	NA	BDL	1.1	BDL	NA	BDL	BDL	BDL
1,1,2 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	BDL	BDL	BDL	BDL	0.9	3.1	3.5	BDL	4.8	BDL	BDL	BDL
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	4.4	BDL	BDL	BDL
1,2,4-Trimethylbenzene	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromoethane	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	8.5	BDL	56J	BDL
Carbon Tetrachloride	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	26.2	BDL	BDL	BDL
Chlorodifluoromethane	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL
Chloroform	BDL	BDL	39J	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	NA	3.6	1.9	0.7	11.0	80.0	66.0	15.0	117.0	41J	BDL	BDL
Dichlorodifluoromethane	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	155.0	BDL	BDL	BDL
Isopropylbenzene	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	9.8	BDL	BDL	BDL
m,p-Xylene	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	4.6	BDL	BDL	BDL
Methyl t-Butylether (MTBE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5.7	BDL	BDL	BDL
Methylene Chloride	BDL	4.7B	1.1B	3.8B	BDL	6.2B	BDL	5.3B	BDL	BDL	6.6B	5.8B
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	20.0	BDL	BDL	BDL
n-Propylbenzene	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
o-Xylene	2.0	BDL	BDL	BDL	NA	BDL	BDL	BDL	37.3	BDL	BDL	BDL
p-Ethyltoluene	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL	BDL
t-1,2-Dichloroethene	NA	BDL	BDL	BDL	BDL	BDL	1.1	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	BDL	16.0	11.0	3.4	12.0	6.6	5.2	1.6	597.0	1.1D	BDL	BDL
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	32.1	BDL	BDL	BDL
Trichloroethene	BDL	BDL	BDL	BDL	3.0	BDL	8.5	2.1	BDL	BDL	BDL	BDL
Trichlorofluoromethane	BDL	BDL	BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	10.6	BDL	BDL	BDL
SEMI-VOLATILE ORGANIC COMPOUNDS												
1,2-Dichlorobenzene	BDL	NA	NA	NA	BDL	NA	NA	NA	BDL	NA	NA	NA
2,4-Dinitrotoluene	BDL	NA	NA	NA	BDL	NA	NA	NA	BDL	NA	NA	NA
Bis(2-Ethylhexyl) Phthalate	BDL	NA	NA	NA	BDL	NA	NA	NA	BDL	NA	NA	NA
INORGANIC PARAMETERS												
ph	5.03	NA	NA	6.26	5.64	NA	NA	NA	4.66	6.51	5.10	5.75
Specific Conductance	81.8	NA	NA	56.6	30.0	NA	NA	NA	248	501.0	553.0	507.0
Alkalinity as Calcium Carbonate	BDL	NA	NA	9.1	BDL	NA	NA	NA	9	10.1	7.07	11.10
B.O.D.	BDL	NA	NA		1.0	NA	NA	NA	BDL	BDL	BDL	BDL
Chemical Oxygen Demand	BDL	NA	NA	BDL	40.6	NA	NA	NA	BDL	BDL	BDL	BDL
Hardness, Total	14.9	NA	NA	11.8	1.9	NA	NA	NA	46.8	89.9	91.6	86.7
Nitrate as N	4.15	NA	NA	1.1	BDL	NA	NA	NA	0.53	3.12	2.45	1.18
Total Phosphorus as P	BDL	NA	NA	BDL	BDL	NA	NA	NA	NA	BDL	BDL	BDL
Sodium, Total	6.30	NA	NA		1.61	NA	NA	NA	23.4	17.5	32.40	
Total Kjeldahl	0.24	NA	NA	2.8	0.16	NA	NA	NA	0.16	1.3	2.14	3.98
Ammonia as N	BDL	NA	NA	BDL	BDL	NA	NA	NA	BDL	1.19	2.15	2.06
Sulfate	BDL	NA	NA	BDL	6.4	NA	NA	NA	40.8	98.4	66.10	70.40
Chloride	10.0	NA	NA	9.0	5.0	NA	NA	NA	30	84.0	85.00	78.00
Total Dissolved Solids	92	NA	NA	27.0	47	NA	NA	NA	132	278.0	302.0	307.0
Total Suspended Solids	BDL	NA	NA	BDL	1.0	NA	NA	NA	BDL	4.0	BDL	BDL
Aluminum, Total	BDL	NA	NA	0.01	0.045	NA	NA	NA	BDL	0.091	0.040	0.029
Iron, Total	0.106	NA	NA	0.03	1.39	NA	NA	NA	0.015	0.363	0.035	0.043
Manganese, Total	0.011	NA	NA	0.01	0.008	NA	NA	NA	0.13	0.316	0.343	0.325
Nickel, Total	BDL	NA	NA	0.01	BDL	NA	NA	NA	0.020	0.011	0.005	0.008
Chromium, Total	BDL	NA	NA	BDL	BDL	NA	NA	NA	BDL	0.010	BDL	BDL

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.

* 5th Quarter Well

NOTE: VOC and Semi Vol. results = ug/l
Inorganic = mg/l

Table 2b

2011 OFFSITE GROUNDWATER SAMPLING RESULTS

	BP-4C*				BP-9B*				BP-10C*				BP-12B			
	Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED		
VOLATILE ORGANICS COMPOUNDS	6/5/99	3/11/11			6/4/99	3/17/11			6/4/99	9/9/09	7/28/10	3/14/11	6/4/99	3/16/10	9/1/10	3/14/11
1,1,1 Trichloroethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloromethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	3.3	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	BDL			NA	BDL			NA	BDL	BDL	BDL	NA	BDL	BDL	BDL
1,1,2 Trichloroethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	3.3	BDL			6.4	0.5			BDL	3.2	3.2	1.7	9.2	BDL	BDL	BDL
1,1-Dichloroethene	4.0	BDL			3.6	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dibromoethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	9.0	BDL			BDL	0.6			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	34.4	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorodfluoromethane	NA	BDL			NA	BDL			NA	BDL	BDL	BDL	NA	BDL	BDL	BDL
Chloroform	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	152.0	0.7			106.0	1.7			BDL	2.9	3.7	1.8	78.9	BDL	BDL	BDL
Dichlorodfluoromethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	205.0	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isopropylbenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyl t-Butylether (MTBE)	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	BDL	3.3B			BDL	4.6B			BDL	3.4B	BDL	BDL	BDL	BDL	8.2B	4.3B
Naphthalene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
n-Propylbenzene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
o-Xylene	1.4	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
p-Ethyltoluene	NA	BDL			NA	BDL			NA	BDL	BDL	BDL	NA	BDL	BDL	BDL
t-1,2-Dichloroethene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	30.4	2.3			98.9	0.9			BDL	BDL	BDL	BDL	30.7	.95J	BDL	BDL
Toluene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	19.8	BDL	BDL	BDL
Trichlorofluoromethane	BDL	BDL			BDL	BDL			BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	5.0	BDL			BDL	BDL			BDL	BDL	2.5	BDL	BDL	BDL	BDL	BDL
SEMI-VOLATILE ORGANIC COMPOUNDS																
1,2-Dichlorobenzene	BDL	NA			BDL	NA			NA	NA	NA	NA	BDL	NA	NA	NA
2,4-Dinitrotoluene	3.9	NA			BDL	NA			BDL	NA	NA	NA	3.3	NA	NA	NA
Diethyl Phthalate	BDL	NA			BDL	NA			BDL	NA	NA	NA	BDL	NA	NA	NA
INORGANIC PARAMETERS																
pH	5.08	5.3			4.97	4.92			5	5.10	NA	4.81	4.86	5.71	5.30	5.06
Specific Conductance	119	217.0			89.6	364.0			44.2	227	NA	398	454	328	398	485
Alkalinity as Calcium Carbonate	5	7.1			5	9.09			BDL	5.05	NA	5	BDL	5.05	4.0	6.1
B.O.D	BDL	BDL			BDL	BDL			BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL
Chemical Oxygen Demand	BDL	8.0			BDL	15.40			BDL	BDL	NA	BDL	BDL	BDL	BDL	11.6
Hardness, Total	24.1	44.6			16.2	36			5.7	44.80	NA	62	41.2	31.90	33.1	40.9
Nitrate as N	2.3	3.3			3.62	1.82			1.8	1.61	NA	0.65	3.53	4.16	3.04	2.86
Total Phosphorus as P	BDL	BDL			BDL	4.57			BDL	BDL	NA	BDL	BDL	BDL	BDL	BDL
Sodium, Total	10.3	7.7			L/A	20.20			L/A	5.34	NA		L/A	15.50	33.00	24.50
Total Kjeldahl	BDL	0.220			0.13	0.838			BDL	BDL	NA	0.566	BDL	BDL	0.59	1.83
Ammonia as N	BDL	0.026			BDL	BDL			BDL	BDL	NA	0.032	BDL	BDL	BDL	BDL
Sulfate	5.08	5.0			BDL	BDL			BDL	2.530	NA	BDL	23.2	5.32	6.2	3.9
Chloride	15	32.0			12.5	75.00			7.5	69.00	NA	91	95	80.50	92	101
Total Dissolved Solids	64	102.0			48	176			16	141.0	NA	221	223	174	203	240
Total Suspended Solids	BDL	BDL			BDL	BDL			BDL	1.00	NA	BDL	BDL	4	BDL	BDL
Aluminum, Total	BDL	0.012			BDL	0.018			BDL	0.046	NA	0.065	BDL	0.124	0.028	0.037
Iron, Total	0.003	0.026			BDL	0.025			BDL	0.106	NA	0.019	BDL	0.619	0.051	0.028
Manganese, Total	0.005	0.021			0.003	0.038			0.001	0.025	NA	0.035	0.015	0.051	0.043	0.056
Nickel, Total	0.019	BDL			0.005	0.006			BDL	0.009	NA	0.009	0.011	0.036	0.013	0.010
Chromium, Total	BDL	BDL			BDL	BDL			BDL	BDL	NA	BDL	BDL	0.070	0.006	0.005

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.
*5th Quarter Well

VOC and Semi Vol. results = ug/l
Inorganic = mg/l

Table 2c

2011 OFFSITE GROUNDWATER SAMPLING RESULTS

	BP-13B*			BP-13C*			BP-14B				BP-14C*		
	Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED		Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED	
VOLATILE ORGANICS COMPOUNDS	2/1/00	9/8/09	5/24/11	2/1/00	9/8/08	5/24/11	4/11/02	3/19/10	6/30/10	3/4/11	4/11/02	3/7/08	3/4/11
1,1,1 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	50.8	3.0	1.5	BDL	BDL	9.7	BDL
1,1,1-Trichloromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL
1,1,2 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	BDL	BDL	52J	BDL	BDL	BDL	5.1	1.3	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	25	2.6	1.0	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	1.4	1.5	BDL	BDL	BDL	BDL	BDL
1,2-Dibromoethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	15.4	3.3	72J	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	83.7	79.0	42.0	9.8	BDL	BDL	BDL
Carbon Tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorodifluoromethane	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL
Chloroform	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
cis-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	244	34.0	19.0	5.4	BDL	4.8	1.1
Dichlorodifluoromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isopropylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyl s-Butylether (MTBE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methylene Chloride	BDL	3.3B	6.4B	BDL	4.3B	6.9B	BDL	.77B	12B	4.9B	BDL	LA	4.9B
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
o-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	4.3	2.7	BDL	BDL	BDL	BDL	BDL
p-Ethyltoluene	NA	BDL	BDL	NA	BDL	BDL	NA	BDL	BDL	BDL	NA	BDL	BDL
t-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	375	59.0	32.0	15.0	BDL	2.4	3.0
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	40.8	8.0	3.0	1.4	BDL	BDL	BDL
Trichlorofluoromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	9.2	2.8	1.4	BDL	BDL	BDL	BDL
SEMI-VOLATILE ORGANIC COMPOUNDS													
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	BDL	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	BDL	NA	NA	NA	NA	NA	BDL	NA	NA	NA	NA	NA	NA
Bis(2-Ethylhexyl) Phthalate	BDL	NA	NA	NA	NA	NA	BDL	NA	NA	NA	NA	NA	NA
INORGANIC PARAMETERS													
ph	NA	NA	NA	NA	NA	NA	5.64	6.02	5.29	6.02	NA	NA	6.29
Specific Conductance	NA	NA	NA	NA	NA	NA	30.0	406	433	503	NA	NA	91.2
Alkalinity as Calcium Carbonate	NA	NA	NA	NA	NA	NA	BDL	9.09	7.07	11.1	NA	NA	6.1
B.O.D.	NA	NA	NA	NA	NA	NA	1.0	BDL	BDL	BDL	NA	NA	BDL
Chemical Oxygen Demand	NA	NA	NA	NA	NA	NA	40.6	BDL	BDL	BDL	NA	NA	BDL
Hardness, Total	NA	NA	NA	NA	NA	NA	1.9	67.7	70.6	80.9	NA	NA	19.7
Nitrate as N	NA	NA	NA	NA	NA	NA	BDL	2.33	2.3	1.75	NA	NA	2.6
Total Phosphorus as P	NA	NA	NA	NA	NA	NA	BDL	BDL	BDL	0.764	NA	NA	BDL
Sodium, Total	NA	2.50	NA	NA	0.541	NA	1.91	15.1	15.2	22.1	NA	NA	3.53
Total Kjeldahl	NA	NA	NA	NA	NA	NA	0.16	BDL	0.374	1.8	NA	NA	2.4
Ammonia as N	NA	NA	NA	NA	NA	NA	BDL	BDL	BDL	BDL	NA	NA	BDL
Sulfate	NA	NA	NA	NA	NA	NA	6.4	23	21.1	12.3	NA	NA	BDL
Chloride	NA	NA	NA	NA	NA	NA	5.0	97.5	107	117	NA	NA	15.5
Total Dissolved Solids	NA	NA	NA	NA	NA	NA	47	232	256	285	NA	NA	57.0
Total Suspended Solids	NA	NA	NA	NA	NA	NA	1.0	2	BDL	BDL	NA	NA	BDL
Aluminum, Total	NA	0.014	NA	NA	0.070	NA	0.045	0.044	0.014	0.02	NA	NA	0.015
Iron, Total	NA	0.011	NA	NA	0.025	NA	1.39	0.164	0.020	0.230	NA	NA	0.020
Manganese, Total	NA	0.008	NA	NA	BDL	NA	0.008	0.025	0.031	0.037	NA	NA	0.015
Nickel, Total	NA	BDL	NA	NA	BDL	NA	BDL	0.035	BDL	0.005	NA	NA	BDL
Chromium, Total	NA	BDL	NA	NA	BDL	NA	BDL	0.014	BDL	BDL	NA	NA	BDL

LABORATORY: Inorganic, VOA & SEMI-VOL. American Analytical Laboratories, Farmingdale, N.Y.
*5th Quarter Well

VOC and Semi Vol. results = ug/l
Inorganic = mg/l

Table 2d

2011 OFFSITE GROUNDWATER SAMPLING RESULTS

	BP-15B				BP-15C*				OBV-1B*				OBV-1C*			
	Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED			Baseline Water Quality	DATE SAMPLED		
VOLATILE ORGANICS COMPOUNDS	10/28/05	3/18/10	8/31/10	3/7/11	10/28/05	6/30/06	3/24/11		9/19/05	6/30/06	5/27/11		9/19/05	9/11/08	5/27/11	
1,1,1 Trichloroethane	22.1	8.4	6.7	1.9	BDL	BDL	BDL		1.6	BDL	BDL		4.8	4.4	BDL	
1,1,1-Trichloromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,1,2-Trichloro-1,2,2-Trifluoroethane	NA	4.6	2.7	1.6	NA	BDL	BDL		NA	BDL	BDL		NA	BDL	BDL	
1,1,2 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,1-Dichloroethane	28.4	31.0	32.0	14.0	BDL	BDL	BDL		1.0	BDL	BDL		6.9	4.7	BDL	
1,1-Dichloroethene	11.4	4.7	3.6	1.1	BDL	BDL	BDL		BDL	BDL	BDL		3.4	1.4	BDL	
1,2 Dichloroethane	1.6	2.2	1.1	0.9	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,2-Dibromoethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Benzene	1.7	8.2	8.9	3.7	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Carbon Tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Chlorodifluoromethane	NA	BDL	7.4	2.6	NA	BDL	BDL		NA	BDL	BDL		NA	BDL	BDL	
Chloroform	0.7	.81J	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Chloromethane	1.8	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
cis-1,2-Dichloroethene	40.7	150.0	180.0	71.0	BDL	BDL	1.4		BDL	BDL	BDL		BDL	BDL	BDL	
Dichlorodifluoromethane	10.0	BDL	39.0	15.0	BDL	BDL	0.8		BDL	BDL	BDL		BDL	BDL	BDL	
Ethyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Isopropylbenzene	BDL	1.7	BDL	0.56	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
m,p-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Methyl t-Butylether (MTBE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Methylene Chloride	5.0	6.9B	18B	7.2B	BDL	4.6B	BDL		BDL	6.8B	3B		BDL	4.5B	BDL	
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
o-Xylene	0.3	5.2	5.2	3.7	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
p-Ethyltoluene	NA	BDL	BDL	BDL	NA	BDL	BDL		NA	BDL	BDL		NA	BDL	BDL	
t-1,2-Dichloroethene	0.7	1.8	1.4	0.7	BDL	BDL	BDL		BDL	BDL	BDL		BDL	1.9	BDL	
Tetrachloroethene	7.5	35.0	30.0	11.0	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Trichloroethene	10.5	14.0	14.0	5.5	BDL	BDL	BDL		BDL	BDL	BDL		3.4	2.2	BDL	
Trichlorofluoromethane	3.2	4.4	2.2	1.1	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
Vinyl Chloride	8.8	42.0	47.0	20.0	BDL	BDL	BDL		BDL	BDL	BDL		BDL	BDL	BDL	
SEMI-VOLATILE ORGANIC COMPOUNDS																
1,2-Dichlorobenzene	BDL	NA	NA	NA	BDL	NA	NA		BDL	NA	NA		BDL	NA	NA	
2,4-Dinitrotoluene	BDL	NA	NA	NA	BDL	NA	NA		BDL	NA	NA		BDL	NA	NA	
Bis(2-Ethylhexyl) Phthalate	BDL	NA	NA	NA	BDL	NA	NA		BDL	NA	NA		BDL	NA	NA	
INORGANIC PARAMETERS																
pH	4.74	6.18	4.94	5.44	4.69	NA	5.21		5.17	NA	NA		5.21	NA	NA	
Specific Conductance	192	340	358	401	52	NA	95		152	NA	NA		140	NA	NA	
Alkalinity as Calcium Carbonate	7	8	7,070	9,050	BDL	NA	8.08		7	NA	NA		5	NA	NA	
B.O.D.	3.4	BDL	BDL		BDL	NA	BDL		10	NA	NA		3.6	NA	NA	
Chemical Oxygen Demand	BDL	BDL	BDL	BDL	BDL	NA	BDL		BDL	NA	NA		BDL	NA	NA	
Hardness, Total	9.4	62	63	72	36.9	NA	18		35.7	NA	NA		27.2	NA	NA	
Nitrate as N	0.79	0.96	0.817	0.599	0.7	NA	0.633		2.31	NA	NA		8.15	NA	NA	
Total Phosphorus as P	BDL	BDL	BDL	BDL	BDL	NA	5.68		BDL	NA	NA		BDL	NA	NA	
Sodium, Total	4.76	12.50	23	16	17.4	5.51	5.47		10.9	6.44	NA		13	12.9	NA	
Total Kjeldahl	0.15	0.22	0.636	1.790	BDL	NA	0.575		BDL	NA	NA		BDL	NA	NA	
Ammonia as N	BDL	BDL	BDL	BDL	BDL	NA	BDL		BDL	NA	NA		BDL	NA	NA	
Sulfate	BDL	2.99	BDL	BDL	BDL	NA	BDL		24.3	NA	NA		BDL	NA	NA	
Chloride	45.0	93	95	105	5	NA	21		10	NA	NA		10	NA	NA	
Total Dissolved Solids	90	216	265	266	37	NA	45		109	NA	NA		110	NA	NA	
Total Suspended Solids	BDL	BDL	BDL	BDL	BDL	NA	BDL		2	NA	NA		BDL	NA	NA	
Aluminum, Total	0.047	0.134	0.025	0.027	0.037	0.033	0.053		0.17	0.049	NA		0.051	0.072	NA	
Iron, Total	0.088	0.301	0.022	0.034	0.026	0.017	0.360		0.388	0.058	NA		0.039	0.256	NA	
Manganese, Total	0.024	0.028	0.027	0.330	0.005	BDL	0.005		0.073	0.028	NA		0.035	0.015	NA	
Nickel, Total	0.007	0.005	0.005	0.008	0.002	BDL	0.005		0.005	BDL	NA		0.003	0.008	NA	
Chromium, Total	BDL	0.009	BDL	BDL	BDL	BDL	BDL		BDL	BDL	NA		BDL	BDL	NA	

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.
*5th Quarter Well

VOC and Semi Vol. results = ug/l
Inorganic = mg/l

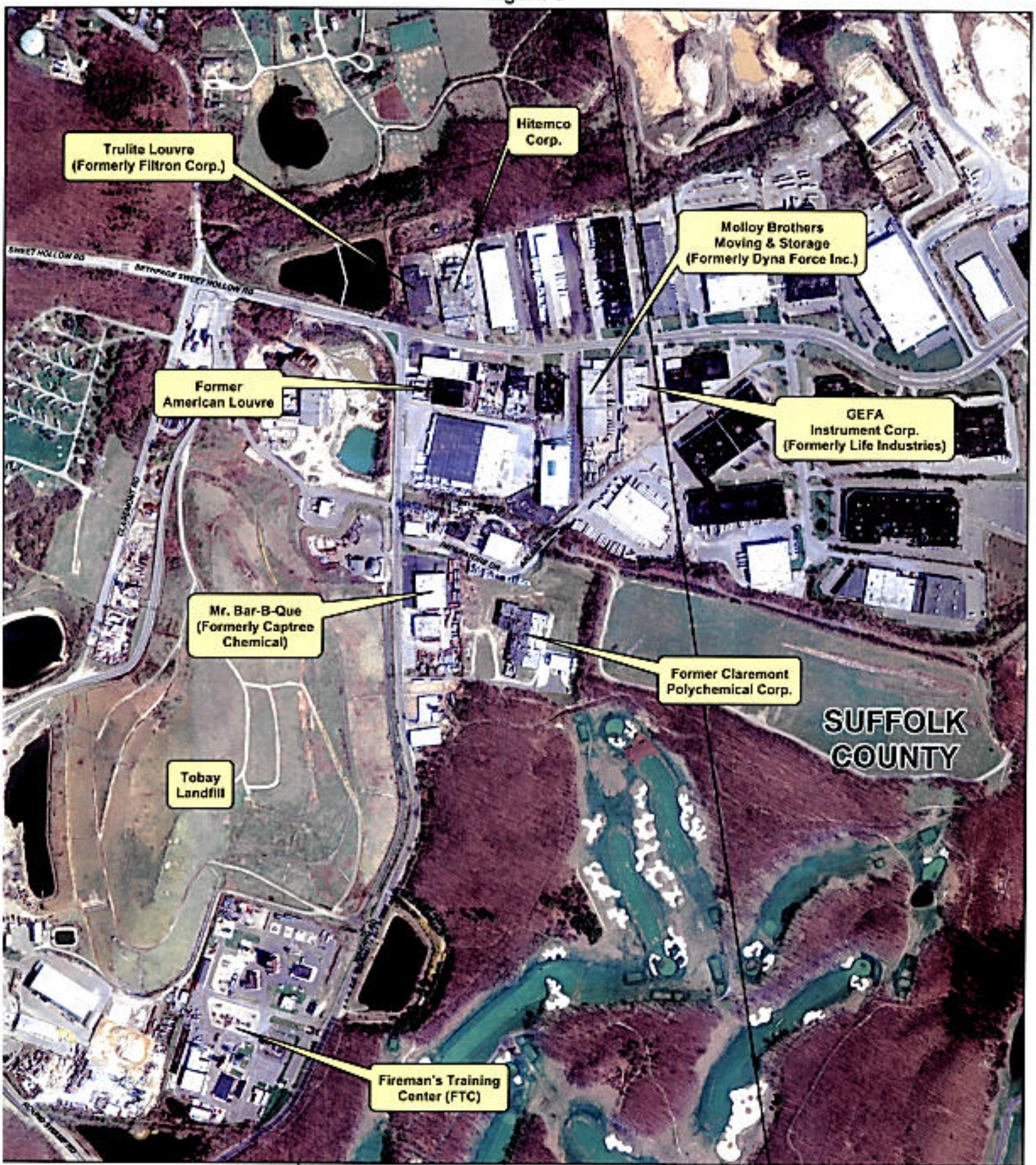
Review of the 2011 Onsite groundwater quality data indicates that all eleven of the onsite groundwater monitoring wells sampled have volatile and semi-volatile organic concentrations below the groundwater cleanup criteria established for the site.
Groundwater monitoring well FTC-W-32 was found to have TVOC and SVOC concentrations below detectable limits for all compounds tested. Groundwater monitoring well FTC-W-35 had a TVOC concentration in groundwater of 42 ppb and was below detectable limits for most semi-volatile compounds listed in the site cleanup criteria. Three compounds were detected at concentrations below their individual cleanup guidelines, Napthalene (15 ppb), 2-Methylnapthalene (2.9 ppb) and Acenaphthene (.58 ppb).

Review of the 2011 offsite groundwater quality data reveals that 14 of the 15 monitoring wells sampled had TVOC concentrations below the 50 ppb guideline established for the site. The only well which exceeded the closure criteria for total organics was BP-15B (154 ppb). Based on composition of the sample and groundwater modeling, this well has been impacted by volatile organics originating from sources other than the FTC. Monitoring well BP–14B had the second highest concentration of volatile organics in groundwater with a total of 32 ppb.

The evaluation of remedy performance with regard to the occurrence and treatment of volatile organic compounds which originated at the FTC in offsite groundwater monitoring and recovery wells is complicated by the presence of multiple offsite sources of these compounds. Currently, there are at least three potential sources (Figure 3), including Old Bethpage Landfill, Claremont Polychemical Corp. and American Louvre Corp. which have contributed volatile organic compounds to local groundwater.

During the eleven years of groundwater treatment all offsite wells have exhibited a decrease in TVOC concentrations; similarly total offsite influent concentrations have also decreased over this time period. Offsite influent concentrations for the eleven years of treatment operations are presented in Figures 4, 5 and 6. Review of Figure 4 indicates that largest reductions in offsite volatile organic compound concentrations in groundwater occurred in the first five years of treatment. Overall TVOC concentrations were reduced from a maximum of 1,005 ppb in June of 2000 to 30 ppb in July of 2004. Initially all seven offsite recovery wells were pumped in various configurations to identify those wells which had the highest total volatile organic compound concentrations. Offsite Recovery Wells ORW-3 and ORW-4 were pumped in almost all pumping schemes due to the highest overall initial volatile organic concentrations in groundwater. Between July 2003 and July 2004, overall reductions in offsite plume TVOC concentrations and restrictions in effluent discharge capacity caused by poor drainage characteristics in the offsite recharge basin led to a reduction in offsite pumpage. Hydraulic control of what was perceived to be the "lead edge" of the plume of volatile organics became the focus of the treatment program and offsite recovery wells ORW-5, 6 and 7 were employed for this purpose.

Figure 3



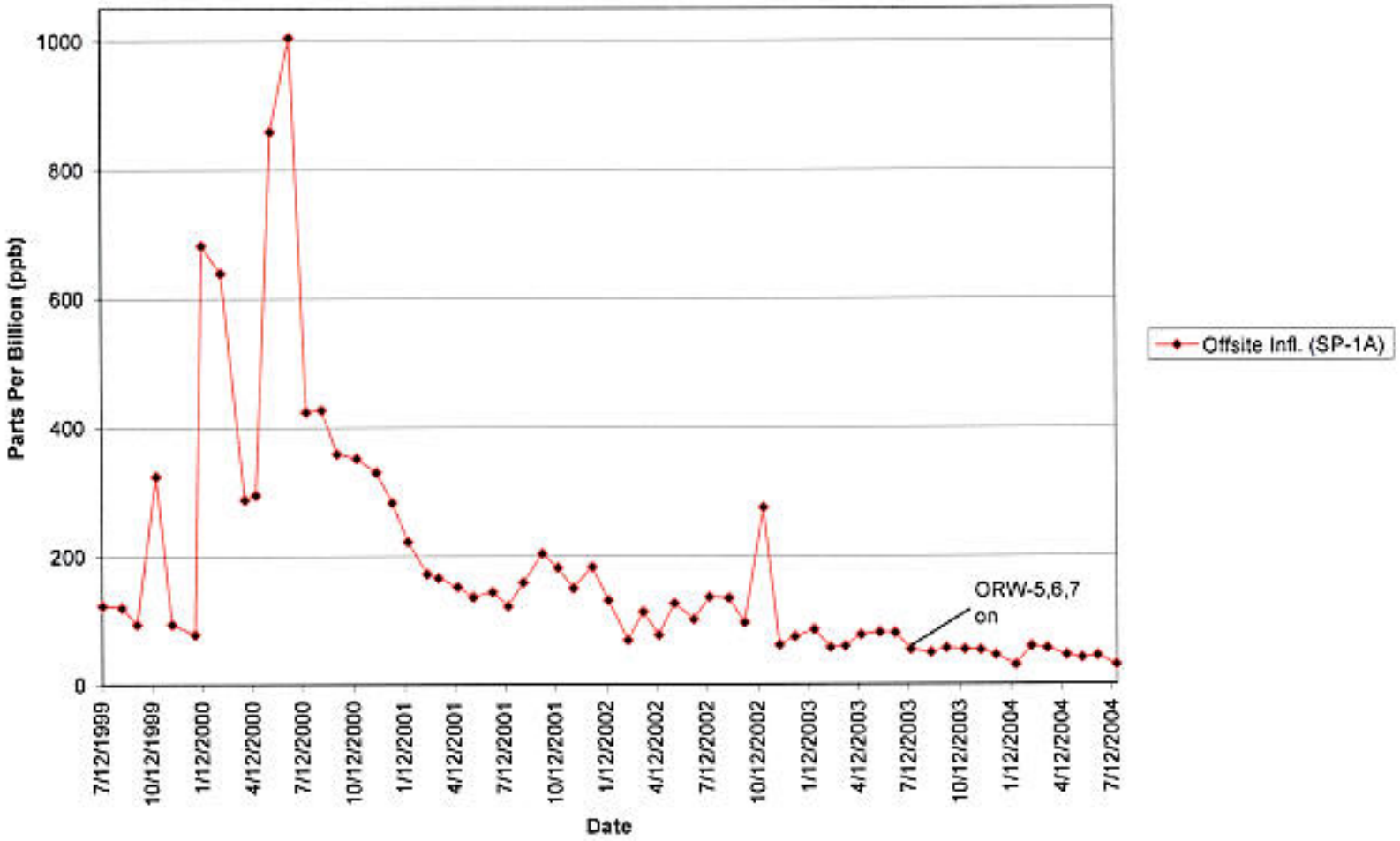
Map
Location

Fireman's Training Center
Potential Upgradient
Sources

Nassau County

Geographic Information System

Figure 4 FTC - Offsite Influent trends July 1999 - July 2004



Offsite influent concentration trends for the next five years of treatment are presented in Figure 5. During this period offsite influent concentrations ranged from 27 ppb to 122 ppb. Recharge restrictions continued to influence offsite pumpage and no more than two offsite recovery wells were pumped between January 2005 and August 2006. ORW-7 was pumped in tandem with ORW-6 and occasionally ORW-4. The County completed its effluent connection to the sanitary sewer in July 2006; this connection augmented the existing recharge basin and injection wells allowing for increased offsite pumpage. An offsite pumping scenario was developed as part of the CDM modeling effort to increase recovery efficiency of FTC- based contamination using ORW-3, 4, 6 and 7. This pumping scenario was initiated in August 2006; it has been employed almost continuously to date. The resulting TVOC concentrations in the offsite influent have primarily been below 50 ppb between January 2007 and May 2009.

The offsite influent concentrations for the latest period of operation, from June 2009 through April 2011 are presented in Figure 6. TVOC concentrations for this period ranged from 67 to 9 ppb. As previously observed offsite influent TVOC concentrations had dropped to below 40 ppb in May of 2008 and remained at that level or lower until October 20, 2009 when the pump in offsite recovery well ORW-7 failed. The offsite pumping scheme was than re-configured using only ORW-3, 4 and 6. This pumping configuration lowered influent concentrations further to 23 ppb on December 15, 2009, possibly as a result of the loss those volatile organic compounds being contributed from the east which were previously collected by ORW-7.

ORW-7 was redeveloped and placed back in service with a new pump on December 29, 2009; the addition of ORW-7 resulted in an initial increase in offsite volatile organic concentrations to over 60 ppb. Following the restoration of ORW-7 concentrations dropped slowly but remained between 40 and 60 ppb for the next twelve months of operation.

Offsite influent concentrations fell to below 20 ppb in late December 2010 due to a series of random offsite recovery system shutdowns of varying duration caused by the failure of the Remote Transmitting Units or RTU's located in each of the offsite recovery well's electronics panel. These shutdowns reduced the combined zone of hydraulic influence created by the offsite recovery wells resulting in a smaller contribution of contamination from non-FTC sources located to the north and east and lower offsite influent concentrations. The NCDPW attempted to troubleshoot and correct the problem with the RTU's and possibly the fiber-optic cables but the shutdowns became so frequent that all remedial operations were suspended on April 30, 2011.

A review of onsite remedy performance can also be made by examining monthly TVOC levels in onsite influent. Onsite influent trends for the first three years of treatment operations are provided in Figure 7. Onsite influent TVOC concentrations and composition vary depending on which onsite well is being pumped. Onsite recovery well RW-1 was installed in the former flammable liquids area, which was historically impacted by gasoline and its break-down products; exhibited TVOC concentrations ranging from 558 ppb to 43 ppb during plant start up. In contrast, onsite recovery well RW-3, which was installed in a floating body of No. 2 fuel oil located in the Taxpayer Mock-up Burn Area exhibited TVOC concentrations ranging from 27 ppb to 4 ppb.

Figure 5 Offsite Influent Trends July 2004 - June 2009

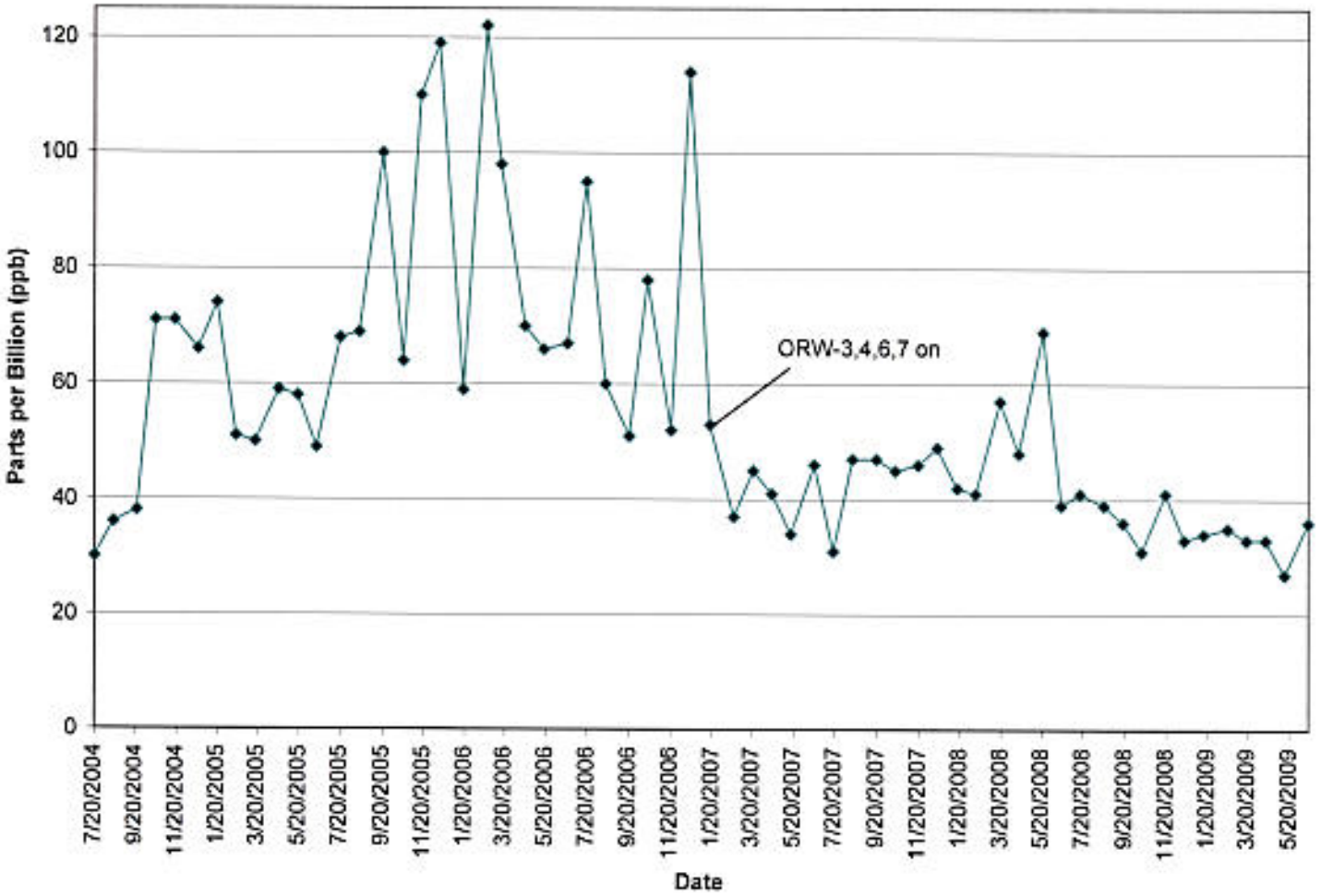


Figure 6 Offsite Influent Trends June 2009 - April 2011

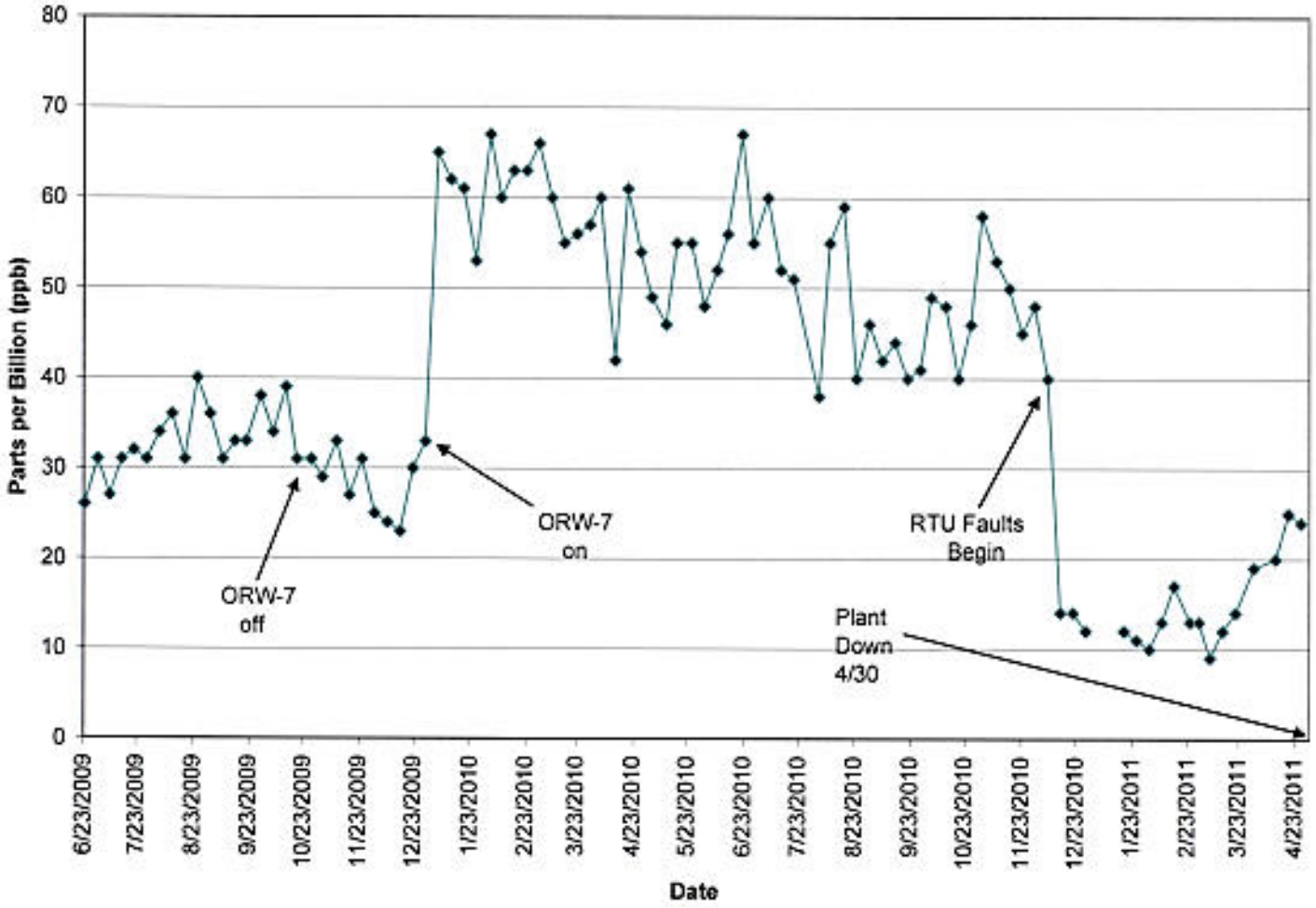
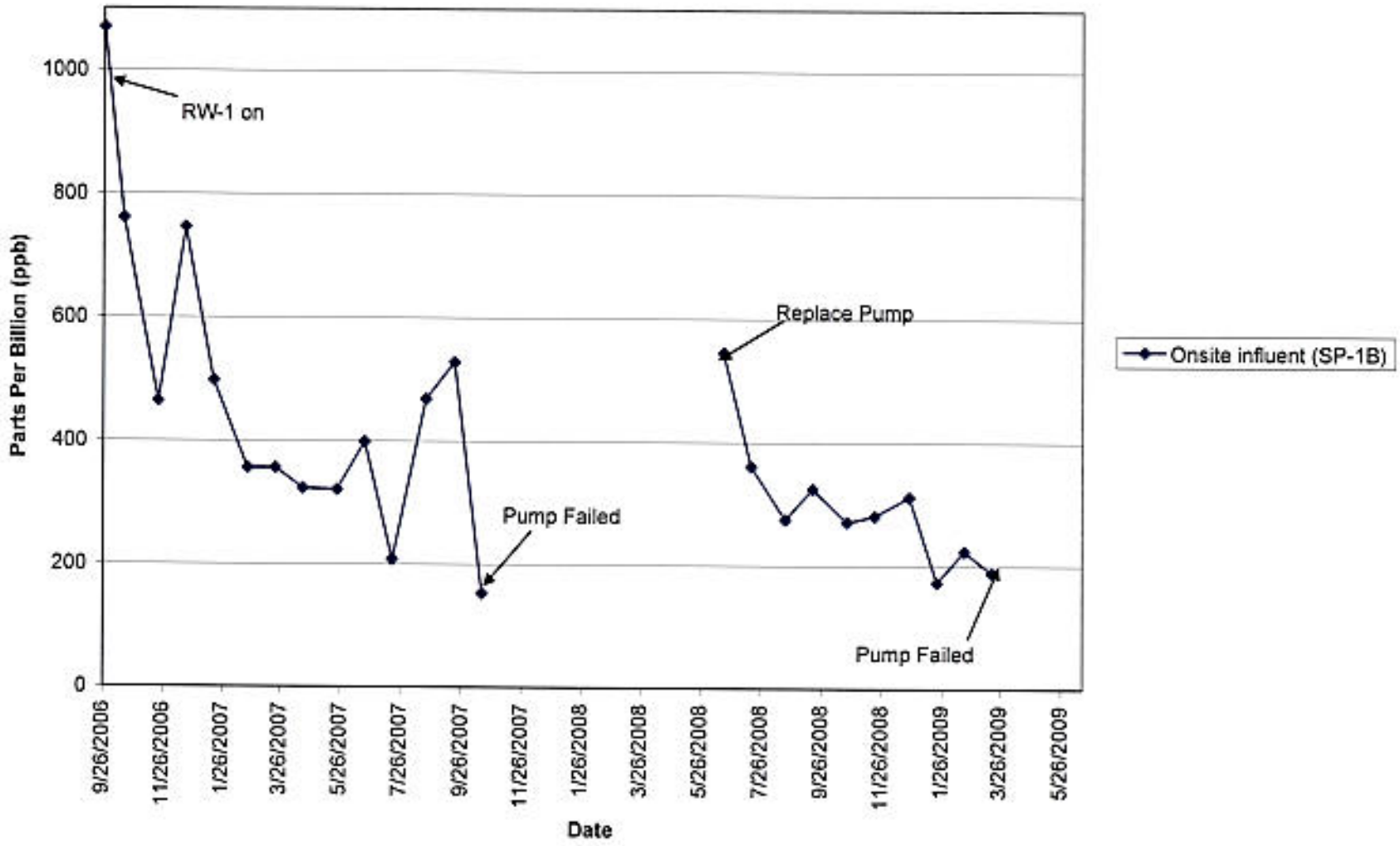


Figure 7 Onsite Influent Trends (Sept. 2006 - June 2009)



The duration of operation of each well was based on the need to depress the water table to enhance the recovery of free-phase product and the levels of volatile and semi-volatile organic compounds present in the influent. Each time recovery well RW-1 was pumped the levels of volatile organic compounds dropped within months to low ppb levels. Groundwater recovered from recovery well RW-3 had extremely low levels of volatile organic compounds but the well was operated as long as recoverable floating product was present.
Due to the absence of recoverable product in RW-3 and the low onsite levels of volatile organics observed in groundwater collected from RW-1 there was no onsite treatment of groundwater from November 18, 2002 through September 26, 2006. The onsite influent trends from September 2006 to the present are presented in Figure 8.

Review of Figure 8 indicates that there were three distinct periods of operation: the first was from September 26, 2006 through October 16, 2007; and the second was from June 2, 2008 through April 6, 2009; and the third was from August 10, 2009 through May 3, 2010, using both RW-1 and RW-2. All three treatment periods reduced TVOC concentrations in recovery well RW-1 but ended with mechanical failure of the submersible pump. These failures are caused by aggressive environmental conditions within the well. RW-1 is impacted by high concentrations of landfill leachate from the neighboring Town of Oyster Bay Landfill. The leachate has extremely high concentrations of Iron and Manganese which over time cause iron-fouling of the pump and its associated piping (see below).

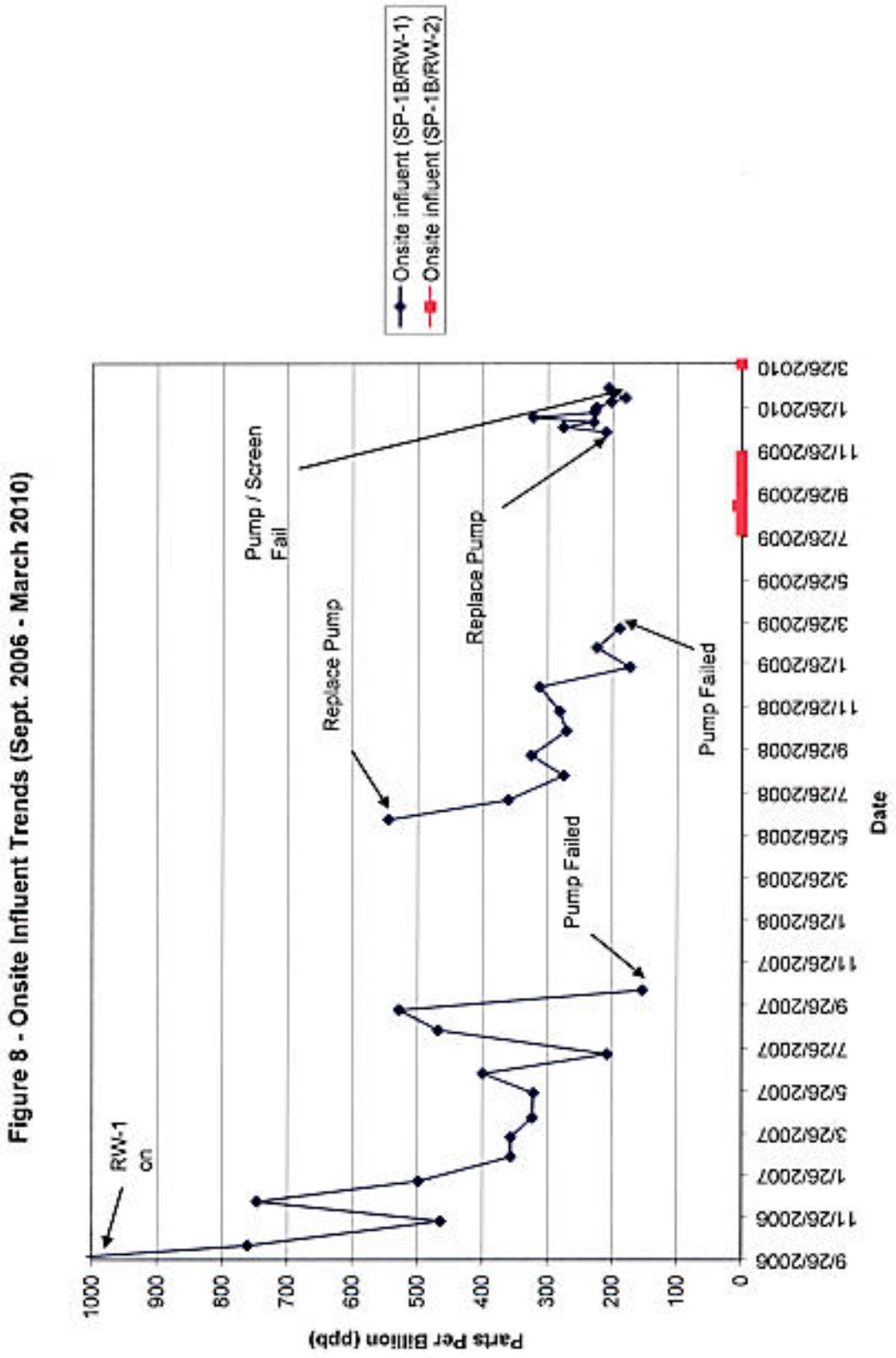


Figure 8 - Onsite Influent Trends (Sept. 2006 - March 2010)

These aggressive subsurface conditions eventually led to a massive screen failure in RW-1 on February 4, 2010. While onsite recovery well RW-1 was out of service, onsite recovery well RW-2 which is located at the down gradient edge of the Fire Service Academy property was operated twice. The first period of operation was from August 2009 through November 2009. During this five-month period TVOC concentrations in onsite groundwater were found to be below detectable limits in all samples but one, 6 ppb of Toluene was detected on September 8, 2009. The second period of operation was in April 2010 after the screen collapse; again all TVOC's were found to be below detectable limits while influent concentrations of SVOC's were found to be either below detectable or quantitation limits so the recovery well (RW-2) was shut down.

The product recovery system installed at the Nassau County Firemen's Training Center site has been extremely effective in removing free-phase petroleum product from onsite groundwater. The system operated from July 1999 through November 2002. The monthly product recovery totals are provided in figure 9. During the recovery period a total of 4,555 gallons of petroleum product (No. 2 fuel oil) was collected. The highest rates of recovery occurred between October 2001 and February 2002, this time period was marked by exceptionally low water table conditions which were further enhanced by pumpage at RW-3. The efficiency of the product removal and a natural rise in the local water table has prevented any free phase petroleum product from entering both the recovery and onsite monitoring wells since the end of 2002.

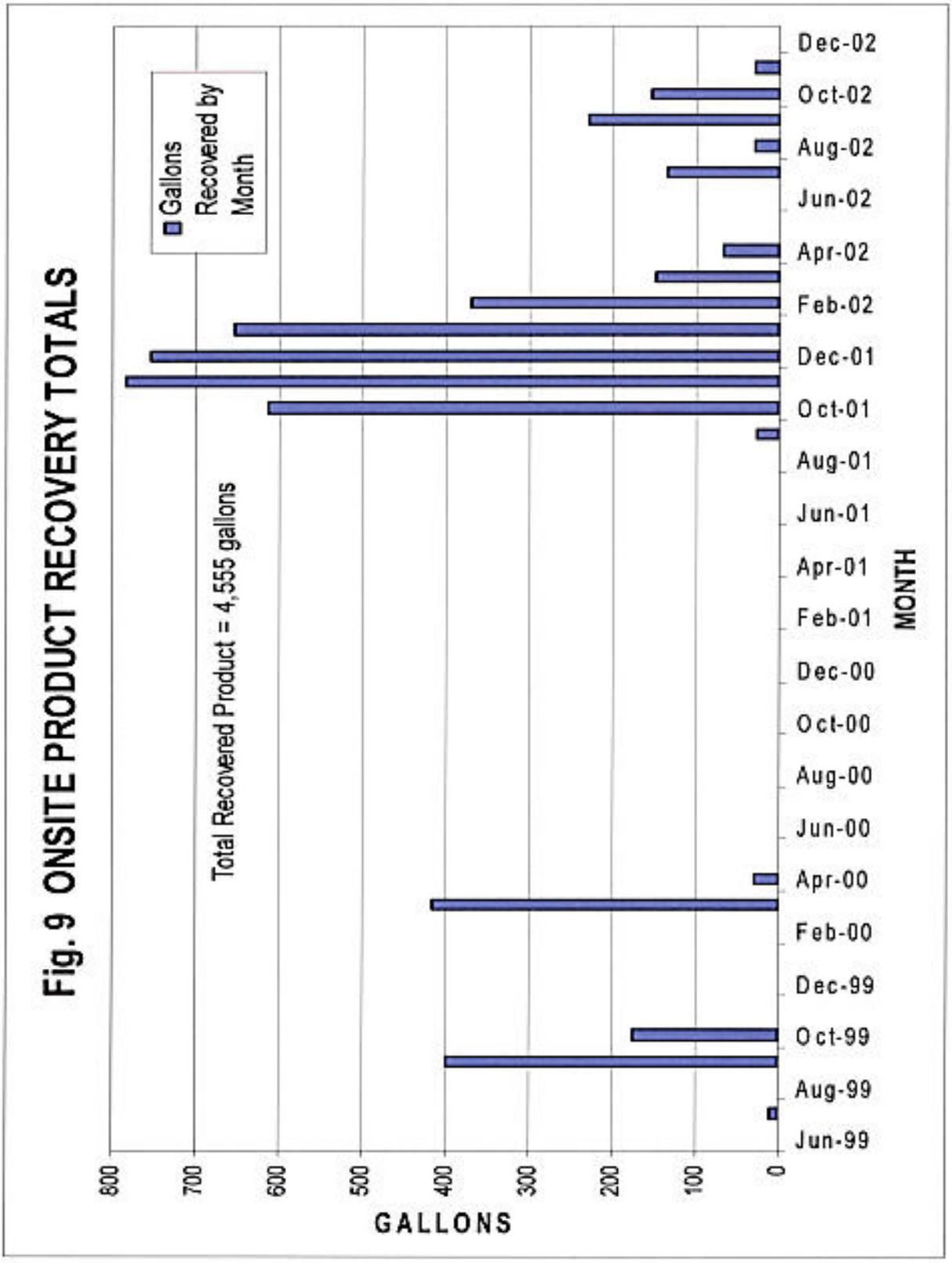


Fig. 9 ONSITE PRODUCT RECOVERY TOTALS
Gallons Recovered by Month
Total Recovered Product = 4,555 gallons
GALLONS
MONTH
800
700
600
500
400
300
200
100
0
Dec-02
Oct-02
Aug-02
Jun-02
Apr-02
Feb-02
Dec-01
Oct-01
Aug-01
Jun-01
Apr-01
Feb-01
Dec-00
Oct-00
Aug-00
Jun-00
Apr-00
Feb-00
Dec-99
Oct-99
Aug-99
Jun-99

4.0 IC/EC Compliance Report

A.) IC / EC Requirements and Compliance

Institutional Controls (IC)

The institutional controls prescribed for the site as part of the Record of Decision (ROD, 1993) include ***capping*** and the establishment of ***deed restrictions*** for five areas associated with live burn training. These areas include the Extinguisher Area, the former Flammable Liquids Area and the Taxpayer Mockup (Figure 10). The County of Nassau requested removal of Deed Restrictions from area number 1, 2 and area 4 (see figure) in July 2001, following testing of soil conditions in the drywell fields associated with the burn areas. These burn area drywell fields included the Mock up Field (MUF), the Corrugated Metal Building Field (CMB) and the Burn Area Field (BAF), (Appendix A). The concrete / asphalt caps associated with these areas continue to be properly maintained. Modifications to the existing Taxpayer Mock up Field building(s) (Appendix D), have been proposed during the current reporting period (April 2011), however they will not involve excavation in any of the restricted areas.

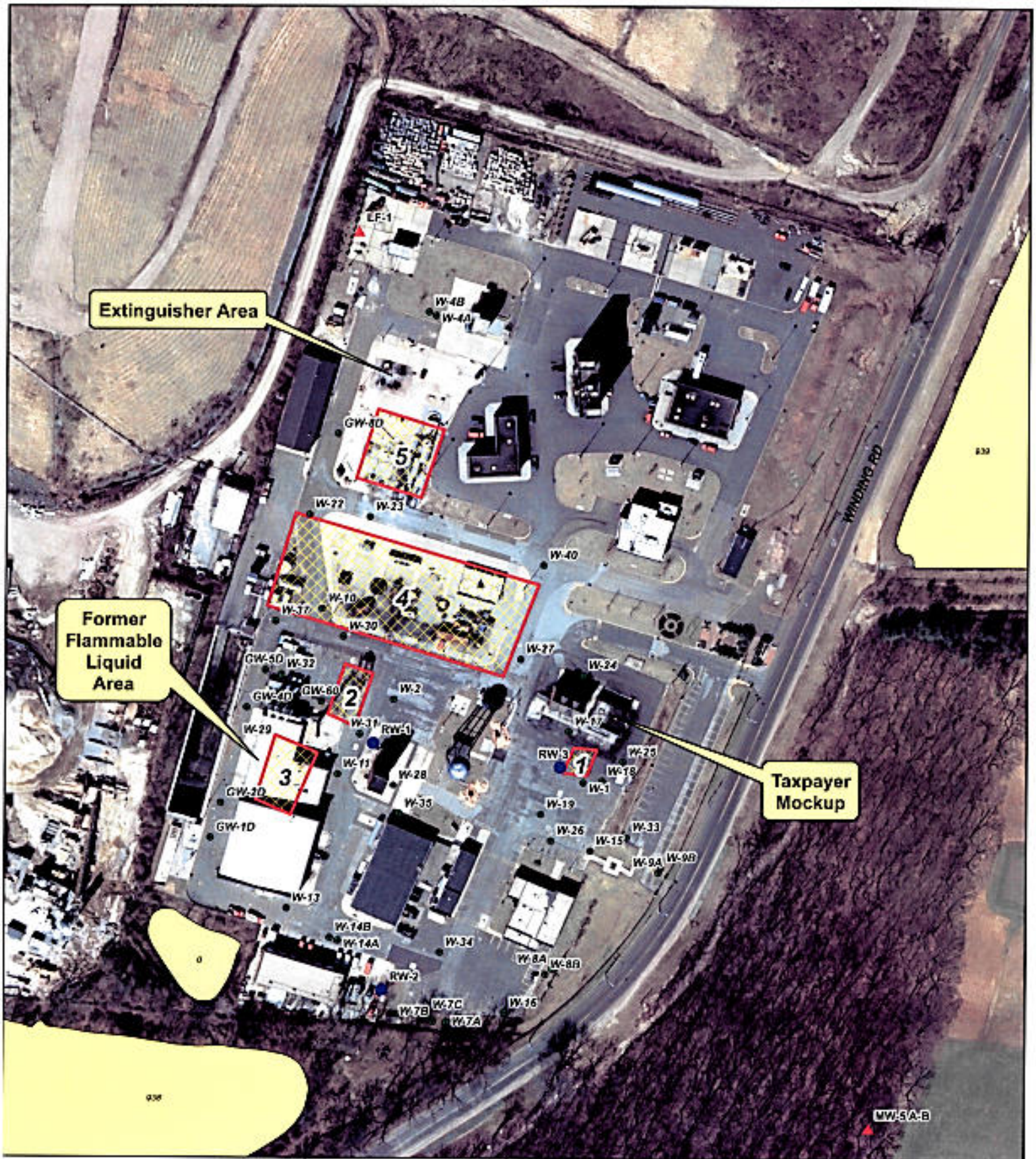
Engineering Controls (EC)

The engineering Controls selected for the site include both a seven well offsite and three well onsite groundwater recovery and treatment system(s). The offsite recovery system utilized a pumping configuration including offsite recovery wells ORW-3, 4, 6 and 7, (which was determined to be the most efficient way to collect remaining FTC contamination based on the 2008 groundwater model) from June 1, 2009 through November 2, 2009. The offsite pumping scheme was temporarily changed to include ORW-3, 4 and 6 through the remainder of the calendar year due to a pump failure in recovery well ORW-7.

Recovery well ORW-7 was re-developed and put back online in January 2011. The offsite recovery well system was once again altered in February due to a pump failure in ORW-6. The system was continuously operated using ORW-3, 4 and 7 until re-development and pump replacement could be completed in the spring. The system was restored to its normal operating configuration (ORW-3, 4, 6, 7) on May 17, 2010 and ran this way until December 6, 2010.

In late December 2010, the offsite recovery well system began experiencing a number of disruptions and plant shutdowns. These disruptions were categorized as system faults caused by interruptions in a signal being received by the computers in the treatment plant sent from the Remote Transmitting Units (RTU's) located in the electronics panel of each well. Diagnostic tests performed on the system indicated that the RTU faults might also be occurring due to problems with the fiber-optic connections within each panel. The offsite recovery well system continued to operate with the same well configuration, however disruptions and shutdowns became more frequent and the entire treatment plant was shut down on Aril 30, 2011.

Figure 10


Extinguisher Area
Former Flammable Liquid Area
Taxpayer Mockup
WINDING RD
LF-1
W-4B
W-4A
GW-6D
5
W-23
W-40
4
W-10
W-30
GW-5D
W-32
GW-4D
GW-6D
2
W-2
W-31
RW-1
W-29
3
W-11
W-28
GW-3D
GW-1D
W-35
W-13
W-14B
W-14A
W-34
RW-2
W-7B
W-7C
W-7A
W-16
W-8A
W-8B
RW-3
1
W-25
W-18
W-1
W-19
W-26
W-33
W-15
W-9A
W-9R
W-24
MW-5A-B
Legend
Recharge Basins
Deed Restrictions
FTC Monitoring Wells
Nassau County Recovery Well
T. of Oyster Bay Monitoring Well or Well Cluster
Map Location
NASSAU COUNTY
FIREMAN'S TRAINING CENTER
DEED RESTRICTIONS 12-24-1996
Nassau County
Geographic Information System

Onsite groundwater recovery and treatment was modified during the current reporting period (June 2009 through June 2011) due to another pump failure in recovery well RW-1 in the spring of 2009. Onsite recovery well RW-2, which is located at the down gradient edge of the property was operated for approximately eight weeks to assure that there were no volatile organic compounds leaving the site while RW-1 was out of service. RW-1 was repaired and operated for less than two months before the well screen collapsed on February 4, 2010. RW-2 was operated briefly again in the spring of 2010, due to the absence of onsite petroleum product and non-detectable levels of VOC's in RW-2's influent the onsite system has not been operated since May 3, 2010.

Corrective Measures

Offsite Groundwater Recovery and treatment

The Nassau County Department of Public Works – Water and Wastewater Engineering Unit has completed trouble-shooting the offsite telemetry system and is in the process of contracting a qualified electrical contractor to repair the fiber-optic connections and replace any faulty RTU's which may be present in the system. These repairs are expected to be complete in the summer of 2011.

B.) IC / EC Certification

Please see enclosed.

5.0 Monitoring Plan Compliance Report

The original Remediation Monitoring Plan (RMP) for the Nassau County Fireman's Training Center was submitted and approved by the New York State Department of Environmental Conservation in September 1994. This plan required a selected group of onsite and offsite monitoring wells to be sampled on a quarterly basis for those compounds specified in the RMP. All wells were sampled on a quarterly basis as specified in the RMP using approved methods and protocols from 1999 through 2007.

In 2007 the Nassau County Department of Public Works – Water and Wastewater Engineering Unit requested and received relief from the NYSDEC – Bureau of Environmental Remediation regarding its sampling program at the Fireman's Training Center, the sampling program was modified in both the number of wells to be sampled and their sampling frequency. Wells which were found to have contaminant levels below detectable limits for the eight year sampling

program were dropped and the frequency of sampling was reduced from quarterly to semi-annually. The sampling of select wells were further reduced to a fifth quarter sampling schedule, based on the consistently low levels of VOC's or SVOC's detected. Semi-volatile organic compounds (SVOC's) were also removed from the sampling program requirements in all offsite monitoring and recovery wells due to there 8 year absence in all offsite groundwater samples.

All monitoring wells were sampled on either a semi-annual or fifth quarter schedule as required during the current reporting period. Additional groundwater samples were collected onsite in the spring of 2010 following the collapse of the well screen in onsite recovery well RW-1. Groundwater samples were also collected onsite in June 2011 following treatment plant shutdown on April 30, 2011.

The groundwater monitoring results collected during the current reporting period (June 2009 – June 2011) for those wells and compounds listed in the Remedial Monitoring Plan (Sept. 1994)) are compared with Remedial Objectives or Clean up criteria in the following tables.

Onsite Groundwater

Review of the onsite comparison indicates that all eleven wells originally selected for sampling in the ***Remedial Monitoring Plan*** (Sept. 1994) met their remedial objectives for Total Volatile Organic Compound concentrations (50 ppb) in groundwater and their remedial objectives for each of the five semi-volatile organic compounds listed among the cleanup criteria. The cleanup objectives for individual volatile organic compounds were met in each of the eleven wells sampled in 2011. Two wells sampled on September 4, 2009 exceeded their guidance values for individual volatile organic compounds. Groundwater collected from FTC-W-32 contained Benzene at a concentration of 1.2 ppb and the sample collected from FTC-W-35 contained o-xylene at a concentration of 5.6 ppb.

Offsite Groundwater

Review of offsite groundwater quality in comparison to the remedial objectives established for the wells sampled (RMP 1994), indicates that all eight wells met their remedial objective (50ppb) for TVOC's in groundwater. All eight wells were also below individual cleanup criteria in their most recent sampling; however, three wells exceeded their individual cleanup objectives for TVOC's at various times in the past. Groundwater collected from BP-9B previously contained Benzene at concentrations ranging from 1.7 to 2.2 ppb and vinyl chloride from 2.3 to 4.1 ppb. Monitoring well BP-4C had Benzene concentrations ranging from 2.6 to 4.1 ppb and Tetrachloroethylene was detected at a maximum concentration of 26 ppb. There was also a single detection of vinyl chloride in BP-10C at 2.5 ppb on July 28, 2010.

There were no monitoring deficiencies to report; all wells were sampled as required. Based on the results of the comparisons with remedial objectives established in the Remediation Monitoring Plan it is recommended that sampling of onsite groundwater be discontinued and that the county begins termination monitoring in its offsite wells.

FTC - COMPARISON of ONSITE WELLS w/ Cleanup Criteria

	FTC-W-4A*					FTC-W-4B*					FTC-W-7A					FTC-W-7B*				
	FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS	(ppb)	9/17/07	12/17/07	9/4/08	6/24/11	(ppb)	9/17/07	12/17/07	9/4/08	6/24/11	(ppb)	7/2/07	9/17/07	12/13/07	6/23/11	(ppb)	9/17/07	12/13/07	9/5/08	6/22/11
1,1,1 Trichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
2-Butanone (MEK)	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
2-Hexanone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Acetone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Benzene	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL
Carbon Disulfide	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Ethyl Benzene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
m,p-Xylene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
o-Xylene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Methylene Chloride	5	BDL	BDL	3.3B	BDL	5	BDL	BDL	4B	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	5.3B	BDL
Tetrachloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Toluene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
t -1,2-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Trichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Vinyl Chloride	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL
Total	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
SEMI-VOLATILE ORGANIC COMPOUNDS																				
2-methylnaphthalene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
di-n-octyl phthalate	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Flourene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Naphthalene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Phenanthrene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.
*5th Quarter Well

VOC and Semi Vol. results = ug/l
Inorganic = mg/l

- compound detected at conc. **below** cleanup criteria

- compound detected at conc. **above** cleanup criteria

FTC - COMPARISON of ONSITE WELLS w/ Cleanup Criteria

	FTC-W-7C					FTC-W-9A*					FTC-W-9B					FTC-W-14A				
	NY State GW Stnd	DATE SAMPLED				NY State GW Stnd	DATE SAMPLED				NY State GW Stnd	DATE SAMPLED				NY State GW Stnd	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS	(ppb)	7/2/07	9/17/07	12/13/07	6/23/11	(ppb)	9/17/07	12/19/07	9/4/08	6/23/11	(ppb)	6/19/07	9/17/07	12/19/07	6/23/11	(ppb)	7/2/07	9/24/07	12/19/07	6/27/11
1,1,1 Trichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
2-Butanone (MEK)	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
2-Hexanone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Acetone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Benzene	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL
Carbon Disulfide	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Ethyl Benzene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
m,p-Xylene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
o-Xylene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Methylene Chloride	5	BDL	BDL	BDL	BDL	5	BDL	BDL	3.5B	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Tetrachloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Toluene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1-1,2-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Trichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Vinyl Chloride	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL
Total	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0
SEMI-VOLATILE ORGANIC COMPOUNDS																				
2-methylnaphthalene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
di-n-octyl phthalate	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Flourene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Naphthalene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Phenanthrene	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.
*5th Quarter Well

VOC and Semi Vol. results = ug/l
Inorganic = mg/l

- compound detected at conc. **below** cleanup criteria

- compound detected at conc. **above** cleanup criteria

FTC - COMPARISON of ONSITE WELLS w/ Cleanup Criteria

	FTCW-14B*					FTC-W-32					FTC-W-35				
	NY State GW Stnd	DATE SAMPLED				NY State GW Stnd	DATE SAMPLED				NY State GW Stnd	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS	(ppb)	7/2/07	12/19/07	9/5/08	6/27/11	(ppb)	9/4/09	3/11/10	8/30/10	3/3/11	(ppb)	9/4/09	3/11/10	8/31/10	3/3/11
1,1,1 Trichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethane	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
2-Butanone (MEK)	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
2-Hexanone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Acetone	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Benzene	0.7	BDL	BDL	BDL	BDL	0.7	1.2	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL
Carbon Disulfide	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Ethyl Benzene	5	BDL	BDL	BDL	BDL	5	4.9	BDL	BDL	BDL	5	BDL	BDL	BDL	.51J
m,p-Xylene	5	BDL	BDL	BDL	BDL	5	1.6	BDL	BDL	BDL	5	2.8	BDL	BDL	1.7J
o-Xylene	5	BDL	BDL	BDL	BDL	5	1.1	BDL	BDL	BDL	5	5.6	BDL	.85J	BDL
Methylene Chloride	5	BDL	BDL	6.2B	BDL	5	6.3B	3.2B	20B	4.8B	5	8.3B	3.3B	7.7B	5.3B
Tetrachloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Toluene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
1-1,2-Dichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Trichloroethene	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL	5	BDL	BDL	BDL	BDL
Vinyl Chloride	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL	2	BDL	BDL	BDL	BDL
Total	50.0	0.0	0.0	0.0	0.0	50.0	8.8	0.0	0.0	0.0	50.0	8.4	0.0	0.0	0.0
SEMI-VOLATILE ORGANIC COMPOUNDS															
2-methylnaphthalene	50	BDL	NA	BDL	BDL	50	20.0	BDL	BDL	BDL	50	9.5	BDL	3.7J	2.9
di-n-octyl phthalate	50	BDL	NA	BDL	BDL	50	BDL	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Flourene	50	BDL	NA	BDL	BDL	50	1.7	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL
Naphthalene	50	BDL	NA	BDL	BDL	50	.94J	BDL	BDL	BDL	50	6.3	BDL	6.7	15.0
Phenanthrene	50	BDL	NA	BDL	BDL	50	.66J	BDL	BDL	BDL	50	BDL	BDL	BDL	BDL

LABORATORIES: Inorganic, VOA & SEMI-VOL: American Analytical Laboratories, Farmingdale, N.Y.

VOC and Semi Vol. results = ug/l

*5th Quarter Well

NA- not analyzed B - found in laboratory blank J - detected below quantitation limits

- compound detected at conc. **below** cleanup criteria

- compound detected at conc. **above** cleanup criteria

FTC COMPARISON of OFFSITE GROUNDWATER w/ CLEANUP CRITERIA

	BP-2B					BP-4B					BP-4C					BP-12B				
	FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS		3/26/07	9/18/07	1/8/08	7/8/11		9/10/09	3/18/10	9/2/10	3/7/11		6/19/07	9/21/07	12/12/07	6/29/11		9/18/09	3/19/10	9/1/10	3/14/11
1,1,1 Trichloroethane	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
1,1-Dichloroethane	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
1,1-Dichloroethene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	2.2	BDL	5.0	BDL	BDL	BDL	BDL
Benzene	0.7	BDL	BDL	BDL	BDL	0.7	0.98	BDL	BDL	BDL	0.7	4.1	2.6	BDL	BDL	0.7	BDL	BDL	BDL	BDL
Ethyl Benzene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
m,p-Xylene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Methylene Chloride	5.0	BDL	BDL	BDL	BDL	5.0	6.6B	6.6B	6.6B	5.8B	5.0	BDL	BDL	BDL	BDL	5.0	9B	BDL	8.2B	4.3B
o-Xylene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
t -1,2-Dichloroethene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Tetrachloroethene	5.0	BDL	BDL	BDL	BDL	5.0	0.90	1.10	BDL	BDL	5.0	26	23	23	3.7 J	5.0	1.1 J	96 J	BDL	BDL
Toluene	5.0	BDL	BDL	BDL	BDL	5.0	4.6	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Trichloroethene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	3.0	2.5	BDL	5.0	BDL	BDL	BDL	BDL
Acetone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
Methyl Ethyl Ketone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
2 - hexanone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
Vinyl Chloride	2.0	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL
Total	50.0	0.0	0.0	0.0	0.0	50.0	6.5	1.1	0.0	0.0	50.0	30.1	28.6	27.7	0.0	50.0	0.0	0.0	0.0	0.0
SEMI-VOLATILE ORGANIC COMPOUNDS																				
phenanthrene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
flourene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
napthalene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
di-n-octyl pthalate	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
2 - methylnapthalene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
Total																				

- compound detected at conc. ***below*** cleanup criteria

- compound detected at conc. ***above*** cleanup criteria

FTC COMPARISON of OFFSITE GROUNDWATER w/ CLEANUP CRITERIA

	BP-9B*				BP-9C					BP-10B					BP-10C*				
	FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED				FTC Cleanup Criteria	DATE SAMPLED			
VOLATILE ORGANICS COMPOUNDS		12/11/07	9/10/08	3/17/11	7/5/11		6/27/07	9/24/07	12/11/07	7/5/11		6/2/07	9/18/07	1/8/08	6/29/11		3/7/08	9/8/09	7/28/10	3/14/11
1,1,1 Trichloroethane	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
1,1-Dichloroethane	5.0	4.0	BDL	5J	1.48J	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	2.37J	5.0	2.1	3.2	3.2	1.7
1,1-Dichloroethene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Benzene	0.7	2.2	1.7	0.6	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL	0.7	BDL	BDL	BDL	BDL
Ethyl Benzene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
m,p-Xylene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Methylene Chloride	5.0	BDL	4B	4.6B	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	2.1B	3.4B	BDL	BDL
o-Xylene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
t -1,2-Dichloroethene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Tetrachloroethene	5.0	2.2	2.3	0.9	1.2	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Toluene	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Trichloroethene	5.0	2.1	BDL	2.2	68J	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL	5.0	BDL	BDL	BDL	BDL
Acetone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
Methyl Ethyl Ketone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
2 - hexanone	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL	50.0	BDL	BDL	BDL	BDL
Vinyl Chloride	2.0	BDL	2.3	4.1	93J	2.0	BDL	BDL	BDL	BDL	2.0	BDL	BDL	BDL	BDL	2.0	BDL	BDL	2.5	BDL
Total	50.0	10.5	6.3	7.8	1.2	50.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	2.1	3.2	5.7	1.7
SEMI-VOLATILE ORGANIC COMPOUNDS																				
phenanthrene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
flourene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
napthalene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
di-n-octyl pthalate	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
2 - methylnapthalene	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA	50.0	NA	NA	NA	NA
Total																				

- Compound detected at conc. **below** cleanup criteria

- Compound detected at conc. **above** cleanup criteria

* fifth quarter well

6.0 Operation & Maintenance (O&M) Plan Compliance Report

A site specific O&M plan was not required by the State as part of the Consent Judgment (February, 1989), the Record of Decision (February, 1993) or the Preliminary Design Report (June 1994) developed for the Fireman's Training Center Groundwater Treatment Facility and Remediation. The facility was designed for autonomous operation with minimal staffing. The majority of scheduled maintenance activities take place onsite in the treatment building. Preventative maintenance is performed on various remedial components at the frequency recommended by the various manufacturers. Some of the scheduled maintenance activities are listed below:

Item / Component	Description of Required Maintenance	Frequency
Supply Air Blowers	check condition	weekly
Effluent Pumps	lubricate / re-pack annually	weekly
Intermediate Pumps	lubricate / re-pack annually	weekly
Vent Duct Fan	check belt	weekly
Plenum Filters	check condition	monthly
Davco	lubricate	monthly
Intermediate Pump Motors	lubricate	monthly
Blower Motors	lubricate	monthly
Heating Pumps	lubricate	monthly
Heating Pump Motors	lubricate	monthly
Mixers	lubricate	monthly
AODDs &ZEKs	clean mufflers	monthly
AHU-1	operate unit	quarterly
AHU-2	operate unit	quarterly
AHU-3	operate unit	quarterly
AHU-4	operate unit	quarterly
AHU-5	operate unit	quarterly
AHU-6	operate unit	quarterly
AHU-7	operate unit	quarterly
AHU-8	operate unit	quarterly
AHU-9	operate unit	quarterly
EF-1	operate unit	quarterly
EF-2	operate unit	quarterly
EF-4	operate unit	quarterly
SF-2	operate unit	quarterly
Backwash Pump	operate unit	quarterly
Hot water Re-circulator	lubricate	quarterly
Auger Chains	lubricate	quarterly
Effluent Pump Motors	change oil	annual

All O&M activities were completed as specified during the reporting period. All remedial components contained within the treatment plant performed nominally throughout the reporting period. Those components external to the plant, specifically the groundwater recovery wells and associated pumps failed in offsite recovery well ORW-7 on October 20, 2009 and in onsite recovery well RW-1 on February 4, 2010. These failures did not reflect any deficiencies in scheduled O&M activities.

Onsite recovery well RW-1 was being operated within the specified range, with its pump discharging approximately 100 gpm on a continuous basis. There is no maintenance schedule for these submersible pumps as they are designed for continuous service. There is also no scheduled maintenance for the recovery wells as they are re-developed anytime a pump fails through normal use. The failure in onsite recovery well RW-1, followed the replacement of its submersible pump and re-development. The well failed due to the collapse of the well screen, caused by the effects of landfill leachate and the age of the well (> 20 years).

The plant has experienced numerous non-scheduled interruptions in operation during the reporting period beginning in December 2010 due to Remote Transmitting Unit (RTU) faults and possible problems with in the offsite fiber-optic cables and their associated connecters. These components include solid state electronics and do not require maintenance and their failure does not reflect deficiencies with the sites O&M plan.
The operational problems which occurred at the site during this reporting period (June 2009 – June 2011) are not related to any deficiencies in the Operations and Maintenance practices used at the site and there are no revisions proposed at this time.

7.0 Overall PRR Conclusions and Recommendations

A. Over the last 11 years the FTC Groundwater Remediation has operated in compliance with all aspects of the components outlined in the Record of Decision (ROD), signed with the New York State Department of Environmental Conservation in 1993. Onsite and offsite pumpage and effluent recharge have been modified over the course of treatment to improve the efficiency of groundwater recovery.

B. The selected remedy for the site; cover system (IC) used in conjunction with a large scale pump and treat (EC) has proven to be highly effective in the eleven years of groundwater treatment operations. Shallow onsite soils have been remediated to the point where no further treatment was required and deed restrictions could be removed (7/18/01). Over 4,500 gallons of floating petroleum product (No. 2 fuel oil), have been removed from onsite groundwater and measurable product has not been seen in any onsite monitoring wells since November 2002. Offsite influent concentrations during the current reporting period have ranged from 67 to 9 ppb and have been below 50 ppb since November 2010.
Onsite VOC contamination in groundwater appears to be limited to two monitoring well locations (FTC-W 32, FTC-W-35) within the former flammable liquid area.

C. The County of Nassau was notified by the New York State Department of Environmental Conservation, Bureau of Environmental Remediation on May 18, 2011 that the Fireman's Training Center site had been reclassified as a class 4 site indicating that it no longer presents a significant threat to public health and the environment. Based on this re-classification and the significant and continued improvements in groundwater quality observed since the submittal of the last PRR (2009), the county would like to recommend the following:

Onsite Groundwater

The County believes that the onsite cleanup of volatile organic contamination associated with the original spill is complete, with any remaining onsite soil contamination being confined to a relatively small zone within the original source area. Since 1992 overall source area contamination has been reduced from several feet of pure product with parts per million (ppm) levels in groundwater to concentrations of less than 50 ppb. The most recent onsite groundwater quality data indicates that all eleven onsite groundwater monitoring wells met their remedial objectives as outlined in the Remediation Monitoring Plan (Sept. 1994) for individual volatile / semi-volatile organic compounds and total volatile organic compound concentrations (50 ppb) in groundwater. *Based upon these findings the county would like to propose with NYSDEC concurrence that all onsite groundwater treatment and monitoring be terminated upon completion of a NYSDEC- approved soil vapor intrusion investigation.*

Offsite Groundwater

The County also believes that the offsite cleanup is complete. Comparison of the most recent groundwater quality data collected for the offsite monitoring wells with their remedial objectives indicates that all eight wells designated in the remedial monitoring plan (1994) met their remedial objective (50 ppb) for total volatile organic compounds in groundwater. Although volatile organic compounds were detected in other offsite monitoring wells, these wells were never impacted by FTC contamination (BP-3B, 3C, BP-10B, 10C) or they were installed to detect contamination from non-FTC sources (BP-15B, 15C). *Based upon these findings the County of Nassau plans to formally petition the State to begin* ***post termination monitoring*** *of the eight wells designated for sampling in the remedial monitoring plan established for the site in 1994.*

Appendix A

THOMAS S. GULOTTA
COUNTY EXECUTIVE

JOSEPH C. PICCORA, P.E.
COMMISSIONER

COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS
MINEOLA, NEW YORK 11501-4822

July 18, 2001

Mr. Carl Hoffman
New York State Department of
Environmental Conservation
Division of Environmental Remediation
Bureau of Hazardous Site Control
625 Broadway
Albany, NY 12233

Re: Deed Restrictions - Soil Quality Testing at Former Burn Areas
Nassau County Fireman's Training Center, Site #1-30-042

Dear Mr. Hoffman:

As I informed you several weeks ago, the Nassau County Department of Public Works (NCDPW), Water Resources Unit would be collecting soil samples at the Fireman's Training Center (FTC) site to monitor changes in the level of contamination relative to past sampling events. The site's contaminated soil areas were established in the FTC's Record of Decision (ROD), dated February 26, 1993. These areas are described below, in detail. All locations, the sampling, and analytical testing methods for this field work followed the site's State approved Remediation Monitoring Plan, dated September 1994. The following is a summary of the work and our findings.

Three former Burn Areas at the FTC were designated contaminated soil areas in the site's ROD. These areas are identified as the Mock-Up Field (MUF), Corrugated Metal Building Field (CMB), and the Burn Area Field (BAF), see attached site map, Numbers 1, 2 and 3. The following depth intervals were sampled at each specific location:

Sample Location	Depth Below Grade (ft.)
MUF-1	25-27
MUF-3	32-34
MUF-4	25-27
MUF-5	33-35
CMB-1	16-18
CMB-2	34-36
CMB-5	26-28
BAF-1	34-36
BAF-2	34-36
BAF-3	37-39*
BAF-4	30-32
BAF-5	32-34*

*Sampling interval adjusted based on field conditions

All soil samples were collected using decontaminated split spoons driven through hollow stem augers to the selected interval. The soil samples were then logged by NCDPW hydrogeologists and stored in coolers for delivery at the end of each day to Environmental Testing Labs of Farmingdale, NY, a New York State ELAP-CERTIFIED Laboratory.

The split spoon samples were collected at predetermined intervals throughout the vadose zone which matched locations with historically high levels of contamination. Each sample was analyzed for volatile and semi-volatile organic compounds using EPA methods 8260 and 8270B.

The results of the sample analyses are provided for your review in Tables 1 through 4 attached. Review of the semi-volatile organic analysis summary indicates that the concentrations of semi-volatile organic compounds in eleven of the twelve soil samples collected were found to be below both the recommended soil cleanup objectives and the recommended soil cleanup objectives to protect groundwater, as identified in the NYSDEC TAGM No. 4046. The concentration of 2-Methylnapalthalene in the BAF-3 boring at the 37-39 ft. interval was found to be 37.2 ppm or 0.80 ppm above the recommended soil cleanup objective of 36.4 ppm.

Review of the volatile organic analysis summary indicates that volatile organic compounds also were below the levels identified in the NYSDEC TAGM No. 4046 at all twelve sampling intervals with the exception of two compounds, Acetone and Methylene Chloride. Methylene Chloride concentrations in soil exceeded the recommended soil cleanup objective of 0.1 ppm at all five Burn Area Field boring locations and at one Mock-Up Field boring location (MUF-1, 25-27 ft.). Acetone exceeded its recommended soil cleanup objective of 0.2 ppm at the BAF-1, 37-39 ft. interval, and the BAF-5, 32-34 ft. interval, with values of .219 ppm and .230 ppm, respectively.

All methylene chloride results were "flagged" with a "B," indicating that the analyte was found in the associated method blank as well as the sample. The acetone results were "flagged" with a "J," indicating that it is an estimated value with a concentration found below the method detection limit. Both compounds at low concentrations may be lab artifacts which are not indicative of their actual presence in the soil sample.

A review of the results collected from the three most highly contaminated soil zones onsite support the contention that natural aeration of the vadose zone beneath the Fireman's Training Center has provided enough oxygen to maintain biological activity; thus, causing the breakdown of the volatile and semi-volatile organic compounds which were previously identified in the 1986 and 1994 soil sampling events. This most recent sampling event has demonstrated that the site's three designated soil contamination areas consistently show levels of contamination below the NYSDEC's TAGM 4046. Therefore, the NCDPW/Water Resources Unit respectfully requests the State's concurrence that the designated contaminated soil areas at the FTC site have met their remediation goals, and that all deed restrictions associated with these areas can be removed by the County.

If you have any questions regarding the above results or our request, please contact Mr. Michael Flaherty at (516) 571-6850.

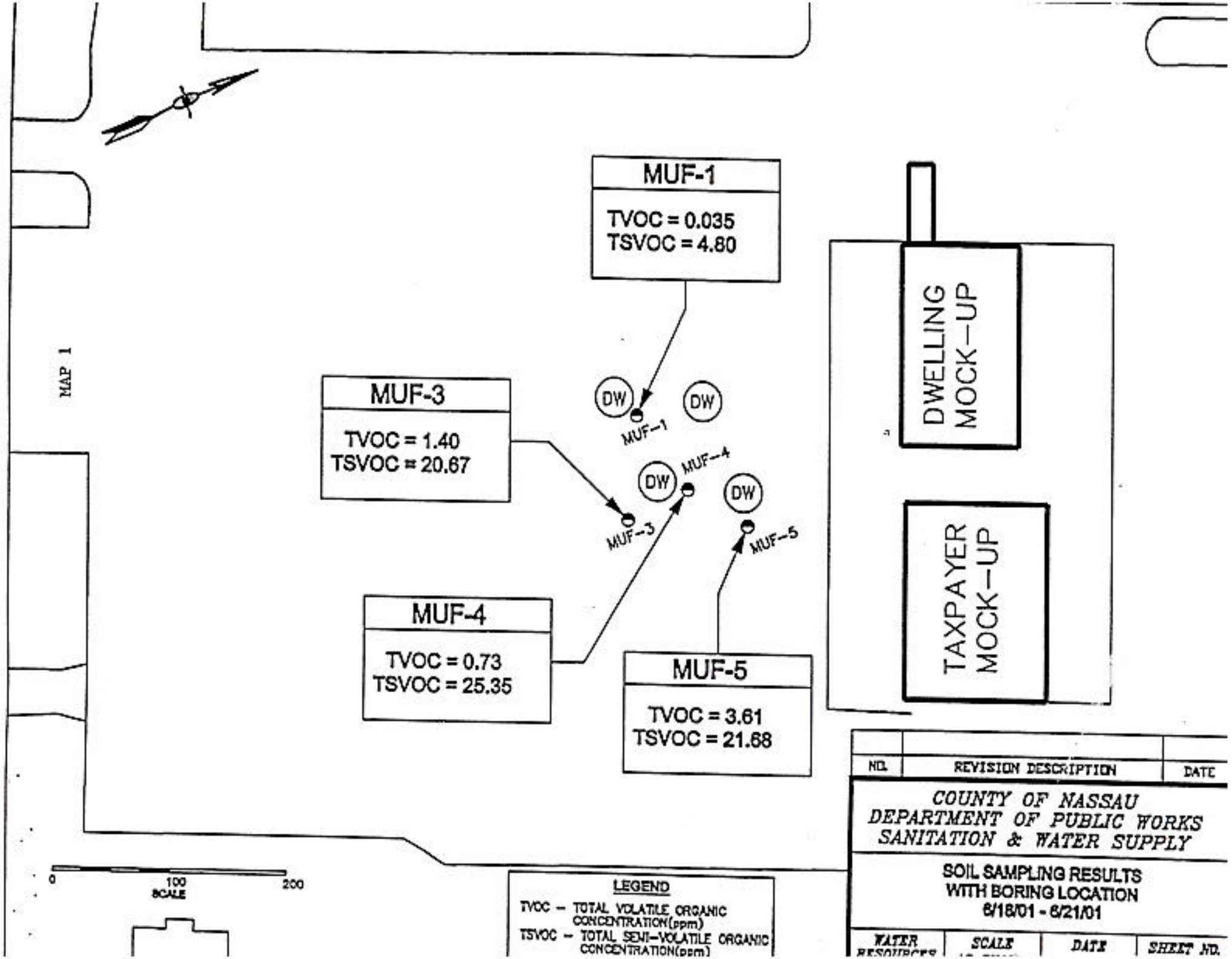
Very truly yours,

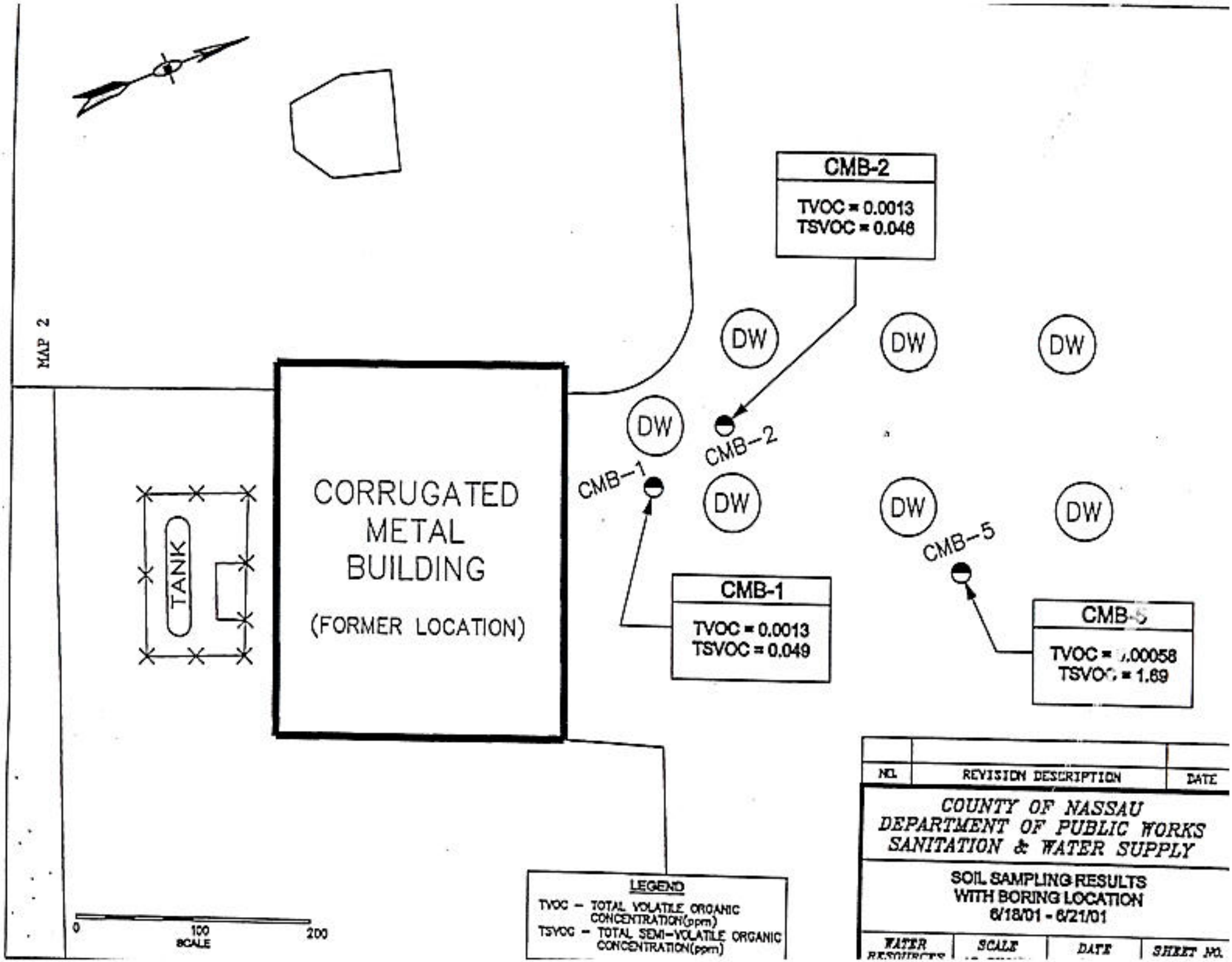
Peter J. Witkowski
Director of Hazardous Waste Services

PJW:MF:jb

Attachments

c: Joseph L. Davenport, Acting Division Head of Sanitation and Water Supply
Michael Flaherty, Hydrogeologist III ✓


MUF-1
TVOC = 0.035
TSVOC = 4.80
MUF-3
TVOC = 1.40
TSVOC = 20.67
MUF-4
TVOC = 0.73
TSVOC = 25.35
MUF-5
TVOC = 3.61
TSVOC = 21.68
DW
DW
DW
DW
MUF-1
MUF-3
MUF-4
MUF-5
DWELLING MOCK-UP
TAXPAYER MOCK-UP
MAP 1
0
100
200
SCALE
LEGEND
TVOC – TOTAL VOLATILE ORGANIC CONCENTRATION(ppm)
TSVOC – TOTAL SEMI-VOLATILE ORGANIC CONCENTRATION(ppm)
NO.
REVISION DESCRIPTION
DATE
COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS
SANITATION & WATER SUPPLY
SOIL SAMPLING RESULTS
WITH BORING LOCATION
6/18/01 - 6/21/01
WATER RESOURCES
SCALE
DATE
SHEET NO.


MAP 2
CMB-2
TVOC = 0.0013
TSVOC = 0.046
DW
DW
DW
DW
CMB-2
CMB-1
DW
DW
DW
CMB-5
TANK
CORRUGATED METAL BUILDING
(FORMER LOCATION)
CMB-1
TVOC = 0.0013
TSVOC = 0.049
CMB-5
TVOC = .00058
TSVOC = 1.69
0
100
200
SCALE
LEGEND
TVOC – TOTAL VOLATILE ORGANIC CONCENTRATION(ppm)
TSVOC – TOTAL SEMI-VOLATILE ORGANIC CONCENTRATION(ppm)
NO.
REVISION DESCRIPTION
DATE
COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS
SANITATION & WATER SUPPLY
SOIL SAMPLING RESULTS
WITH BORING LOCATION
6/18/01 - 6/21/01
WATER RESOURCES
SCALE
DATE
SHEET NO.

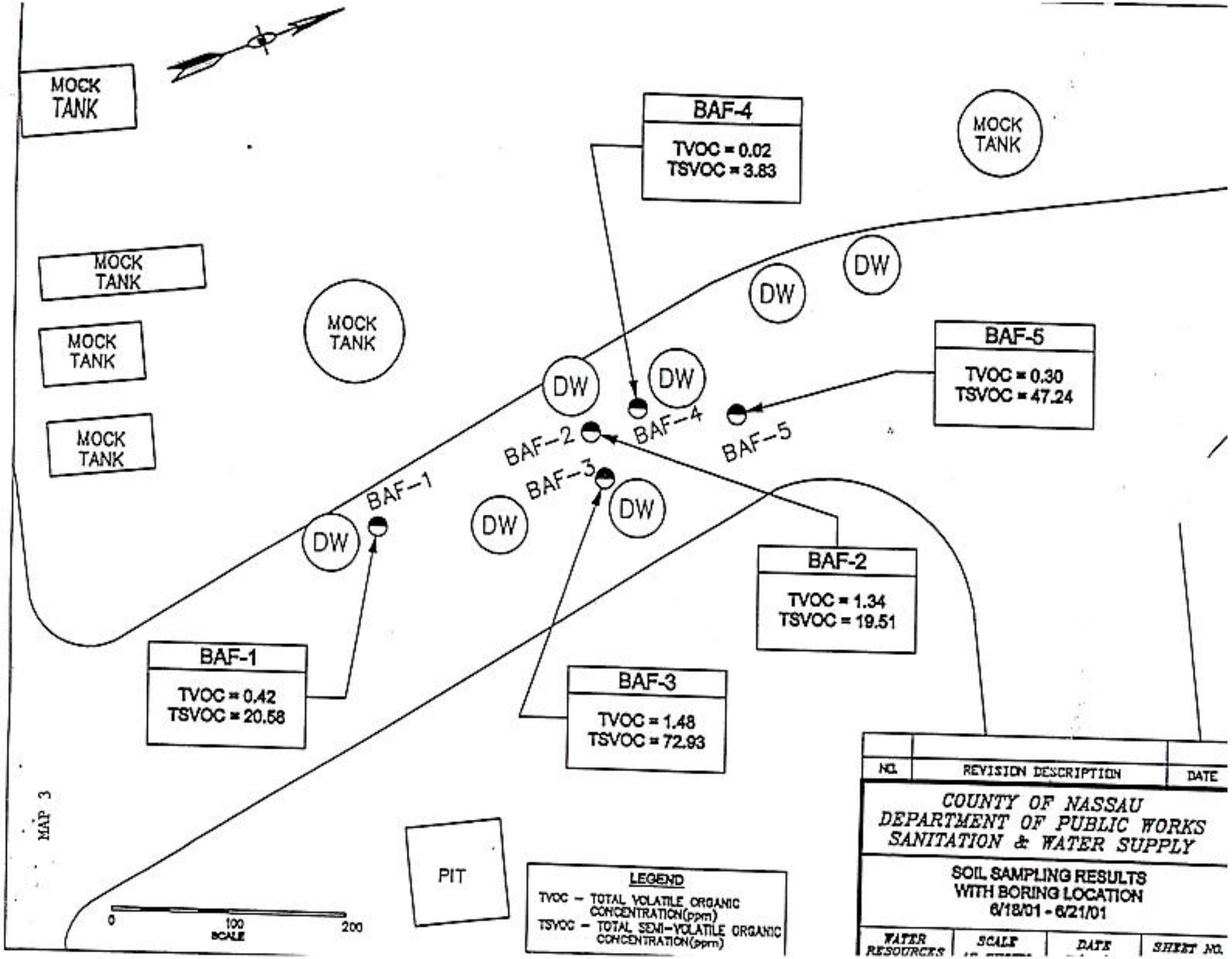

MOCK TANK
MOCK TANK
MOCK TANK
MOCK TANK
MOCK TANK
MOCK TANK
BAF-4
TVOC = 0.02
TSVOC = 3.83
DW
DW
DW
DW
DW
DW
DW
BAF-5
TVOC = 0.30
TSVOC = 47.24
BAF-1
BAF-2
BAF-3
BAF-4
BAF-5
BAF-2
TVOC = 1.34
TSVOC = 19.51
BAF-1
TVOC = 0.42
TSVOC = 20.58
BAF-3
TVOC = 1.48
TSVOC = 72.93
PIT
MAP 3
0
100
200
SCALE
LEGEND
TVOC – TOTAL VOLATILE ORGANIC CONCENTRATION(ppm)
TSVOC – TOTAL SEMI-VOLATILE ORGANIC CONCENTRATION(ppm)
NO.
REVISION DESCRIPTION
DATE
COUNTY OF NASSAU
DEPARTMENT OF PUBLIC WORKS
SANITATION & WATER SUPPLY
SOIL SAMPLING RESULTS
WITH BORING LOCATION
6/18/01 - 6/21/01
WATER RESOURCES
SCALE
DATE
SHEET NO.

TABLE 1

FTC - RENOVATION
SEMIVOLATILE ORGANIC ANALYSIS SUMMARY
SOIL

SAMPLING DATE :6/18 -21/2001

	SOIL BORING							
COMPOUND (MG/KG)	BAF - 4 30 - 32 ft.	BAF - 5 32 - 34 ft.	MUF -1 25 -27 ft.	MUF -4 25 -27 ft.	MUF -5 33 -35 ft.	MUF -3 32 -34 ft.	Recommended Cleanup Objective Protection (ppm)	Recommended Soil Cleanup Objective (ppm)
Phenol	U	U	U	U	U	U	0.03	.03 or MDL
bis(2-Chloroethyl)Ether	U	U	U	U	U	U	NA	NA
2-Chlorophenol	U	U	U	U	U	U	0.8	0.8
1,3-Dichlorobenzene	U	U	U	U	U	U	1.55	1.6
1,4-Dichlorobenzene	U	U	U	U	U	U	8.5	8.5
1,2-Dichlorobenzene	U	U	U	U	U	U	7.9	7.9
2-Methylphenol	U	U	U	U	U	U	0.1	0.1 or MDL
2,2'-oxbis(1-Chloropropane)	U	U	U	U	U	U	NA	NA
4-Methylphenol	U	U	U	U	U	U	0.9	0.9
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	NA	NA
Hexachloroethane	U	U	U	U	U	U	NA	NA
Nitrobenzene	U	U	U	U	U	U	0.2	0.2 or MDL
Isophorone	U	U	U	U	U	U	4.4	4.4
2-Nitrophenol	U	U	U	U	U	U	0.33	0.33 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	NA	NA
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	NA	NA
2,4-Dichlorophenol	U	U	U	U	U	U	0.4	0.4
1,2,4-Trichlorobenzene	U	U	U	U	U	U	NA	NA
Naphthalene	U	0.787	0.267	0.538	0.727	2.65	13	13
4-Chloroaniline	U	U	U	U	U	U	0.22	0.22 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	NA	NA
4-Chloro-3-methylphenol	U	U	U	U	U	U	0.24	0.24 or MDL
2-Methylnaphthalene	U	30.9	2.36	21.2	15.7	9.22	36.4	36.4
Hexachlorocyclopentadiene	U	U	U	U	U	U	NA	NA
2,4,6-Trichlorophenol	U	U	U	U	U	U	NA	NA
2,4,5-Trichlorophenol	U	U	U	U	U	U	0.1	0.1
2-Chloronaphthalene	U	U	U	U	U	U	NA	NA
2-Nitroaniline	U	U	U	U	U	U	0.43	0.43 or MDL
Dimethylphthalate	U	U	U	U	U	U	2.0	2.0
Acenaphthylene	0.604	1.72	0.247	0.569	0.359	1.1	41	41
2,6-Dinitrotoluene	U	U	U	U	U	U	1.0	1.0
3-Nitroaniline	U	U	U	U	U	U	0.5	0.5 or MDL
Acenaphthene	U	U	U	U	U	U	90	50*
2,4-Dinitrophenol	U	U	U	U	U	U	0.2	0.2 or MDL
4-Nitrophenol	U	U	U	U	U	U	0.1	0.1 or MDL
Dibenzofuran	U	U	U	U	0.385	U	6.2	6.2
2,4-Dinitrotoluene	U	U	U	U	U	U	NA	NA
Diethylphthalate	U	U	U	U	U	U	7.1	7.1
4-Chlorophenyl-phenylether	U	U	U	U	U	U	NA	NA
Fluorene	1.91	3.71	0.465	0.814	1.27	2.26	350	50*
4-Nitroaniline	U	U	U	U	U	U	NA	NA
4,6-Dinitro-2-Methylphenol	U	U	U	U	U	U	NA	NA
N-Nitrosodiphenylamine (1)	U	U	U	U	U	U	NA	NA
4-Bromophenyl-phenylether	U	U	U	U	U	U	NA	NA
Hexachlorobenzene	U	U	U	U	U	U	1.4	0.41
Pentachlorophenol	U	U	U	U	U	U	1.0	1.0 or MDL
Phenanthrene	0.456	8.2	1.09	1.74	2.41	4.01	220	50*
Anthracene	0.267	0.673	0.089	0.147	0.26	0.448	700	50*
Carbazole	U	U	U	U	U	U	NA	NA
Di-n-Butylphthalate	U	U	U	U	U	U	8.1	8.1
Fluoranthene	0.152	0.348	0.0595	0.0896	0.147	0.279	1900	50*
Pyrene	0.444	0.9	0.131	0.172	0.242	0.563	665	50*
Butylbenzylphthalate	U	U	U	U	U	U	122	50*
3,3'-Dichlorobenzidine	U	U	U	U	U	U	NA	NA
Benzo(a)anthracene	U	U	U	0.0094	0.0147	0.0219	3.0	*0.24 or MDL
Chrysene	U	U	U	0.0177	U	0.0447	0.4	0.4
bis(2-Ethylhexl)phthalate	U	U	0.0214	0.0514	0.145	0.0687	435	50*
Di-n-octylphthalate	U	U	U	U	U	U	120	50*
Benzo(b)fluoranthene	U	U	U	U	U	U	1.1	1.1
Benzo(k)fluoranthene	U	U	U	U	0.0085	U	1.1	1.1
Benzo(a)pyrene	U	U	U	U	0.0081	U	11	.061 or MDL
Indeno(1,2,3-cd)pyrene	U	U	U	U	U	U	3.2	3.2
Dibenzo(a,h)anthracene	U	U	U	U	U	U	165,000	.014 or MDL
Benzo(g,h,i)perylene	U	U	U	U	U	U	800	50*
TOTALS	3.833	47.238	4.7999	25.3481	21.6766	20.6653		

Note:
Samples Analyzed By:
Roy F. Weston
Lionville Analytical Laboratory
Samples Analyzed For:
TCL Semivolatiles

LEGEND
U = UNDETECTED
NA = NOT AVAILABLE
B - FOUND IN BLANK
J - ESTIMATED CONCENTRATION
MDL - METHOD DETECTION LIMIT
* - As per proposed TAGM, total VOC's <10ppm, Total Semi VOC's <500 ppm, and individual semi VOC's < 50 ppm

TABLE 2

FTC - RE[illegible]DIATION
SEMIVOLATILE ORGANIC A[illegible]YSIS SUMMARY
SOIL

SAMPLING DATE: 6/18- 6/21/2001

	SOIL BORING							
COMPOUND (MG/KG)	CMB -5 26 -28 ft.	CMB -2 34 -36 ft.	CMB - 1 16 -18 ft.	BAF - 1 34 - 36 ft.	BAF - 2 34 -36 ft.	BAF - 3 37 -39 ft.	Recommended Soil Cleanup Objective to Protect Water (ppm)	Recommended Soil Cleanup Objective (ppm)
Phenol	U	U	U	U	U	U	0.03	.03 or MDL
bis(2-Chloroethyl)Ether	U	U	U	U	U	U	NA	NA
2-Chlorophenol	U	U	U	U	U	U	0.8	0.8
1,3-Dichlorobenzene	U	U	U	U	U	U	1.55	1.6
1,4-Dichlorobenzene	U	U	U	U	U	U	8.5	8.5
1,2-Dichlorobenzene	U	U	U	U	U	U	7.9	7.9
2-Methylphenol	U	U	U	U	U	U	0.1	0.1 or MDL
2,2'-oxbis(1-Chloropropane)	U	U	U	U	U	U	NA	NA
4-Methylphenol	U	U	U	U	U	U	0.9	0.9
N-Nitroso-di-n-propylamine	U	U	U	U	U	U	NA	NA
Hexachloroethane	U	U	U	U	U	U	NA	NA
Nitrobenzene	U	U	U	U	U	U	0.2	0.2 or MDL
Isophorone	U	U	U	U	U	U	4.4	4.4
2-Nitrophenol	U	U	U	U	U	U	0.33	0.33 or MDL
2,4-Dimethylphenol	U	U	U	U	U	U	NA	NA
bis(2-Chloroethoxy)methane	U	U	U	U	U	U	NA	NA
2,4-Dichlorophenol	U	U	U	U	U	U	0.4	0.4
1,2,4-Trichlorobenzene	U	U	U	U	U	U	NA	NA
Naphthalene	U	U	U	1.25	1.68	0.68	13	13
4-Chloroaniline	U	U	U	U	U	U	0.22	0.22 or MDL
Hexachlorobutadiene	U	U	U	U	U	U	NA	NA
4-Chloro-3-methylphenol	U	U	U	U	U	U	0.24	0.24 or MDL
2-Methylnaphthalene	U	U	U	12.9	11.1	37.2	36.4	36.4
Hexachlorocyclopentadiene	U	U	U	U	U	U	NA	NA
2,4,6-Trichlorophenol	U	U	U	U	U	U	NA	NA
2,4,5-Trichlorophenol	U	U	U	U	U	U	0.1	0.1
2-Chloronaphthalene	U	U	U	U	U	U	NA	NA
2-Nitroaniline	U	U	U	U	U	U	0.43	0.43 or MDL
Dimethylphthalate	U	U	U	U	U	U	2.0	2.0
Acenaphthylene	U	U	U	0.653	0.822	3.77	41	41
2,6-Dinitrotoluene	U	U	U	U	U	U	1.0	1.0
3-Nitroaniline	U	U	U	U	U	U	0.5	0.5 or MDL
Acenaphthene	U	U	.U	U	U	U	90	50*
2,4-Dinitrophenol	U	U	U	U	U	U	0.2	0.2 or MDL
4-Nitrophenol	U	U	U	U	U	U	0.1	0.1 or MDL
Dibenzofuran	U	U	U	0.543	U	U	6.2	6.2
2,4-Dinitrotoluene	U	U	U	U	U	U	NA	NA
Diethylphthalate	1.4	0.0214	0.0238	U	U	U	7.1	7.1
4-Chlorophenyl-phenylether	U	U	U	U	U	U	NA	NA
Fluorene	U	U	U	1.29	1.58	8.42	350	50*
4-Nitroaniline	U	U	U	U	U	U	NA	NA
4,6-Dinitro-2-Methylphenol	U	U	U	U	U	U	NA	NA
N-Nitrosodiphenylamine (1)	U	U	U	U	U	U	NA	NA
4-Bromophenyl-phenylether	U	U	U	0.0196	U	U	NA	NA
Hexachlorobenzene	U	U	U	U	U	U	1.4	0.41
Pentachlorophenol	U	U	U	U	U	U	1.0	1.0 or MDL
Phenanthrene	0.0078	U	U	2.77	2.9	17.5	220	50*
Anthracene	U	U	U	0.393	0.522	1.54	700	50*
Carbazole	U	U	U	U	U	U	NA	NA
Di-n-Butylphthalate	0.022	U	0.0074	U	U	U	8.1	8.1
Fluoranthene	U	U	U	0.169	0.222	0.869	1900	50*
Pyrene	U	U	U	0.281	0.361	1.88	665	50*
Butylbenzylphthalate	U	U	U	U	U	U	122	50*
3,3'-Dichlorobenzidine	U	U	U	U	U	U	NA	NA
Benzo(a)anthracene	U	U	U	0.014	0.0186	0.181	3.0	^0.24 or MDL
Chrysene	U	U	U	0.0261	0.0407	0.275	0.4	0.4
bis(2-Ethylhexyl)phthalate	0.259	0.0245	0.0175	0.118	0.131	0.261	435	50*
Di-n-octylphthalate	U	U	U	0.149	0.12	0.355	120	50*
Benzo(b)fluoranthene	U	U	U	U	U	U	1.1	1.1
Benzo(k)fluoranthene	U	U	U	U	U	U	1.1	1.1
Benzo(a)pyrene	U	U	U	U	0.013	U	11	.061 or MDL
ndeno(1,2,3-cd)pyrene	U	U	U	U	U	U	3.2	3.2
Dibenzo(a,h)anthracene	U	U	U	U	U	U	165,000	.014 or MDL
Benzo(g,h,i)perylene	U	U	U	U	U	U	800	50*
TOTALS	1.6808	0.0459	0.0487	20.5777	19.5113	72.931		

Note:
Samples Analyzed By:
Roy F. Weston
Lionville Analytical Laboratory
Samples Analyzed For:
TCL Semivolatiles

LEGEND
U = UNDETECTED
NA = NOT AVAILABLE
B - FOUND IN BLANK
J - ESTIMATED CONCENTRATION
MDL - METHOD DETECTION LIMIT
* - As per proposed TACM, total VOC's <10ppm, Total Semi VOC's <500 ppm, and individual semi VOC's < 50 ppm

TABLE 4

FTC - RE[illegible]EDIATION
VOLATILE ORGANIC AN[illegible]YSIS SUMMARY
SOIL

SAMPLING DATE 5/18 - 21/2001

	SOIL BORING							
COMPOUND (UG/KG)	BAF -4 30 - 32 ft.	BAF -5 32- 34 ft.	MUF -1 25 - 27 ft.	MUF -4 25 - 27 ft.	MUF -5 33 -35 ft.	MUF -3 32 -34 ft.	Recommended Soil Cleanup Objective to Protect GW(ppm)	Recommended Soil Cleanup Objective (ppm)
Dichlorodifloromethane	U	U	U	U	U	U		
Chloromethane	U	U	U	U	U	U		
Vinyl Chloride	U	U	U	U	U	U	0.12	0.2
Bromomethane	U	U	U	U	U	U		
Chloroethane	U	U	U	U	U	U	1.9	1.9
Trichlorfluoromethane	U	U	U	U	U	U		
Acetone	U	.230J	U	U	U	U	0.11	0.2
1,1-Dicloroethane	U	U	U	U	U	U	0.2	0.2
Methylene Chloride	.0162B	.488B	.0137B	.0074B	U	U	0.1	0.1
Carbon disulfide	U	U	U	U	U	U	2.7	2.7
t-1,2-Dichloroethane	U	U	U	U	U	U		
1,1-Dichloroethane	U	U	U	U	U	U	0.2	0.2
2-Butanone	U	U	U	U	U	U	0.3	0.3
Chloroform	U	U	U	U	U	U	0.3	0.3
1,1,1-Trichloroethane	U	U	U	U	U	U	0.76	0.8
Carbon Tetrachloride	U	U	U	U	U	U	0.6	0.6
1,2-Dichloroethane	U	U	U	U	U	U	0.1	0.1
Benzene	U	U	U	0.0038	U	U	0.06	0.06
Trichloroethene	U	U	U	U	U	U	0.7	0.7
1,2-Dichloropropane	U	U	U	U	U	U		
Bromodichloromethane	U	U	U	U	U	U		
4-Methly-2-Pentanone	U	U	U	U	U	U	1	1
2-Hexanone	U	U	U	U	U	U		
c-1,3-Dichloropropene	U	U	U	U	U	U		
Toluene	0.0035	U	U	0.0052	U	U	1.5	1.5
t-1,3-Dichloropropene	U	U	U	U	U	U		
1,1,2-Trichloroethane	U	U	U	U	U	U		
Tetrachloroethene	U	U	U	0.0015	U	U	1.4	1.4
Dibromochloromethane	U	U	U	U	U	U	N/A	N/A
1,2-Dibromomethane	U	U	U	U	U	U		
Chlorobenzene	U	U	U	U	U	U	1.7	1.7
Ethylbenzene	U	0.299	0.0168	0.15	0.393	0.233	5.5	5.5
m,p-xylene	0.011	U	0.0181	0.321	2.24	1.01	1.2	1.2
O-xylene	0.0046	U	U	0.247	0.841	0.157	1.2	1.2
Styrene	U	U	U	U	U	U		
Bromoform	U	U	U	U	U	U		
1,1,2,2-Tetrachloroethane	U	U	U	U	U	U	0.6	0.6
1,2,3-Trichloropropane	U	U	U	U	U	U	0.34	0.4
1,3-Dichlorobenzene	U	U	U	U	U	U	1.55	1.6
1,4-Dichlorobenzene	U	U	U	U	U	U	8.5	8.5
1,2-Dichlorobenzene	U	U	U	U	0.139	U	7.9	7.9
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U		
TOTALS	0.0191	0.299	0.0349	0.7265	3.613	1.4		

Note:
Samples Analyzed By:
Roy F. Weston
Lionville Analytical Laboratory
Samples Analyzed For:
TCL Semivolatiles

LEGEND
U = UNDETECTED
NA = NOT AVAILABLE
B - FOUND IN BLANK
J - ESTIMATED CONCENTRATION
MDL - METHOD DETECTION LIMIT
* - As per proposed TAGM, total VOC's <10ppm, Total Semi VOC's <500 ppm, and individual semi VOC's < 50 ppm

volsoil2

Appendix B

2.5 Remedial System Termination

The standards/guideline values for VOCs and semi-VOCs presented in Table 2-3 are the criteria that must be achieved in the monitoring wells for termination of site remedial system operation. These criteria must be met for a period of 2 years (8 quarters) prior to termination of system operation, unless the zero slope condition for groundwater remediation is demonstrated.

The zero slope condition refers to a demonstrated condition at which contaminant concentrations in all termination monitoring wells (see Section 3.6) are lowered by the remediation, but do not achieve required standards and/or guidance values (see Table 2-5). Instead of continuing to be lowered, the concentrations reach a certain level and remain at that level during the two-year termination monitoring period. This condition is demonstrated if a plot of concentration versus time data for the two-year termination monitoring period indicates that the slope of the line is statistically indistinguishable from zero.

For the purposes of determining the zero slope condition, organic compound concentrations will be summed over each quarter to produce a total VOC (TVOC) concentration versus time plot for each termination monitoring well (i.e., 21 plots). It will be required that the zero slope condition exists in each termination monitoring well (see Section 3.6.2).

To determine whether the zero slope condition has been achieved, termination monitoring data will be tested for normality. The selected statistical test will be determined as follows:

1. Plot concentrations obtained over time on probability paper.
2. Evaluate for normality by an agreed-upon objective method.
3. If data is not normally distributed, transformations such as lognormal may be employed in an attempt to obtain a normal distribution. Transformed data will be tested for normality.
4. If the data is normally distributed, the most powerful parametric test will be used.
5. If the data is not normally distributed, an appropriate non-parametric test will be applied.

In addition, if one or more of the sample analytical results for termination monitoring do not meet the required criteria, the NCDPW may still seek termination of the remediation if all other data meets the criteria and it can be demonstrated, subject to NYSDEC concurrence, that the contamination in the non-complying wells is attributable to sources of contamination other than the FTC site. The NYSDEC will continue to make available to the NCDPW all data it obtains with respect to other potential sources of contamination including, without limitation, the Oyster Bay Solid Waste Disposal Complex (OBSWDC) (i.e., the Old Bethpage Landfill) and the Claremont Polychemical Site.

NASSAU COUNTY FTC

GROUNDWATER CLEANUP CRITERIA

Constituents Identified In Risk Assessment	NYS State Groundwater Standards 6 NYCRR 703.5 (ug/l)
Volatile Compounds	
Benzene	0.7
Toluene	5
Ethyl Benzene	5
Xylenes (each Isomer)	5
Acetone	50*
Methyl Ethyl Ketone	50*
Carbon Disulfide	50*
Vinyl Chloride	2
Methylene Chloride	5
1,1-dichloroethene	5
1,1-dichloroethane	5
trans-1,2-dichloroethene	5
1,1,1-trichloroethane	5
Trichloroethene	5
Tetrachloroethene	5
2-hexanone	50
Total Volatiles	50
Semi-Volatile Compounds	
Phenanthrene	50*
Fluorene	50*
Naphthalene	50*
di-n-octyl phthalate	50*
2-methylnaphthalene	50*

* - NYS Drinking Water Standards 10 NYCRR 5-1 (ug/l)

Appendix C

New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau of Technical Support, 11th Floor
625 Broadway, Albany, NY 12233-7020
Phone: (518) 402-9553 • Fax: (518) 402-9547
Website: www.dec.ny.gov

Joe Martens
Commissioner

May 18, 2011

Honorable Shila Shah-Gavnoudias
Commissioner
County of Nassau, Department of Public Works
1194 Prospect Avenue
Westbury, New York 11590-2723

Dear Commissioner Shah-Gavnoudias:

As mandated by Section 27-1305 of the Environmental Conservation Law (ECL), the New York State Department of Environmental Conservation (Department) must maintain a Registry of all inactive disposal sites suspected or known to contain hazardous waste. The ECL also mandates that this Department notify the owner of all or any part of each site or area included in the Registry of Inactive Hazardous Waste Disposal Sites as to changes in site classification.

Our records indicate that you are the owner or part owner of the site listed below. Therefore, this letter constitutes notification of change in the classification of such site in the Registry of Inactive Hazardous Waste Disposal Sites in New York State.

DEC Site No.: 130042
Site Name: Nassau County Fire Training Center
Site Address: 300 Winding Road, Old Bethpage, NY 11804-1323

Classification change from 2 to 4

The reason for the change is as follows:

- The remedial actions outlined in the Record of Decision (ROD) have been implemented and groundwater monitoring has shown a decrease in site-related contaminants. Long-term groundwater monitoring will continue to evaluate the effectiveness of the implemented remedial measures. An on-site evaluation is necessary to determine the potential for exposure to site-related contaminants via soil vapor intrusion.

Enclosed is a copy of the Department's Inactive Hazardous Waste Disposal Site Report form as it appears in the Registry. An explanation of the site classifications is available at http://www.dec.ny.gov/chemical/8663.html. The Law allows the owner and/or operator of a site listed in the Registry to petition the Commissioner of the New York State Department of Environmental Conservation for deletion of such site, modification of site classification, or modification of any information regarding such site, by submitting a written statement setting forth the grounds of the petition.

Such petition may be addressed to:

Honorable Joseph J. Martens
Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-1010

For additional information, please contact Benjamin Rung, the project manager at (518) 402-9813.

Sincerely,

Kelly A. Lewandowski, P.E.
Chief
Site Control Section

Enclosures

ec: D. Desnoyers
D. Weigel
A. English
K. Lewandowski
B. Rung
M. Flaherty, Cedar Creek WPCP

Appendix D

Cashin Associates, P.C.
ENGINEERING • PLANNING • CONSTRUCTION MANAGEMENT
Est. 1858

BY UPS NEXT DAY DELIVERY

14 April 2011

Ms. Kelly Lewandowski
New York State Department
of Environmental Conservation
625 Broadway
Albany, NY 12233-7020

Re: Notice of Change
Nassau County Fire Service Academy – Burn Buildings C & D
Site No. 130042

Dear Ms. Lewandowski:

Cashin Associates, P.C. (CA) has been retained by Nassau County to develop designs, construction and demolition plans and specifications required to replace two existing fire training buildings located at the Fire Service Academy (FSA) in Bethpage, New York and has authorized CA to issue this letter in its behalf. The buildings are designated Buildings "C" and "D" and are depicted on the attached aerial photograph of the FSA premises. The FSA facility is listed as a New York State Superfund site. The Record of Decision (ROD) dated February 1993 among other remedial actions required that the use of portions of the property be restricted. Nassau County's Declaration of Restrictions, dated 16 December 1996 and its Resolution No. 612 – 1996 dated 18 December 1996 (copies enclosed) which were in response to the ROD placed covenants on five discrete areas within the overall property. Those areas are also shown on the attached aerial photograph. Buildings "C" and "D" are outside the encumbered areas.

This communiqué is to advise the New York State Department of Environmental Conservation, that CA plans to obtain soil borings, concrete cores of the existing building walls and slabs, construct test pits and perform asbestos sampling all within or in close proximity to the existing footprints of Buildings "C" and "D". The proposed soil boring locations are also shown on the attached aerial photograph. CA plans to commence the exploratory investigations shortly. Kindly let me know whether your Department has any comments on these proposed activities. It is our understanding that the exploratory program described above is not a restricted action and may proceed immediately.

CA has just started the Programming phase of its design assignment, part of which includes obtaining soil boring and concrete cores. We do not know the details of the final design at this time. Preliminarily, however, the Building "C" and "D" superstructures will be replaced in their entirety

1200 Veterans Memorial Highway • Hauppauge, NY 11788 • (631) 348-7800 • FAX (631) 348-7601
601 Brickell Key Drive • Suite 606 • Miami, FL 33131 • (305) 579-2206 • FAX (305) 579-2035
841 Broadway • Suite 500 • New York, NY 10003 • (917) 546-0741
www.cashinassociates.com

and new superstructures will be constructed on the existing foundations. In order to comply with the intent of NFPA 1402, Section 10.1.5 (copy attached) it may be necessary to expand the "walkout" areas from the basements for safety reasons. Preliminarily, the "walk out" areas may be expanded as shown on the attached sketches. Some site drainage improvements may also be required. All construction work is expected to be outside the five (5) parcels that have restrictive covenants on their deeds and construction work is planned to commence in October 2011. As required by NYS Superfund regulations, please consider this letter as Nassau County's "Notice of Change of Use".

Should you have any questions, please call me at 631-348-7600.

Very truly yours,

CASHIN ASSOCIATES, P.C.

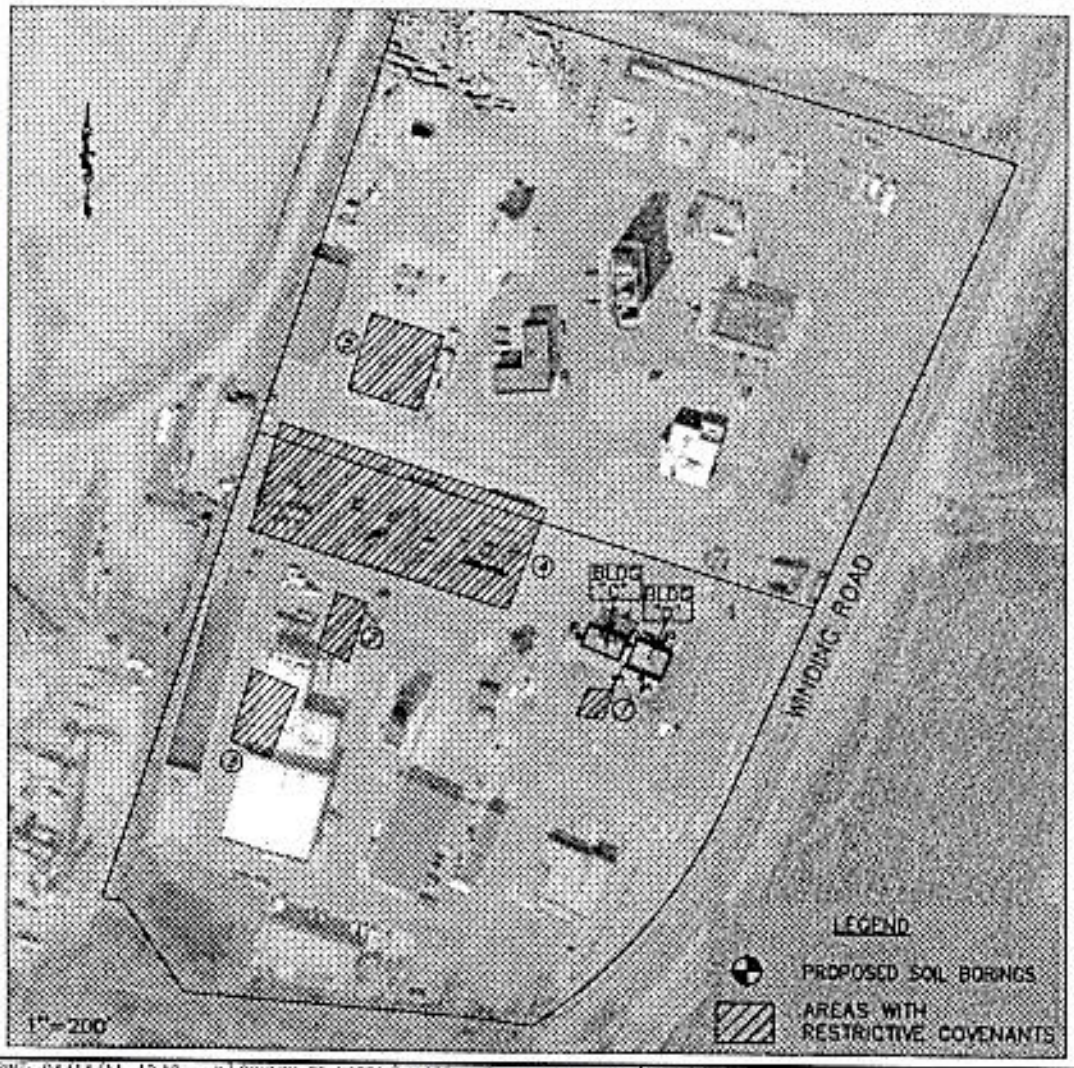
Aldo Marletti, P.E.
Executive Vice President

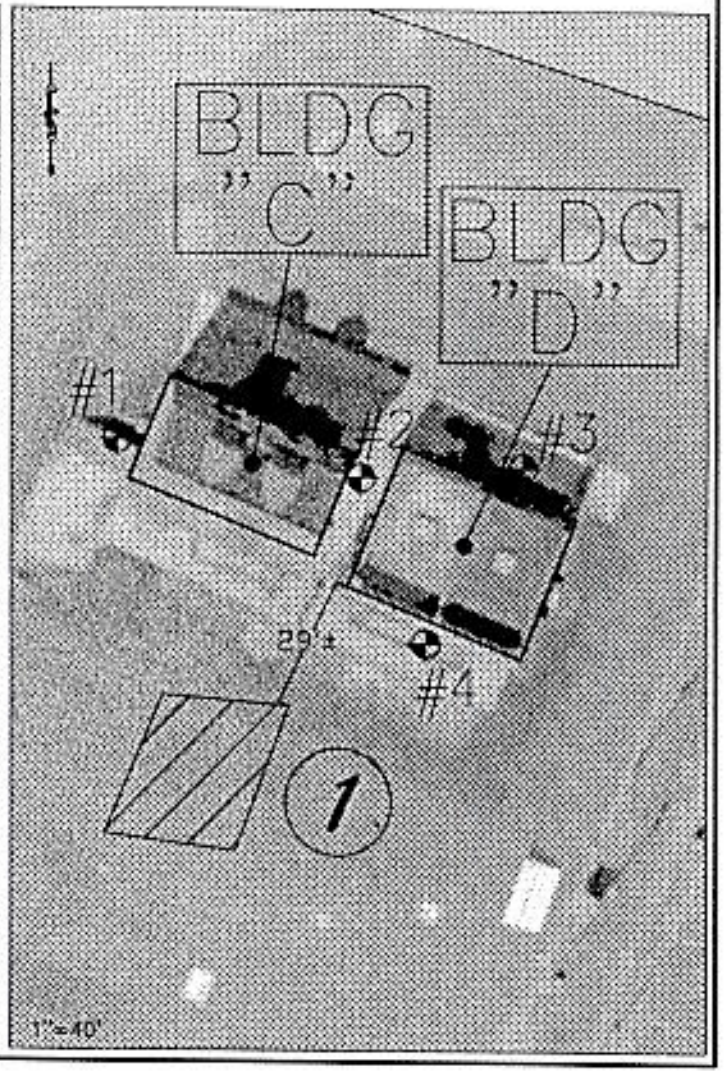
AM/ck

cc: P. Scully, Regional Director, NYSDEC
S. Shah, PE, Commissioner, NCDPW
R. Maitra, PE, Deputy Commissioner, NCDPW
M. Flaherty, Hydrogeologist, NCDPW
B. Rung, NYSDEC
W. Parish, NYSDEC

Cashin Associates, P.C.
ENGINEERING · PLANNING · CONSTRUCTION MANAGEMENT

CLIENT: NASSAU COUNTY	DATE: 4-5-11
PROJECT: FIRE SERVICES ACADEMY	CA NO.: 11028-1
TITLE: BURN BUILDINGS	SCALE: AS NOTED





PRINT: 04/14/11-12:10pm X:\COUNTY OF NASSAU\11028-1 Burn Buildings C-D\PL.dwg

DECLARATION OF RESTRICTIONS

The Declaration is hereby effective as of 12/16/96

W I T N E S S E T H

WHEREAS, soil contamination at certain areas within the Fireman's Training Center in Bethpage consists of the chemicals listed in Attachment No. 1 at levels that potentially threaten public health, and

WHEREAS, the New York State Department of Environmental Conservation and the County of Nassau have agreed on the remediation steps to be taken in connection with said contamination which include restrictions to be recorded in the Nassau County Clerk's Office against the use of the contaminated areas at the Fireman's Training Center, as stated in the Record of Decision, dated February, 1993 attached as Attachment No. 2, and

WHEREAS, the Fireman's Training Center is identified as Section 47, Block 153, Lots 6 and 7 on the Land and Tax Map of Nassau County, and the contaminated areas to be restricted within the Fireman's Training Center are identified by the attached notes and bounds descriptions and map and are attached as Attachment No. 3.

WHEREAS, this Declaration of Restrictions shall just affect the aforesaid contaminated areas identified in Attachment No. 3.

NOW, THEREFORE, the County of Nassau, being often located at 1 West St. Mineola, New York 11501 for itself and its successors and assigns, covenants and declares that:

1. Unless prior written approval by the New York State Department of Environmental Conservation and the New York

State Department of Health (or any subsequently delegated agencies) is first obtained, there shall be no construction, use or occupancy of the contaminated areas which results in the disturbance or excavation of the waste materials on site, which threatens the integrity of the asphalt cap or soil cover materials, or which results in human exposure to contaminated soils.

2. Unless prior written approval by the above stated agencies is obtained, there shall be no change in the use of the contaminated areas in any way that is inconsistent with its use as a fire training center. If such a new use of the contaminated areas is approved, any and all further remedial activities at the aforesaid contaminated areas deemed necessary and appropriate by the above stated agencies will be performed by the County of Nassau.

3. The County of Nassau, its successors and assigns will not disturb the contaminated areas in any way, except to properly maintain the integrity of the remedial measures undertaken and maintained at the areas of contamination as stated in the Record of Decision dated February, 1993 attached hereto as Attachment No. 2, which is incorporated herein and made a part hereof as if herein set forth at length.

4. This Declaration is and shall be deemed to be a covenant running with the land, binding the County of Nassau, its successors and assigns, and any agent, lessee or invitee of the County of Nassau in perpetuity or until such time the New York State Department of Environmental Conservation and the New York State Department of Health (or any subsequently delegated agencies) determine, in writing, that the

Declaration is no longer necessary for the protection of human health and the environment. At such time, the covenant shall be null and void and have no effect upon the land.

COUNTY OF FAIRFAX

By _____

APPROVED:

_____
Commissioner of Public Works

APPROVED:

_____
VEEB Michael K. Gilpin, Executive Director

FORM APPROVED:

_____
Deputy County Attorney

RESOLUTION NO. 617 -1996

A RESOLUTION AUTHORIZING THE COUNTY EXECUTIVE TO EXECUTE A DECLARATION OF RESTRICTIONS REGARDING COUNTY OWNED PROPERTY BEING LOCATED AT THE FIREMAN'S TRAINING CENTER, OLD BETHPAGE, TOWN OF OYSTER BAY, IN ORDER THAT ONLY CERTAIN AND SPECIFIED CONTAMINATED LOCATIONS WITHIN THE SAID PROPERTY WILL BE COVERED BY THE DECLARATION OF RESTRICTIONS AND THE REMAINING PROPERTY CAN BE USED PRODUCTIVELY.

WHEREAS, THE COUNTY OF NASSAU, hereinafter referred to as the County, is the owner of property known as the Fireman's Training Center, Old Bethpage, Town of Oyster Bay which is identified as Section 47, Block 153, Lots 6 and 7 on the Land and Tax Map of Nassau County; and

WHEREAS, there are certain areas within said property that contain chemicals at levels that potentially threaten public health; and

WHEREAS, the New York State Department of Environmental Conservation and the County have agreed on the remediation steps to be taken in connection with the said contaminated areas within the above stated property; and

WHEREAS, there shall be no change in the present use of the contaminated areas in any way that is inconsistent with its use as a fire training center, unless prior written approval of the New York State Department of Environmental Conservation and the New York State Department of Health is obtained; and

Passed by Nassau County Legislature on DEC 16 1996 A voice vote as taken with 19 Legislators present.
Voting: aye 19 ; nay 2 abstained 0
Became a resolution on DEC 18 1996
with the approval of the Deputy County Executive acting for the County Executive.

FORM APPROVED:
Deputy County Attorney

APPROVED:
Michael R. Caliper, Executive Director
Nassau County Office of Public Safety

APPROVED:
Commissioner of Public Works

WHEREAS, the Declaration of Restrictions will refer only to the areas contaminated by chemicals and the remaining areas will be free from said restrictions, therefore avoiding the loss of other uses for the remaining property located at the Fireman's Training Center; now therefore be it

RESOLVED, that the COUNTY EXECUTIVE be, and he hereby is authorized to execute, on behalf of the COUNTY OF NASSAU, a Declaration of Restrictions in connection with certain County owned property located at the Fireman's Training Center in Old Bethpage in order that the use of only certain and specified contaminated locations, as referred to and identified in the said Declaration of Restrictions, be restricted by the declaration of restrictions and the remaining property at the Fireman's Training Center be used productively; and be it further

RESOLVED that the COUNTY ATTORNEY of Nassau County be, and he is hereby directed to record said Declaration of Restrictions and to file the map in connection with same in the Office of the Clerk of the County of Nassau; and be it further

RESOLVED that the COUNTY EXECUTIVE or the COUNTY ATTORNEY be, and they are hereby authorized to execute any other instrument that may be required to carry out this Resolution; and be it further

RESOLVED that this Resolution shall take effect immediately.

DEC 18 1995

APPROVED:

County Executive

utilized for simulated fire attack by fire forces operating in a high-rise building. Siamese connections should be installed and identified at ground level to accommodate auxiliary water supplies. Section valves should be installed in systems at each floor, or at selected locations, to enable the instructor to shut down only sections, not entire systems, for training purposes.

9.9 Roof Openings. Roof openings should be provided for the practice of ventilation procedures, especially if not already provided at a live fire training structure or at a ground-level roof prop. Various sized openings on flat and sloped roof surfaces could be designed into the structure so that different directions and types of roof conditions can be simulated (see Figure 9.9). Safety railings should be provided for roof operations.

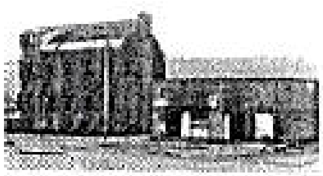


FIGURE 9.9 Live Fire Training Structure with Both Flat and Sloped Roofs. *(Courtesy of Nassau County Fire Service Academy, Old Bethpage, NY.)*

9.10 Coping. Where not covered by the roof, the top of exterior sections of the walls should have a coping. Heavy wood bolted into the structure should be considered for rope work and evolutions. Stone, concrete, or other material might break away to [illegible] equipment and personnel.

9.11 Nets. Consideration should be given to the provision of a temporary or permanent safety net on at least one exterior side of the building, especially if rappelling is contemplated (see Figure 9.11(a) and Figure 9.11(b)). A safe distance should be provided between the ground and the net to allow for movement upon impact.

9.11.1 A temporary, removable net could allow full access to the tower.

9.11.2 Springs installed between the net and the perimeter frame could increase the life of the net by lessening direct impact upon the net.

9.11.3 A ladder affixed to the tower for the mounting of the net should be considered.

9.11.4 For a permanent net, a catwalk around the perimeter frame with a ladder to the ground could provide a standby area for the instructor and trainees.

9.12 Drains. Each floor of the tower should be equipped with floor drains or scuppers (see Figure 9.12). In areas subject to freezing temperatures, conventional floor drains might not be effective. Where scuppers are used, the water discharge should be directed to areas that will not interfere with activities below the openings. Regardless of the types of drains that are selected, their installation should ensure the quick runoff of water.

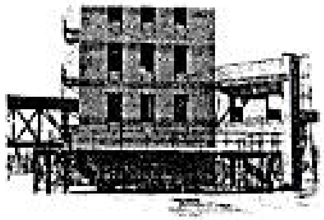


FIGURE 9.11(a) Frame of the Net. *(Courtesy of New York Fire Department Fire Academy, New York, NY.)*

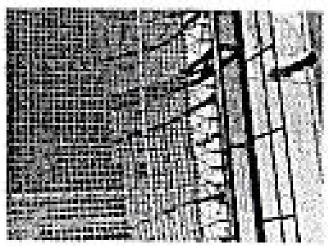


FIGURE 9.11(b) Tension of Net and Catwalk Around Net. *(Courtesy of New York Fire Department Fire Academy, New York, NY.)*

9.13 Sprinkler Laboratory. The need for a laboratory from which sprinkler systems can be operated, demonstrated, and inspected should be considered. This function could be located in a drill classroom or other facility instead of the tower.

9.14 Alarm System Laboratory. Consideration should be given to an area where several different types of operable fire alarm systems are located. This function could be located in a drill classroom or other facility instead of the tower.

9.15 Fire Extinguishing Systems. Consideration should be given to providing an area that allows the installation of fire extinguishing systems for demonstration purposes. This function could be located in a drill classroom or other facility instead of the tower.

9.16 Special Training Features. Special features could be included in the tower to accommodate local area needs. For example, a 610 mm (24 in.) diameter pipe could connect two floors for manhole and mine shaft rescue simulation. An elevator could be installed or be used in the simulation of elevator emergencies and for the movement of personnel and equipment. Anchor points for rope evolutions should be provided.

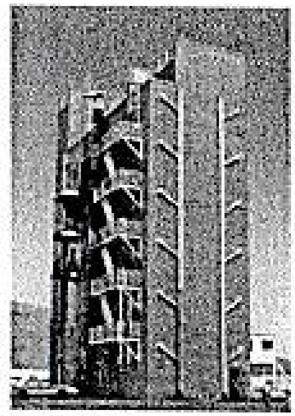


FIGURE 9.18 Drain Scuppers.

Chapter 10 Live Fire Training Structure

10.1 General. See Figure 10.1(a) and Figure 10.1(b).

10.1.1 The purpose of the live fire training structure is to provide a location for training fire fighters safely in methods of interior fire suppression.

10.1.2 The live fire training structure could be constructed of concrete, masonry, steel, or other noncombustible materials capable of providing proper structural strength and stability. Wood and other combustible materials should be avoided. Calcium aluminate concrete ("refractory concrete") should not be used for structural slabs, beams, walls, columns, or other load-bearing structural components in the fire training structure. Floors and roofs should slope at least 6.3 mm/m (¼ in./3.28 ft) to drains or through-wall scuppers.

10.1.3 Unless otherwise specified by the applicable building code, floors and roofs should be designed to support dead loads (self-weight plus weight of thermal linings and other permanent features) plus a minimum live load of 34 kg/m² (7.0 lb/ft²). If floors and roofs slope to interior or exterior floor/roof drains that have the potential to clog, then floors and roof structures should be designed to also support the weight of the maximum quantity of water that could accumulate on the floors or roofs if the drains clog.

10.1.4 Every burn room or compartment should have a minimum of two means of escape.

10.1.5 Burn areas that are fully below grade are hazardous and should be avoided. For live fire training structures where a

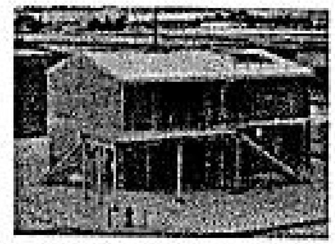


FIGURE 10.1(a) Two-Story Live Fire Training Structure. *(Courtesy of Cheyenne Fire Training Complex, Cheyenne, WY.)*

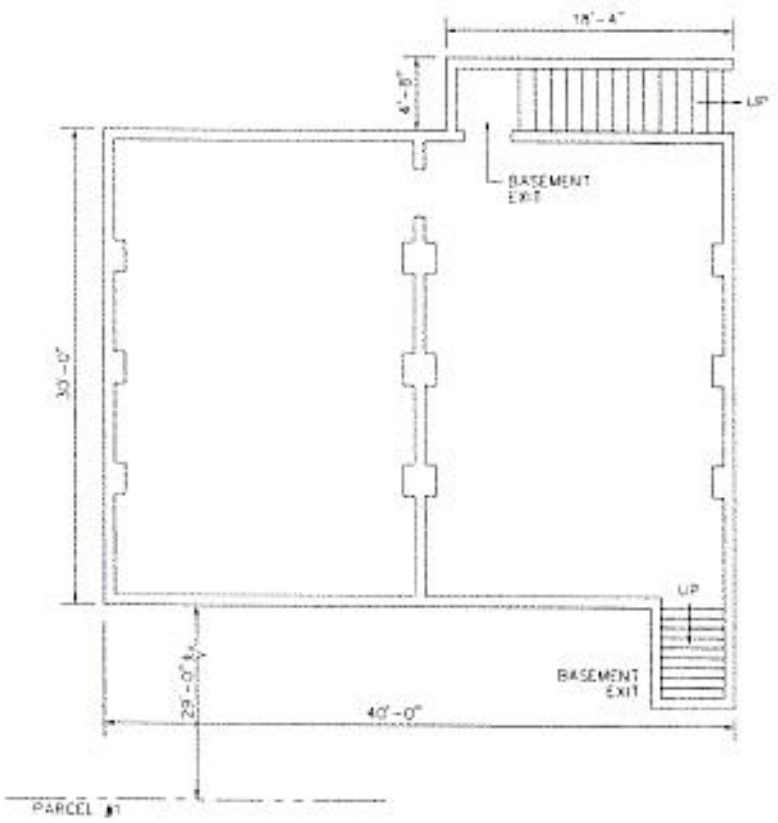
FIGURE 10.1(b) Live Fire Training Structure with Provisions for Roof Ventilation. *(Courtesy of Catawba College, Dallas, NC.)*

walk-out basement configuration is impractical, basement or cellar fires could be simulated at the ground floor. An exterior stair to a second-floor landing at an interior second-floor door could be constructed (see Figure 10.1.5). Fire fighters could then enter at the second floor and simulate attacking below-grade fires by working down the interior stairs to the ground floor.

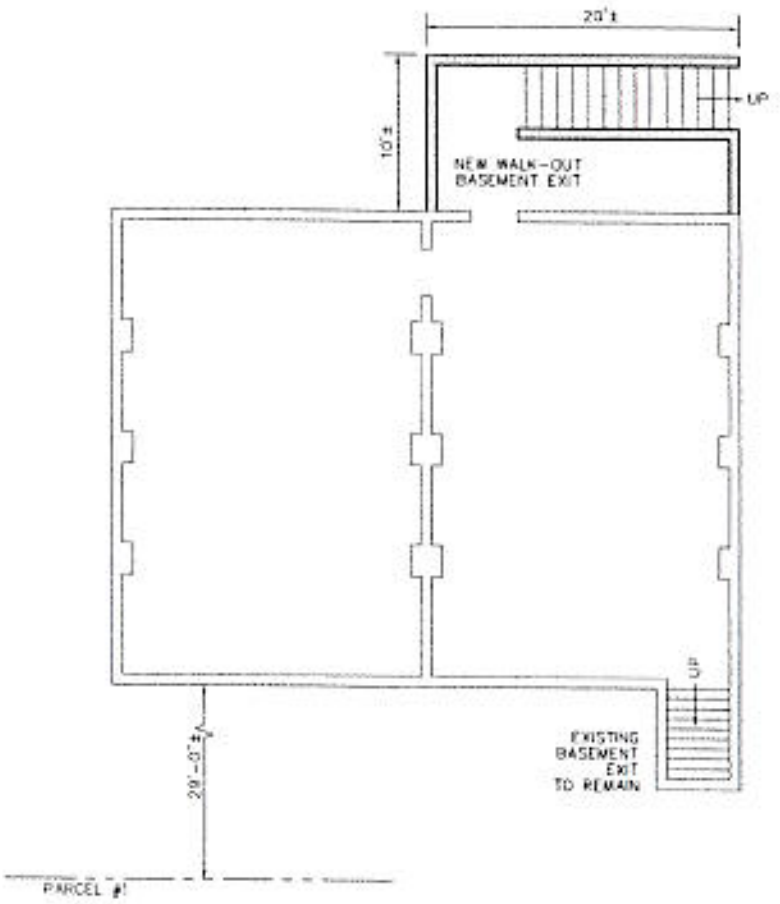
10.1.6 The live fire training structure could be designed to take into consideration the following:

(1) Fire behavior
(2) Fire spread or extension
(3) Rescue
(4) Ventilation
(5) Forcible entry
(6) Laddering
(7) Various standard occupancies similar to those found in the region
(8) Special problems

10.1.7 The area around the live fire training structure should be designed to accommodate the training needs. This commonly requires paving on all four sides to allow apparatus to maneuver around the structure, or paving on one side for apparatus and light-duty sidewalks or paths for foot traffic on the remaining sides. Obstacles, such as the curb and gutters, sidewalks, hydrants, street signs, poles, and cables simulating



EXISTING
BASEMENT PLAN BUILDING "D"



CONCEPTUAL ALTERNATE 1
BASEMENT PLAN BUILDING "D"

north

SCALE: 3/32" = 1'-0"

Gashin Associates, P.C.
ENGINEERING PLANNING CONSTRUCTION MANAGEMENT

Sketch #2
Nassau County Fire Service Academy
Burn Building "D"
Capital Project No. 72490