

**FIREMEN'S TRAINING CENTER
GROUNDWATER REMEDIATION**

DEPARTMENT OF PUBLIC WORKS

**SUPPLEMENTAL MONITORING
AND WELL CONSTRUCTION DATA**

Nassau County

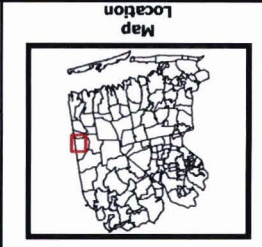
Long Island, New York



**CLAREMONT POLYCHEMICAL
GROUNDWATER DATABASE
AND PLUME MODELING
REPORT MEETING**

NEW YORK, NEW YORK

FEBRUARY 7, 2006



Legend

- Nassau County Area Wells
- Nassau County Recovery Well
- ▲ Damage State Park Intake Well
- ▲ Nassau County Recovery Well
- Nassau County Physical Disposal Well
- Nassau County Physical Disposal Well
- ▲ T of Oyster Bay Monitoring Well or Well Cluster
- ▲ T of Oyster Bay Recovery Well or Well Cluster
- ▲ T of Oyster Bay Physical Disposal Well
- ▲ T of Oyster Bay Physical Disposal Well
- No. 14, 19



FIREMAN'S TRAINING CENTER OFF-SITE MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well	MP Elevation (Feet Above Mean Sea Level)	Date Installed	Method Of Drilling	Screen Interval (Feet Below Ground Surface)		Casing	Screen
				Top Of Screen	Bottom Of Screen		
BP-15B	98.38	10/12/05	Mud Rotary	210	230	PVC	Stainless Steel
BP-15C	98.45	10/06/05	Mud Rotary	255	295	PVC	Stainless Steel
OBV-1B	157.26	09/01/05	Mud Rotary	168	188	PVC	Stainless Steel
OBV-1C	156.69	08/23/05	Mud Rotary	255	275	PVC	Stainless Steel

FIREMAN'S TRAINING CENTER OFF-SITE MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well	MP Elevation (Feet Above Mean Sea Level)	Date Installed	Method Of Drilling	Screen Interval (Feet Below Ground Surface)		Casing	Screen
				Top Of Screen	Bottom Of Screen		
W-39	114.50	05/08/90	Auger	41	60	Black Steel	Stainless Steel
BP-3A	124.54	08/15/90	Auger	54	74	Black Steel	Stainless Steel
BP-3B	123.57	07/19/90	Modified Mud/Water Rotary	215	235	Stainless Steel	Stainless Steel
BP-3C	123.68	07/26/90	Modified Mud/Water Rotary	280	300	Stainless Steel	Stainless Steel
BP-4A	92.69	08/20/90	Auger	19	39	Black Steel	Stainless Steel
BP-4B	91.72	08/29/90	Modified Mud/Water Rotary	170	190	Stainless Steel	Stainless Steel
BP-4C	91.57	08/30/90	Modified Mud/Water Rotary	280	300	Stainless Steel	Stainless Steel
BP-4I	92.10	04/12/94	Modified Mud/Water Rotary	82	102	PVC	Stainless Steel
BP-5A	96.34	09/26/90	Auger	29	49	Black Steel	Stainless Steel
BP-5B	96.58	09/24/90	Modified Mud/Water Rotary	180	200	Stainless Steel	Stainless Steel
BP-5C	96.28	09/25/90	Modified Mud/Water Rotary	250	270	Stainless Steel	Stainless Steel
BP-6A	102.55	09/28/90	Auger	24	44	Black Steel	Stainless Steel
BP-6B	102.58	08/16/90	Modified Mud/Water Rotary	180	200	Stainless Steel	Stainless Steel
BP-6C	102.35	08/20/90	Modified Mud/Water Rotary	256	276	Stainless Steel	Stainless Steel
BP-7A	148.35	10/03/90	Auger	75	95	Black Steel	Stainless Steel
BP-7B	147.90	09/12/90	Modified Mud/Water Rotary	228	248	Stainless Steel	Stainless Steel
BP-7C	148.40	09/13/90	Modified Mud/Water Rotary	310	330	Stainless Steel	Stainless Steel
BP-8A	92.29	08/16/90	Auger	20	40	Black Steel	Stainless Steel
BP-8B	91.43	08/06/90	Modified Mud/Water Rotary	130	150	Stainless Steel	Stainless Steel
BP-8C	91.48	08/08/90	Modified Mud/Water Rotary	260	280	Stainless Steel	Stainless Steel
BP-9I	85.18	04/15/94	Auger	84	104	PVC	Stainless Steel
BP-9B	85.09	12/19/91	Modified Mud/Water Rotary	184	204	Black Steel	Stainless Steel
BP-9C	84.88	12/22/91	Modified Mud/Water Rotary	322	342	Black Steel	Stainless Steel
BP-10B	81.21	02/16/92	Modified Mud/Water Rotary	210	230	PVC	Stainless Steel
BP-10C	80.94	02/10/92	Modified Mud/Water Rotary	360	380	PVC	Stainless Steel
BP-11	81.76	04/22/94	Auger	78	98	Black Steel	Stainless Steel
BP-12A	78.33	04/19/94	Auger	69	89	PVC	Stainless Steel
BP-12B	78.24	06/10/96	Mud/Water Rotary	181	201	Black Steel	Stainless Steel
BP-12C	78.56	12/16/99	Mud/Water Rotary	370	390	PVC	Stainless Steel
BP-13B	133.37	11/13/00	Mud/Water Rotary	280	310	PVC	Stainless Steel
BP-13C	133.67	01/07/00	Mud/Water Rotary	455	475	PVC	Stainless Steel
BP-14B	81.50	12/18/01	Mud/Water Rotary	200	240	PVC	Stainless Steel
BP-14C	81.48	12/13/01	Mud/Water Rotary	310	350	PVC	Stainless Steel
BP-15B	98.38	10/12/05	Mud Rotary	210	230	PVC	Stainless Steel
BP-15C	98.45	10/06/05	Mud Rotary	255	295	PVC	Stainless Steel
OBV-1B	157.26	09/01/05	Mud Rotary	168	188	PVC	Stainless Steel
OBV-1C	156.69	08/23/05	Mud Rotary	255	275	PVC	Stainless Steel

Table 3b
2005 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	12/23/05			10/28/05	12/23/05			9/19/05	12/22/05			9/19/05	12/22/05		
Vinyl Chloride	8.8	15.9			BDL	BDL			BDL	BDL			BDL	BDL		
1,1-Dichloroethene	11.4	14.1			BDL	BDL			BDL	BDL			3.4	4.6		
1,1-Dichloroethane	28.4	38.0			BDL	BDL			1.0	0.8			6.9	5.7		
Methylene Chloride	5.0	12.5	Well Installed 10/12/05		BDL	BDL	Well Installed 10/6/05		BDL	BDL	Well Installed 9/1/05		BDL	BDL	Well Installed 8/23/05	
t-1,2-Dichloroethene	0.7	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
c-1,2-Dichloroethene	40.7	75.8			BDL	BDL			BDL	BDL			BDL	BDL		
1,2 Dichloroethane	1.6	2.1			BDL	BDL			BDL	BDL			BDL	BDL		
Benzene	1.7	3.4			BDL	BDL			BDL	BDL			BDL	BDL		
Toluene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Chloroform	0.7	0.5			BDL	BDL			BDL	BDL			BDL	0.6		
Tetrachloroethene	7.5	17.4			BDL	BDL			BDL	BDL			BDL	2.1		
Chlorobenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Ethyl Benzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
m,p-Xylene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
o-Xylene	0.3	0.7			BDL	BDL			BDL	BDL			BDL	BDL		
Isopropylbenzene	BDL	0.6			BDL	BDL			BDL	BDL			BDL	BDL		
n-Propylbenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Dichlorodifluoromethane	10.0	13.7			BDL	BDL			BDL	BDL			BDL	BDL		
Trichlorofluoromethane	3.2	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,1,1 Trichloroethane	22.1	22.6			BDL	BDL			1.6	BDL			4.8	5.8		
1,1,2 Trichloroethane	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,2 Dibromoethane	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,4-Dichlorobenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,2-Dichlorobenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Trichloroethene	10.5	16.4			BDL	BDL			BDL	BDL			3.4	3.6		
1,3,5-Trimethylbenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,2,4-Trimethylbenzene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Naphthalene	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
1,1,1-Trichloromethane	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Methyl t-Butylether (MTBE)	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Carbon Tetrachloride	BDL	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
Chloromethane	1.8	BDL			BDL	BDL			BDL	BDL			BDL	BDL		
SEMI-VOLATILE ORGANIC COMPOUNDS																
1,2-Dichlorobenzene	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
2,4-Dinitrotoluene	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
Bis(2-Ethylhexyl) Phthalate	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
INORGANIC PARAMETERS																
ph	4.74	NA			4.69	NA			5.17	NA			5.21	NA		
Specific Conductance	192	NA			52	NA			152	NA			140	NA		
Alkalinity as Calcium Carbonate	7	NA			BDL	NA			7	NA			5	NA		
B.O.D.	3.4	NA			BDL	NA			10	NA			3.6	NA		
Chemical Oxygen Demand	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
Hardness, Total	9.4	NA			36.9	NA			35.7	NA			27.2	NA		
Nitrate as N	0.79	NA			0.7	NA			2.31	NA			8.15	NA		
Total Phosphorus as P	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
Sodium, Total	4.76	NA			17.4	NA			10.9	NA			13	NA		
Total Kjeldahl	0.15	NA			BDL	NA			BDL	NA			BDL	NA		
Ammonia as N	BDL	NA			BDL	NA			BDL	NA			BDL	NA		
Sulfate	BDL	NA			BDL	NA			24.3	NA			BDL	NA		
Chloride	45.0	NA			5	NA			10	NA			10	NA		
Total Dissolved Solids	90	NA			37	NA			109	NA			110	NA		
Total Suspended Solids	BDL	NA			BDL	NA			2	NA			BDL	NA		
Aluminum, Total	0.047	NA			0.037	NA			0.17	NA			0.051	NA		
Iron, Total	0.088	NA			0.026	NA			0.388	NA			0.039	NA		
Manganese, Total	0.024	NA			0.005	NA			0.073	NA			0.038	NA		
Nickel, Total	0.007	NA			0.002	NA			0.005	NA			0.003	NA		
Chromium, Total	BDL	NA			BDL	NA			BDL	NA			BDL	NA		

LABORATORY: Nassau County DPW Special Projects Laboratory
Ceder Creek S.T.P., Wantagh, New York

NOTE: VOC and Inorganic = mg/l
NOTE: All results ug/l

2005 GROUNDWATER SAMPLING RESULTS - BP-10

VOLATILE ORGANICS COMPOUNDS	BP-10B					BP-10C				
	Baseline Water Quality	DATE SAMPLED				Baseline Water Quality	DATE SAMPLED			
	6/4/99	3/31/05	6/17/05	9/20/05	12/19/05	6/4/99	3/31/05	6/16/05	9/20/05	12/19/05
Vinyl Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<1.0	BDL
1,1-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	0.9	1.2	0.9	1.8
Methylene Chloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.7	BDL
t-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
c-1,2-Dichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Toluene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloroform	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.5	BDL
Tetrachloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ethyl Benzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
m,p-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
o-Xylene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Isopropylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
n-Propylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichlorofluoromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Dichlorodifluoromethane	BDL	BDL	BDL	BDL	BDL	BDL	2.3	3.5	2.0	2.0
1,1,1 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,2 Trichloroethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2 Dibromoethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,4-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2-Dichlorobenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Trichloroethene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,3,5-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,2,4-Trimethylbenzene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Naphthalene	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
1,1,1-Trichloromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Methyl t-Butylether (MTBE)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Carbon Tetrachloride	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloromethane	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
SEMI-VOLATILE ORGANIC COMPOUNDS										
1,2-Dichlorobenzene	NA	NA	BDL	NA	NA	NA	NA	BDL	NA	NA
2,4-Dinitrotoluene	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Bis(2-Ethylhexyl) Phthalate	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
INORGANIC PARAMETERS										
ph	5.21	NA	5.8	NA	NA	5	NA	5.41	NA	NA
Specific Conductance	48.1	NA	50.2	NA	NA	44.2	NA	81	NA	NA
Alkalinity as Calcium Carbonate	BDL	NA	5.0	NA	NA	BDL	NA	BDL	NA	NA
B.O.D.	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Chemical Oxygen Demand	BDL	NA	BDL	NA	NA	BDL	NA	38.0	NA	NA
Hardness, Total	8.8	NA	9.5	NA	NA	6.7	NA	15.4	NA	NA
Nitrate as N	1.73	NA	2.0	NA	NA	1.8	NA	1.97	NA	NA
Total Phosphorus as P	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Sodium, Total	LA	NA	4.56	NA	NA	LA	NA	6.44	NA	NA
Total Kjeldahl	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Ammonia as N	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Sulfate	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Chloride	7.5	NA	BDL	NA	NA	7.5	NA	7.5	NA	NA
Total Dissolved Solids	25	NA	LA	NA	NA	16	NA	41	NA	NA
Total Suspended Solids	2.5	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA
Aluminum, Total	BDL	NA	0.050	NA	NA	BDL	NA	0.017	NA	NA
Iron, Total	BDL	NA	0.018	NA	NA	BDL	NA	0.013	NA	NA
Manganese, Total	0.001	NA	0.002	NA	NA	0.001	NA	0.006	NA	NA
Nickel, Total	0.005	NA	0.001	NA	NA	BDL	NA	0.001	NA	NA
Chromium, Total	BDL	NA	BDL	NA	NA	BDL	NA	BDL	NA	NA

LABORATORY: Nassau County DPW Special Projects Laboratory
Ceder Creek S.T.P., Wantagh, New York

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



DEPARTMENT OF PUBLIC WORKS
DIVISION OF SANITATION & WATER SUPPLY
NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: FTC - up gradient Source
 DATE PREPARED: 9/21/05 BY: M. Flaherty
 WELL NO: OBV-1C
 LOCATION: Old Bethpage Village (cont)
 M.P. ELEVATION: approx. 148 ft. (msl)
 DRILLING STARTED: 8/16/05 ENDED: 8/23/05
 DRILLER: Keith Conin, Delta Well Pump
 TYPE OF RIG: Mud Rotary
 PAGE: 1 OF: 5

WELL DATA
 HOLE DIAM. (IN.) 7 7/8
 FINAL DEPTH (FT.) 300 ft.
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 255 ft.
 SCREEN SETTING (FT.) 255-275
 SCREEN SLOT & TYPE 10 slot (SS)
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW MP(2)	ELEV. W.1

SAMPLER
 TYPE: split spoon
 HAMMER: 150 LB.
 FALL: Sampling Jars IN.

DEVELOPMENT
high capacity - air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
0	TOP Soil					
0-10	Silty clay	Dry hard, silt and clay, near surface			- Wash	Samples -
10	Silty sand & gravel	Tan, Brown, silty quartz sand with coarse gravel.				
10-20	Multi-colored fine-medium quartz sand	Tan, some multi-colored fine quartz sand with some soft clay			- Wash	Samples -
20-30	Multi-colored quartz sand	Tan, white, some multi-colored, fine-medium grained quartz sand, some soft finely laminated silty, micaceous clay			- Wash	Samples.
30-40	Multi-colored quartz sand				- Wash	Samples
40-50		- Driller reports hardpan @ 53 ft. -				
50-60	Dark grey Clay	Dark grey, grey, firm, dense clay			- Wash	Samples

(1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



DEPARTMENT OF PUBLIC WORKS
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NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: <u>FTC - upgrade at source</u>		WELL DATA		G W READING (1)			
DATE PREPARED: <u>9/21/05</u>	BY: <u>M. Flaherty</u>	HOLE DIAM. (IN.)	<u>7 7/8</u>	DATE	DTW	MP(2)	ELEV. W.T.
WELL NO: <u>DBV-1C</u>		FINAL DEPTH (FT.)	<u>300 ft.</u>				
LOCATION: <u>Old Bethpage Village (S)</u>		CASING DIAM. (IN.)	<u>4</u>				
M.P. ELEVATION: <u>approx. 148 ft. (msl)</u>		CASING LENGTH (FT.)	<u>255 ft.</u>				
DRILLING STARTED: <u>8/16/05</u>	ENDED: <u>8/23/05</u>	SCREEN SETTING (FT.)	<u>255-275</u>				
DRILLER: <u>Keith Conin, Delta Well</u>		SCREEN SLOT & TYPE	<u>10 slot (SS)</u>				
TYPE OF RIG: <u>Mud Rotary</u>		WELL STATUS	<u>Monitoring</u>				
PAGE: <u>2</u>	OF: <u>5</u>	SAMPLER		DEVELOPMENT			
		TYPE: <u>split spoon</u>		<u>high capacity - air lift</u>			
		HAMMER: <u>150</u> LB.					
		FALL: <u>sampling 34 1/2</u> IN.					

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
70	Grey Clay Tan sand and clay	- driller reports formation change @ 66 ft. Tan sand, alternating with Tan clay soft.			wash	Samples -
80	Tan Sand	Tan, fine-medium grained quartz sand, micaceous				
90	Tan Sand	Tan, fine-medium grained quartz sand	1	10"	88-90	-
100	Tan Sand	Tan, Buff, fine-medium, well sorted, subangular-subround quartz sand in a non-silty matrix.				
110	Tan Sand	Tan, Buff, fine-medium, well sorted, subangular-subround, quartz sand,				
120	Tan Sand	Tan, Buff, fine-medium, well sorted, subangular-subround quartz sand, some silty fine-very fine well sorted quartz sand	2	10"	118-120	-

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
(2) FROM TOP OF PVC CASING



DEPARTMENT OF PUBLIC WORKS
DIVISION OF SANITATION & WATER SUPPLY
NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: FIC - Upgradient Source
 DATE PREPARED: 9/21/05 BY: M. Flaherty
 WELL NO: ORV-1C
 LOCATION: Old Bathpage Village (S)
 M.P. ELEVATION: approx. 148 ft. msl
 DRILLING STARTED: 8/14/05 ENDED: 8/23/05
 DRILLER: Kathy Corin - Delta Well
 TYPE OF RIG: Mud Rotary
 PAGE: 3 OF: 5

WELL DATA
 HOLE DIAM. (IN.) 7 1/8
 FINAL DEPTH (FT.) 300 ft.
 CASING DIAM. (IN.) 4 (PVC)
 CASING LENGTH (FT.) 255 ft.
 SCREEN SETTING (FT.) 255-275
 SCREEN SLOT & TYPE 1/8 slot (SS)
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW	MP(2)	ELEV.W.T

SAMPLER
 TYPE: split spoon
 HAMMER: 150 LB.
 FALL: Sampling Tools IN.

DEVELOPMENT
High capacity - air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
130	Tan Sand	Tan, fine-medium, well sorted, subangular-subround quartz sand, occasional thin clay layers				
140	Tan Sand					
150	Tan Sand (occ. silt)	Tan, Buff, multi-colored, fine-very fine, laminated quartz sand with silt.	3	24"	148-150	—
160						
170	Tan Sand (occ. silt)					
180	Tan Sand (occ. silt)	fine-medium, well quartz sand with white, grey, Buff very fine silty quartz sand	4	10"	178-180	—

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



DEPARTMENT OF PUBLIC WORKS
DIVISION OF SANITATION & WATER SUPPLY
NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: FTC - upgraded Source

DATE PREPARED: 9/21/05 BY: M. Flaherty

WELL NO: OBV-1C

LOCATION: Old Bethpage Village (G)

M.P. ELEVATION: approx. 148 ft. msl

DRILLING STARTED: 8/14/05 ENDED: 8/23/05

DRILLER: Keith Conin, Delta Well

TYPE OF RIG: Mod Rotary

PAGE: 4 OF: 5

WELL DATA

HOLE DIAM. (IN.) 7 7/8

FINAL DEPTH (FT.) 300

CASING DIAM. (IN.) 4 (PVC)

CASING LENGTH (FT.) 255

SCREEN SETTING (FT.) 255-275

SCREEN SLOT & TYPE 10 slot (SS)

WELL STATUS Monitoring

G W READING (1)

DATE | DTW MP(2) | ELEV.W.1

SAMPLER

TYPE: Split Spoon

HAMMER: 150 LB.

FALL: Sampling Jars IN.

DEVELOPMENT

High Capacity - air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
190	Brown Sand	Tan, Brown, fine-medium, well sorted, subangular-subround quartz sand, some silty.				
200	Brown Sand	Brown, Buff, fine-medium, some very fine, well sorted, micaceous, sub-angular-subround quartz sand.				
210	Grey Clay	Grey, Buff, silty soft clay, thin limonite (oxidized band @ 210 ft.)	5	14"	208-210	—
220	Sand and Clay	Tan, Grey, clay with/alternating layers of Tan, fine-medium sand.				
230	Tan Sand					
240	Brown "hard pan"	Tan, fine-medium, fine-medium, some very fine, well sorted subangular-subround quartz sand (tight) oxidized @ 240 ft.				
	Tan Sand					
				20"	238-240	—

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
(2) FROM TOP OF PVC CASING



DEPARTMENT OF PUBLIC WORKS
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NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: Fire Upgraded Source
 DATE PREPARED: 7/21/05 BY: M. Flaherty
 WELL NO: OBV-1C
 LOCATION: Old Bethpage Village (S)
 M.P. ELEVATION: approx. 148 msl
 DRILLING STARTED: 8/16/05 ENDED: 8/23/05
 DRILLER: Keith Cronin - Delta Well
 TYPE OF RIG: Mud Rotary
 PAGE: 5 OF: 5

WELL DATA
 HOLE DIAM. (IN.) 7 7/8
 FINAL DEPTH (FT.) 300
 CASING DIAM. (IN.) 4 (PVC)
 CASING LENGTH (FT.) 255
 SCREEN SETTING (FT.) 255-275
 SCREEN SLOT & TYPE 1/8 slot (SS)
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW	MP(2)	ELEV. W.1

SAMPLER
 TYPE: SPLIT SPOON
 HAMMER: 150 LB.
 FALL: Safety Jaws IN.

DEVELOPMENT
High capacity air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
250	Brown "hard Pan"	Brown, dense, oxidized sand layers - <u>very hard drilling</u>				
260	Tan Sand					
270		Tan, cream, buff, fine-medium, well sorted, subangular-subround, micaceous quartz sand, some silt	7	24"	268-270	—
280	Multi-Clay					
290	Multi-Colored Silty Sand	(T) 12" multi-colored, finely laminated silt, 8" multi-colored, finely laminated clay, with carbonized "vugs" (B) 4" multi-colored, fine-very fine laminated quartz sand with some silt				
300	Silty Clay TD=300ft.	Green, Gray, Buff, multi-colored, micaceous, fine-very fine quartz sand with alternating layers of silt 4" mottled grey-orange clay	9	24"	298-300	—

(1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



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NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: FTC Upgrade of Source(s)
 DATE PREPARED: 11/10/05 BY: M. Flaherty
 WELL NO: BP-15B
 LOCATION: Bethpage St. Park (#13green)
 M.P. ELEVATION: approx. 98 ft. msl
 DRILLING STARTED: 10/7/05 ENDED: 10/12/05
 DRILLER: C. Stiebel, Delta Well and Pump
 TYPE OF RIG: Mud Rotary
 PAGE: 1 OF: 1

WELL DATA
 HOLE DIAM. (IN.) 7 7/8
 FINAL DEPTH (FT.) 235
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 210
 SCREEN SETTING (FT.) 210-230
 SCREEN SLOT & TYPE 1/2" slot SI
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW MP(2)	ELEV. W.T.

SAMPLER
 TYPE: split spoon
 HAMMER: LB.
 FALL: Sampling Jolt IN.

DEVELOPMENT
Air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS

Note: well installed to

 Total Depth (TD) using
 lithologic and geophysical
 data collected while drilling
BP-15C.

(1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



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NASSAU COUNTY, NEW YORK



WELL LOG

PROJECT: Frc Upgradient Sources

DATE PREPARED: 11/10/05 BY: M. Flaherty

WELL NO: BP-15C

LOCATION: Bethpage St. Park #13 gtea

M.P. ELEVATION: approx. 98 ft. msl

DRILLING STARTED: 10/10/05 ENDED: 10/16/05

DRILLER: C. Stedel, Delta Well & Pump

TYPE OF RIG: Mud Rotary

PAGE: 1 OF: 6

WELL DATA

HOLE DIAM. (IN.) 1 1/8
FINAL DEPTH (FT.) 330 (58.5')
CASING DIAM. (IN.) 4
CASING LENGTH (FT.) 255
SCREEN SETTING (FT.) 255-295
SCREEN SLOT & TYPE 10 slot SS
WELL STATUS Maintaining

G W READING (1)

DATE	DTW MP(2)	ELEV. W.T.

SAMPLER

TYPE: split spoon
HAMMER: LB.
FALL: Sampling Jars IN.

DEVELOPMENT

Air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
0	Top Soil/loam	Tan, brown, dark brown loamy Top Soil				
10	Sand and Gravel	Tan, Brown, medium-coarse quartz sand with assorted gravel, granules some cobbles. (Trace orange clay) <u>from wash samples.</u>				
20						
30	Orange Clay	orange, firm clay, some tan. <u>from wash samples</u>				
40	Tan Sand	fine-medium, well sorted, subangular-subround quartz sand.				
50		Tan, dense, silty firm clay (2 in. recovery in drive shoe).	1	2"	43-45	—
60	Tan Sand	Tan, fine-medium, well sorted, subangular-subround quartz sand.				

(1) IN FEET RELATIVE TO A COMMON DATUM
(2) FROM TOP OF PVC CASING



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WELL LOG

PROJECT: FTC - upgradient source
 DATE PREPARED: 11/10/05 BY: M. Flaherty
 WELL NO: BP-15c
 LOCATION: Bethpage St. Park
 M.P. ELEVATION: approx. 98 ft. nsl
 DRILLING STARTED: 10/3/05 ENDED: 10/6/05
 DRILLER: C. Stebel, Delta Well & Pump
 TYPE OF RIG: Mud Rotary
 PAGE: 2 OF: 6

WELL DATA
 HOLE DIAM. (IN.) 7 7/8
 FINAL DEPTH (FT.) 330 (58 ft. Sand)
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 255
 SCREEN SETTING (FT.) 255-295
 SCREEN SLOT & TYPE 10 slot (S)
 WELL STATUS Monitoring

G W READING (1)		
DATE	DTW MP(2)	ELEV. W.T

SAMPLER
 TYPE: Split Spoon
 HAMMER: LB.
 FALL: Sampling Jars IN.

DEVELOPMENT
Air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
70	Tan Sand	Tan, cream, fine-medium, well sorted subangular-subround quartz sand (Clean, non-silty matrix). Sample saturated	2	6"	73-75 ft.	—
90	Tan Sand					
100	Tan Sand	Tan, Buff, pink, multi-colored, banded, medium-coarse, some very coarse, subround quartz sand, some micaceous (biotite), trace lignite, some oxidized layers.	3	8"	102-105 ft.	—
110	Tan Sand (sm silty)					
120						

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



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WELL LOG

PROJECT: FTC - Upgrade Sources

DATE PREPARED: 11/10/05 BY: M. Flaherty

WELL NO: BP-15c

LOCATION: Bethpage St. Park

M.P. ELEVATION: approx. 98 ft. msl

DRILLING STARTED: 10/2/05 ENDED: 10/6/05

DRILLER: C. Strehel, Delta Well & Pump

TYPE OF RIG: mud rotary

PAGE: 3 OF: 6

WELL DATA

HOLE DIAM. (IN.) 7 7/8
FINAL DEPTH (FT.) 350 (5ft. Surf)
CASING DIAM. (IN.) 4
CASING LENGTH FT.) 255
SCREEN SETTING (FT.) 255-295
SCREEN SLOT & TYPE 1/8 slot (S)
WELL STATUS Monitoring

G W READING (1)

DATE	DTW MP(2)	ELEV. W.T

SAMPLER

TYPE: split spoon
HAMMER: LB.
FALL: Sampling Jars IN.

DEVELOPMENT

Air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
130	Tan Silty Sand	(T) 8" Tan, Buff, medium grained, well sorted, subangular-subround quartz sand banded w/tr. silt. 8" Cream, Buff fine-medium, well sorted, subangular-subround quartz sand, very clean matrix. (B) 4" Tan, Buff, silty, fine, well sorted quartz sand. 2" soft, buff clay, 2" orange-buff well sorted, subangular-subround quartz sand.	4	24"	133-135	—
140	Tan Sand (sm silty)					
150						
160	Tan-Brown Clay	(T) 8" Tan, firm clay w/some finely laminated silty sand 4" Grey, fine-very fine, well sorted micaceous silty sand (B) 8" Tan, Brown, firm clay 4" Tan, Brown clay with finely laminated	5	24"	163-165	—
170						
180	Tan Sand (sm silty)					

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
(2) FROM TOP OF PVC CASING



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WELL LOG

PROJECT: Frc - Upgradient Source(s)
 DATE PREPARED: 11/10/05 BY: M. Flaherty
 WELL NO: BP-15C
 LOCATION: Bethpage St. Park
 M.P. ELEVATION: Approx. 98 ft. MSL
 DRILLING STARTED: 10/3/05 ENDED: 10/6/05
 DRILLER: C. Stebb, Delta Well & Pump
 TYPE OF RIG: Mud Rotary
 PAGE: 4 OF: 6

WELL DATA
 HOLE DIAM. (IN.) 7/8
 FINAL DEPTH (FT.) 330 (SP. Sup)
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 255
 SCREEN SETTING (FT.) 255-295
 SCREEN SLOT & TYPE 10/64 (S)
 WELL STATUS Monitoring

G W READING (1)			
DATE	DTW	MP(2)	ELEV. W.T

SAMPLER
 TYPE: Split Spoon
 HAMMER: LB.
 FALL: Sampling Jaws IN.

DEVELOPMENT
Air lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
190	Grey Sand	Grey, Buff, fine-medium grained, well sorted, subangular-subround, micaceous quartz sand, trace silt	6	24"	193-195	—
210	Grey Clay	(T) 6" orange buff, fine, silty quartz sand, micaceous, 2" grey, tan, laminated clay, 5" tan, cream, fine-medium, well sorted quartz sand, 3" grey clay, soft w/ some fine sand	7	16"	208-210	—
230	Tan Sand (sm silt)	Tan, Buff, Grey, Green (multi), fine-very fine, well sorted quartz sand with alternating layers of micaceous silt, — ft.	8	24"	223-225	—
240	Tan Sand (sm silt)	Tan, Buff, fine-very fine, well sorted quartz sand, micaceous with large muscovite flakes, some silt, 1" tan soft clay @ bottom of core.	9	16"	238-240	—

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



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WELL LOG

PROJECT: FTC - Upgradient Sources
 DATE PREPARED: 11/10/05 BY: M. Flaherty
 WELL NO: BP-15c
 LOCATION: Bethpage St. Park
 M.P. ELEVATION: Approx. 98 ft. msl
 DRILLING STARTED: 10/3/05 ENDED: 10/6/05
 DRILLER: C. Stebel, Delta Well & Pump
 TYPE OF RIG: _____
 PAGE: 5 OF: 6

WELL DATA
 HOLE DIAM. (IN.) 7 1/4
 FINAL DEPTH (FT.) 330 (5th. sup)
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 255
 SCREEN SETTING (FT.) 255-295
 SCREEN SLOT & TYPE 10 slot (SS)
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW	MP(2)	ELEV. W.T

SAMPLER
 TYPE: split spoon
 HAMMER: _____ LB.
 FALL: Sampling Jars IN.

DEVELOPMENT
Air Lift.

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
250	Tan Sand					
260	Tan Sand	(T) 4" Red, orange, medium grained, well sorted, quartz sand, w/subangular clasts, some coarse 2" orange buff fine-medium moderately sorted quartz sand w/oxidized concretions (B) 8" Tan, buff, fine-very fine, well sorted quartz sand TRsilt	10	24"	268-270	—
280	Tan Sand					
290	Tan Sand					
300	Grey Clay (lignite)	Grey, Black, dense, lignitic clay (numerous large chunks), Bottom 2" Grey, Dark, fine-medium, well sorted quartz sand.	11	14"	298-300	—
310						

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING



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WELL LOG

PROJECT: FTC - Upgradient Sources
 DATE PREPARED: 11/10/05 BY: M. Flaherty
 WELL NO: BP-15c
 LOCATION: Delaney St. Park
 M.P. ELEVATION: approx. 98 ft.
 DRILLING STARTED: 10/5/05 ENDED: 10/6/05
 DRILLER: C. Strehel, Delta Well & Pump
 TYPE OF RIG: Mud Rotary
 PAGE: 6 OF: 6

WELL DATA
 HOLE DIAM. (IN.) 1 1/8
 FINAL DEPTH (FT.) 330 (SA. Log)
 CASING DIAM. (IN.) 4
 CASING LENGTH (FT.) 255
 SCREEN SETTING (FT.) 255-295
 SCREEN SLOT & TYPE 10 slot (SS)
 WELL STATUS Monitoring

G W READING (1)

DATE	DTW MP(2)	ELEV. W.T

SAMPLER
 TYPE: split spoon
 HAMMER: LB.
 FALL: Sampling Jar IN.

DEVELOPMENT
Air Lift

DEPTH (FT.)	LITHOLOGY	SAMPLE DESCRIPTION	SAMPLE			
			NO	REC.	DEPTH	BLOWS
320	Grey clay Grey Silt	Grey, dark grey, dense, hard tight clay.	12	12"	313-315	—
330	TD = 330 ft.	Grey, Black, banded, silt, Soft, some moisture in sample.	13	24"	328-330	—

NOTES: (1) IN FEET RELATIVE TO A COMMON DATUM
 (2) FROM TOP OF PVC CASING