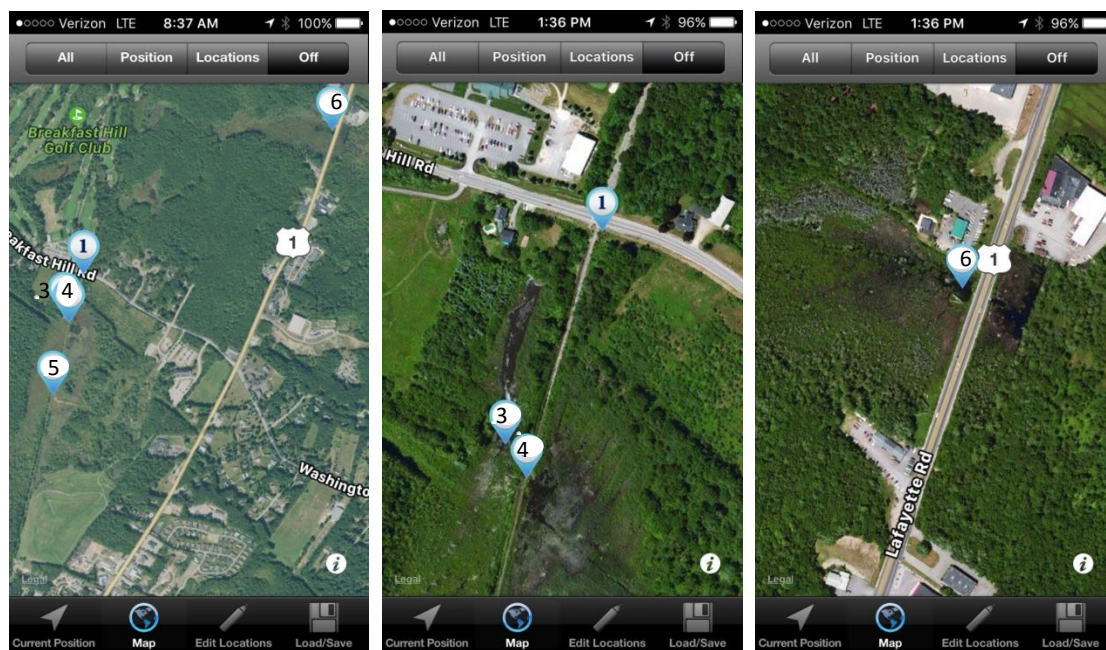


**Berry's Brook Surface Water**  
**Sampling Techniques, Observations and Results**  
By New Hampshire Department of Environmental Services  
December 20, 2016  
Greenland, New Hampshire

On December 20, 2016 Steve Roy of the NHDES Water Division and Drew Hoffman of the NHDES Waste Management Division sampled five surface water stations along Berry's Brook in Greenland and Rye, NH. Samples were collected for analysis of perfluorinated sulfonic and carboxylic acids (PFCs) per EPA Method 537M and 1,4-dioxane per EPA Method 522. PFC samples were collected into two, non-preserved, 250 milliliter polypropylene bottles. 1,4-Dioxane samples were collected into one 1-liter amber glass bottles preserved with sodium bisulfate ( $\text{NaHSO}_4$ ). A summary of sample locations are shown in the photos and table below:



**Table 1 – Station Information**

Location (see photos above)	Sample ID	Northing	Easting	Comment
1	CLK-SW10	43.010632	-70.815692	Surface water sample collected
3	CLK-SW11	43.008909	-70.816769	Surface water sample collected
4	CLK-SW12	43.008638	-70.816530	Surface water sample collected
5	CLK-SW13	43.005673	-70.817440	Surface water sample collected
6	CLK-SW14	43.016533	-70.801755	Surface water sample collected

#### Location 1 – CLK-SW10

Three culverts converge at this sampling location. Only one culvert appeared to be conveying a sufficient volume of water to keep the water surface relatively ice free. There had been recent precipitation (0.4 inches of rain on 12/18) in the days prior to sampling causing overland flow between area wetlands. Both standard and duplicate samples were collected from this location (Photos 4 & 5 below). Photo 5 demonstrates sampling technique for PFC sample collection. Photo 6 shows sampling technique for 1,4-dioxane sample collection (note use of designated sterile bottle for transfer of water to preserved sample bottle). A field duplicate was also prepared at this location by pouring lab-supplied deionized water from transport container to sample containers (Photo 7).



Photo 4



Photo 5



Photo 6



Photo 7



Location 4 – CLK-SW11

Sample collected from ponded wetland to the west of the former railroad tracks and several hundred yards south of CLK\_SW10. Several inches of ice were removed using a steel ice chisel.



Photo 8



Photo 9

Location 5 – CLK-SW12

Sample collected from ponded wetland to the east of the former railroad tracks opposite of CLK\_SW11. Minimal ice removal was required.



Photo 10



Photo 11

Location 6 – CLK-SW13

Sample collected from ponded wetland to the east of the former railroad tracks. Approximately six inches of ice had to be removed using a steel ice chisel prior to sample collection.



Photo 12



Photo 13



Photo 14

Location 7 – CLK-SW14

Sample collected from ponded wetland to the west of Lafayette Road. Approximately six inches of ice had to be removed using a steel ice chisel prior to sample collection.



Photo 15



Photo 16



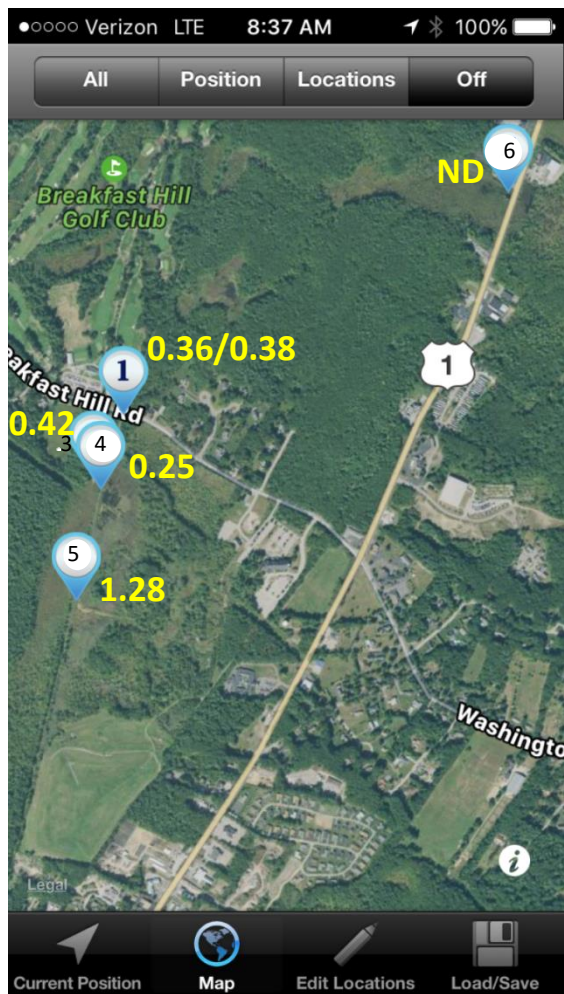
Table 2 – Analytical Data Summary by Station

Location	Sample ID	1,4-Dioxane (1) results (ug/L)	PFOA & PFOS(2) results (ng/L)
1	CLK-SW10	0.36/0.38 (dup)	297/308 (dup)
3 (located near 4)	CLK-SW11	0.42	311
4	CLK-SW12	0.25	410
5	CLK-SW13	1.28	1250
6	CLK-SW14	ND (0.20)	90

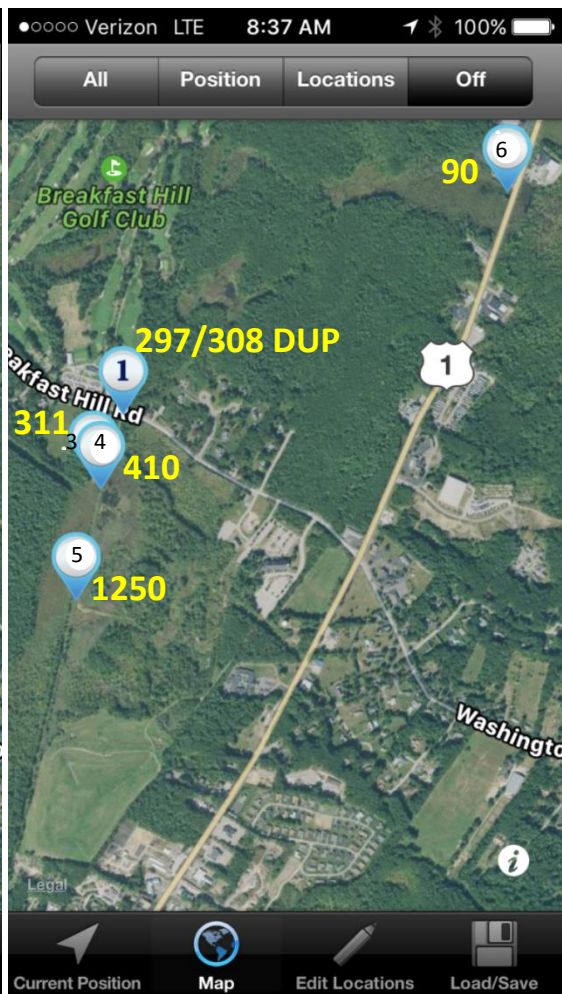
1. Although not an applicable comparison, ambient Groundwater Quality Standard is 3 parts-per-billion for 1,4-dioxane.

2. Although not an applicable comparison, ambient Groundwater Quality Standard is 70 parts-parts-per-trillion for each or combined total of PFOA/PFOS.

ND = not detected at or above the reporting limit of 0.20 ug/L.



Map showing 1,4-dioxane results (ug/L)



Map showing PFOA+PFOS results (ng/L)