Groundwater Investigation of Perfluorinated Compounds (PFCs), Air National Guard Base, Westhampton Beach

Suffolk County
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Assessment of Potential Impacts to Groundwater

- In response to the impacts identified at the Suffolk County Water Authority (SCWA) wellfields, the Suffolk County Department of Health Services (SCDHS) installed four (4) groundwater monitoring wells in June of 2016 within the vicinity of the Meetinghouse Road wellfield to help assess possible sources of the PFC detections. The monitoring wells were installed along South Country Road, south of the airport property and north of the Meeting House Road wellfield. (refer to Figure 1). Samples were collected by SCDHS staff and are in the process of being analyzed by the Public Environmental Health Laboratory (PEHL), except for the PFC compounds which were analyzed by the SCWA laboratory. The results of the PFC samples are shown in Table 2. The results of the other parameters being analyzed by PEHL could take up to 8 weeks for completion.

Well Installation Procedure

- The monitoring wells were installed using hollow stem augers.
- Wells were installed using virgin schedule 80 PVC flush fit pipe with a 5 foot screen and a five foot sump.
- Wells were dropped at depth and a sample was collected; wells were retracted 10 feet and sampled again. This procedure was repeated until the top of the water table was encountered.

Sampling Procedures

- A Teflon free peristaltic pump was used.
- Prior to sampling a pump blank was collected for PFC's and the results indicated no detections.
- Prior to sample collection at each profile level, at least three (3) or more casing volumes were pumped from the well. Also, field parameters such as temperature, pH, conductivity, DO and turbidity were monitored until the readings were stable.

Sample Analysis

- Samples were collected by SCDHS staff and delivered to the Suffolk County Water Authority (SCWA) laboratory for analysis of PFC's under USEPA Method 537. The SCWA is a NYS ELAP-approved lab.
- Samples were also collected by the SCDHS and analyzed for a variety of other parameters by SCDHS Public and Environmental Health Laboratory (PEHL), which is certified by the New York State Department of Health's (NYSDOH) Environmental Approval Program and the United States Environmental Protection Agency's (USEPA) National Environmental Laboratory Program. These include approximately 300 compounds using applicable USEPA or SCDHS methods, as appropriate. The analyte groups include: metals, volatile organic compounds, semi-volatile organic compounds, inorganic compounds, pesticides, and radionuclides. Refer to Table 1 below.

Table 1

Analysis	**Method**	**Analysis**	**Method**
Inorganics	EPA 300.0	Semi-volatile organics	EPA 525.2
Metals	EPA 200.8	Carbamates	SM 21 6610B
Volatile Organics	EPA 524.2	Herbicide metabolites	SCDHS LC/MS
Chlorinated pesticides	EPA 505	Dacthal metabolites	SCDHS HPLC/LC-UV
Microextractables	EPA 504.1		

Preliminary Results

- PFOA/PFOS were detected in three (3) of four (4) profile wells that were installed. Refer to Table 2 for the test results.

FIGURE 1


Gabreski Airport
PFC Investigation
July 2016
Gabreski Airport
Air National Guard
Former Fire Training Area
Approx Groundwater
Flow Direction
Suffolk County
Current Fire Training Area
MH-4
MH-3
MH-2
MH-1
Old Riverhead Rd
Depot Rd
Hazelwood Ave
Rogers Ave Ext
Rogers Ave
Peters Ln
Depot Rd
Hunters Path
S Country Rd
Old Meeting House Rd
Legend
SCDHS Profile Wells
0
500
US Survey feet

TABLE 2

Gabreski Airport Groundwater Investigation Profile Well Results for Perfluorinated Compounds								
Sample Information			Perfluorinated Compounds					
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	PFBS ug/l	PFHpA ug/l	PFHxS ug/l	PFNA ug/l	PFOA ug/l	PFOS ug/l
Drinking Water Standard Subpart 5-1 (MCL) ug/l			50	50	50	50	50	50
USEPA Health Advisory Level (HAL) ug/l			-	-	-	-	0.07	0.07
MH-1	20-25	7/7/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	30-35	7/7/2016	<0.050	<0.010	0.460	<0.020	<0.020	0.960
	40-45	7/6/2016	<0.050	<0.010	0.190	<0.020	<0.020	0.440
	50-55	7/6/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	60-65	7/6/2016	<0.050	<0.010	0.036	<0.020	<0.020	<0.040
	70-75	7/6/2016	<0.050	<0.010	0.036	<0.020	<0.020	<0.040
	80-85	7/5/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	90-95	7/5/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
MH-2	10-15	7/7/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	20-25	7/7/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	30-35	7/7/2016	<0.050	<0.010	0.074	<0.020	<0.020	0.120
	40-45	7/6/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	50-55	7/6/2016	<0.050	0.010	0.220	<0.020	<0.020	0.190
	60-65	7/6/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	70-75	7/6/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	80-85	7/5/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	90-95	7/5/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
MH-3	10-15	7/14/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	20-25	7/14/2016	<0.050	0.017	0.120	<0.020	<0.020	0.750
	30-35	7/13/2016	0.220	0.700	4.130	<0.020	0.780	14.300
	40-45	7/13/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	50-55	7/13/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	60-65	7/13/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	70-75	7/11/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	80-85	7/11/2016	<0.050	<0.010	<0.030	<0.020	<0.020	0.410
	90-95	7/7/2016	<0.050	<0.010	<0.030	<0.020	<0.020	0.170
MH-4	10-15	7/14/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	20-25	7/14/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	30-35	7/13/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	40-45	7/13/2016	<0.050	0.010	<0.030	<0.020	<0.020	<0.040
	50-55	7/13/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	60-65	7/12/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	70-75	7/12/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040
	80-85	-	N/S					
	90-95	7/11/2016	<0.050	<0.010	<0.030	<0.020	<0.020	<0.040

Concentration Exeeds HAL
N/S - No Sample
< = "less than"