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21 October 2009
ECC Job No. 5564.001

TO: Mr. Todd Bober, RPM

LOCATION: BRAC PMO NE

FROM: Bob Phinney, Plant Operator

LOCATION: ECC–NAS Brunswick

SUBJECT: Monthly Operations Report for 1-30 September 2009
Groundwater Extraction and Treatment System, Building 50
Naval Air Station Brunswick, Maine
Contract No. N40085-09-D-7035, Task Order No. 0002

The following is the September 2009 monthly operations report for the Groundwater Extraction and Treatment System (GWETS) located at Naval Air Station Brunswick, Maine. In accordance with the EW-05B Memorandum submitted to EPA and MEDEP on 11 September 2009 and with approval of the Brunswick Sewer District (authorization letter dated 4 September 2009), the GWETS effluent was re-directed to the Brunswick Sewer District collection system starting on 30 September 2009. It is anticipated that discharge to the Brunswick Sewer District will cease (i.e., the GWETS effluent will again be discharged to the on-site infiltration gallery) in late October 2009 following activation and prove-out of the HiPOx 1,4-Dioxane treatment system.

Table 1 summarizes the GWETS process flow data and results of the daily in-plant water quality analysis. Table 2 provides a summary of daily individual extraction well pumping performance as well as monthly pumping efficiency during the reporting period. Table 3 provides the monthly laboratory analytical results for the Eastern Plume influent and GWETS effluent samples.

The GWETS treatment plant was operational for 99.25 % of the available hours during September 2009. Well performance based on extraction wells EW-01, EW-02A, and EW-04 (EW-05A was not active) was 91.6%. There were four operational interruptions or corrective actions necessary to restore plant operations during September 2009 due to start-up of EW-05B. Downtime occurred on 17 September 2009 for 0.1 hours, 18 September 2009 for 1.4 hours, 28 September 2009 for 3.1 hours, and 29 September 2009 for 0.8 hours.

All nine infiltration gallery sub-distribution cells were receiving GWETS effluent until 30 September 2009 when treated effluent was re-directed to the Brunswick Sewer District.

The combined treatment plant influent flow from Eastern Plume groundwater extraction wells EW-01, EW-02A, EW-04, and EW-05B averaged approximately 45 gpm through 30 September 2009.

Activities performed during September 2009 included:

- Performed routine cleaning, calibration, and equipment maintenance activities;
- Prepared and submitted monthly operations report;
- Performed Monthly Safety inspections of fire extinguishers and building equipment;
- Conducted monthly sampling;
- Performed Long-Term Monitoring Gauging;
- Installed cement pads for HiPOx equipment skids;
- Performed a test run on EW-05B, 28 and 30 September 2009 for total of 19 hours;
- Modified plant influent piping into equalization tank and installed tank cover (installed 3-inch Sch. 80 PVC drop tube to bring influent discharge point below active water surface and installed a polypropylene cover to minimize volatilization during tank filling and prevent fugitive emissions, respectively).
- Cleared blockage in line between EW-05 and plant. It is believed that the debris in the return line from extraction wells EW-05A/EW-05B accumulated during the period when EW-05A was operating at or near 1.0 gpm, insufficient flow velocity to prevent sedimentation within the return line. This problem is not expected to occur during operation of EW-05B, currently running at approximately 20 gpm.
- Began GWETS process and piping modifications necessary for installation of HiPOx system. Modifications included piping modifications and cleaning of Tank No. 1 for use as the HiPOx feed tank, preliminary SCADA programming for HiPOx input/output and control signals, and clearance of 3-inch Sch. 80 PVC pipe run areas for HiPOx influent and effluent lines.
- Re-directed GWETS effluent to Brunswick Sewer District on 30 September 2009.

I certify by my signature affixed that I have personally examined the information contained herein, and based on my inquiry of those individuals immediately responsible for obtaining and providing the information, I further certify that the information contained herein is true, accurate, and complete.



Robert Phinney
MEDEP Wastewater Operator No. 626

21 October 2009

Date

cc: BRAC PMO NE (P. Burgio)
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Table 1
Summary of Treatment System
Process Flow and In-Plant Water Quality
Groundwater Extraction and Treatment System (Building 50)
Naval Air Station Brunswick, Maine

Date	Turbidity	Daily Flow (a)	pH
Sep-09	NTU	Gallons	Standard Units
1	0.25	51,416	6.48
2	0.21	51,418	6.50
3	0.43	51,252	6.49
4	0.37	51,321	6.49
5	(b)	51,150	6.52
6	(b)	51,076	6.50
7	(b)	50,998	6.49
8	0.17	50,944	6.49
9	0.17	51,360	6.49
10	0.15	50,856	6.49
11	0.17	50,687	6.53
12	(b)	50,672	6.50
13	(b)	50,522	6.48
14	0.11	50,523	6.50
15	0.09	50,397	6.50
16	0.07	50,544	6.53
17	0.14	50,693	6.50
18	0.16	49,628	6.55
19	(b)	50,314	6.56
20	(b)	49,628	6.55
21	0.1	51,234	6.53
22	0.07	50,818	6.52
23	0.06	50,771	6.48
24	0.8	50,605	6.52
25	0.11	50,000	6.50
26	(b)	50,628	6.52
27	(b)	50,313	6.53
28	0.21	50,083	6.50
29	0.13	48,742	6.51
30	0.37	71,600	6.55
Monthly Average pH (standard units) 6.51			
Monthly Process Flow Total (gallons) 1,540,187			
Monthly VOCs Removed (pounds) 0.96 lbs ^(c)			
Notes:			
(a) Daily flow estimated on pump run times and flow history.			
(b) Weekend/Holiday/Operator not present.			
(c) Based on most recent quarterly composite influent VOC sample (1 July 2009, Tot. VOC Conc. = 74.3 ug/L).			

Table 2
Summary of Extraction Well Performance
Groundwater Extraction and Treatment System (Building 50)
Naval Air Station Brunswick, Maine

DATE September 2009 Day	EW-01			EW-02A			EW-04			EW-05B		
	Flow Rate GPM	Run Time Hours	Total Pumpage Gallons									
1	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.3			
2	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.0			
3	10.0	24.0	14,390.2	15.0	24.0	21,585.3	18.0	24.0	25,902.3			
4	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.0			
5	10.0	24.0	14,390.2	15.0	24.0	21,585.3	18.0	24.0	25,902.3			
6	10.0	24.0	14,388.8	16.0	24.0	23,022.1	18.0	24.0	25,900.2			
7	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
8	10.0	24.0	14,390.3	16.0	24.0	23,024.5	18.0	24.0	25,902.6			
9	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
10	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
11	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
12	10.0	24.0	14,390.3	16.0	24.0	23,024.5	18.0	24.0	25,902.6			
13	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
14	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
15	10.0	24.0	14,390.3	16.0	24.0	23,024.5	18.0	24.0	25,902.6			
16	10.0	24.0	14,390.2	16.0	24.0	23,024.3	18.0	24.0	25,902.3			
17	10.0	23.9	14,367.3	16.0	23.9	22,985.1	18.0	23.9	25,857.0			
18	10.0	22.6	13,559.7	16.0	22.6	21,655.7	18.0	22.6	24,363.6			
19	10.0	24.0	14,388.5	16.0	24.0	23,021.6	18.0	24.0	25,899.3			
20	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.0			
21	10.0	24.0	14,387.5	15.0	24.0	21,581.3	18.0	24.0	25,897.8			
22	10.0	24.0	14,375.7	15.0	24.0	21,563.5	18.0	24.0	25,876.2			
23	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.0			
24	10.0	24.0	14,390.0	16.0	24.0	23,024.0	18.0	24.0	25,902.3			
25	10.0	24.0	14,389.8	16.0	24.0	23,023.7	17.0	24.0	24,463.0			
26	10.0	24.0	14,390.0	16.0	24.0	23,024.0	17.0	24.0	24,463.0			
27	10.0	24.0	14,385.8	16.0	24.0	23,017.3	18.0	24.0	25,894.5			
28	10.0	20.9	12,529.5	16.0	20.9	20,050.1	17.0	20.9	21,302.7	16.0	2.5	2,400.0
29	10.0	23.2	13,890.8	16.0	23.2	22,225.3	18.0	23.2	25,002.9			
30	10.0	24.0	14,390.0	15.0	24.0	21,585.0	18.0	24.0	25,902.0	16.0	16.5	15,840.0
31												
TOTALS		714.11	428,466		714.07	678,313		714.07	767,063		19.00	18,240

EXPECTED WELL GPM	10.0	15.0	25.0	7.0
EFFECTIVENESS OF WELL	99.2%	104.7%	71.0%	NA
MONTHLY AVERAGE GPM	10.0	15.8	17.9	NA

PERFORMANCE BASED ON WELL SYSTEM CAPACITY (all four wells): 91.6%

Table 3
Summary of Analytical Results
Treatment System Influent and Effluent
Samples Collected on 1 September 2009
Groundwater Extraction and Treatment System (Building 50)
Naval Air Station Brunswick, Maine

Parameter ^(a)	Method	Result	Treatment Plant Duplicate	Discharge Limit ^(b)	MEG (ppb)	MCL (ppb)
EASTERN PLUME INFLUENT						
1,1,1-Trichloroethane	EPA8260B	NS	NR	NA	200	200
1,1-Dichloroethane	EPA8260B	NS	NR	NA	70	NA
1,1-Dichloroethene	EPA8260B	NS	NR	NA	0.6	7
<i>cis</i> -1,2-Dichloroethene	EPA8260B	NS	NR	NA	70	70
<i>trans</i> -1,2-Dichloroethene	EPA8260B	NS	NR	NA	140	100
Methylene chloride	EPA8260B	NS	NR	NA	47	5
Tetrachloroethene	EPA8260B	NS	NR	NA	7	5
Trichloroethene	EPA8260B	NS	NR	NA	32	5
Vinyl chloride	EPA8260B	NS	NR	NA	0.2	2
1,4-Dioxane	EPA8260B/SIM	5.4	NR	NA	32	NA
Arsenic, Total	EPA6010B	NS	NR	NA	10	10
Iron, Total	EPA6010B	NS	NR	NA	NA	NA
Manganese, Total	EPA6010B	NS	NR	NA	500	NA
TREATMENT PLANT EFFLUENT						
Arsenic, Total	EPA6010B	NS	NS	50	10	10
Chromium, Total	EPA6010B	NS	NS	10	40	100
Cyanide, Total	EPA9010	NS	NS	34	140	200
Nickel, Total	EPA6010B	NS	NS	78	140	100*
Lead, Total	EPA6010B	NS	NS	15	10	15
Zinc, Total	EPA6010B	NS	NS	200	2,000	2,000*
Iron, Total	EPA6010B	NS	NS	NA	NA	NA
Manganese, Total	EPA6010B	NS	NS	NA	500	NA
1,1,1-Trichloroethane	EPA8260B	NS	NS	750	200	200
1,1-Dichloroethane	EPA8260B	NS	NS	94	70	NA
1,1-Dichloroethene	EPA8260B	NS	NS	7	0.6	7
<i>cis</i> -1,2-Dichloroethene	EPA8260B	NS	NS	70 ^(c)	70	70
<i>trans</i> -1,2-Dichloroethene	EPA8260B	NS	NS	--	140	100
Methylene chloride	EPA8260B	NS	NS	5	47	5
Tetrachloroethene	EPA8260B	NS	NS	5	7	5
Trichloroethene	EPA8260B	NS	NS	5	32	5
Vinyl chloride	EPA8260B	NS	NS	2	0.2	2
1,4-Dioxane	EPA8260B/SIM	4.7	4.7	NA	32	NA

(a) Results reported in µg/L.

(b) Maximum effluent discharge limit established by Brunswick Sewer District Draft Permit (September 2007).

(c) Combined 1,2-dichloroethane (*cis* and *trans*) not to exceed 70 µg/L.

* - EPA Health Advisory

NOTE: EPA = U.S. Environmental Protection Agency.

D = Analysis conducted at a secondary dilution factor.

NR = Analysis not required.

NA = Discharge limit applicable to treatment plant effluent only.

B = Compound also detected in associated method blank.

NS = Not Sampled

SIM = Selective Ion Monitoring

U = Not detected. Sample quantitation limits are shown as (<__U).

Trip blank (TP-169-QT1) results for EPA Method 8260B/SIM were non-detect.