RESPONSE TO COMMENTS
MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
DRAFT HiPOx PILOT STUDY WORKPLAN FOR THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, NAVAL AIR STATION BRUNSWICK, MAINE

Commentor: Claudia Sait, Remedial Project Manager	
Comment Issue Date: 10 September 2009	**Navy Response Date: 22 September 2009**

Pursuant to Section VI of the Naval Air Station, Brunswick, Maine Federal Facility Agreement (Oct 1990), as amended, the Maine Department of Environmental Protection (MEDEP) has reviewed the draft "HiPOx Study Workplan for the Groundwater Extraction and Treatment System", dated August 2009, prepared by ECC. Based on that review MEDEP has the following comments and issues.

GENERAL COMMENTS:

1. MEDEP has reviewed the Draft HiPOx Pilot Study Work Plan and has no reservations over the work proposed. The bench scale testing suggests that the HiPOx technology should successfully treat 1,4-dioxane at concentration expected in the Eastern Plume extraction system. The pilot study will enable the Naval Air Station, Brunswick to determine the optimal equipment configuration and dosing rates for full-scale operation, as well as evaluate whether the stripper can be removed from the treatment train. (No response required.)

   Response: Comment noted.

2. The pretreatment for metals removal is not proposed, and the existing equipment to accomplish this has been taken offline, apparently without adversely affecting the stripper or GAC treatment equipment. In MEDEP's experience, even low concentrations of dissolved iron or manganese in groundwater precipitate readily upon aeration and cause serious maintenance headaches. How has the Ground Water Treatment System plant avoided this problem?

   Response: Yes, we have had the same experience with low concentrations of iron and manganese. This is evidenced by the need to clean the GWETS air stripper 2 to 3 times per year to remove accumulated iron from the aeration trays. The plant also utilizes the green sand and bag filters to remove precipitated metals.

   The GWETS metals removal equipment is off-line, since this equipment was only required for the treatment of inorganics from extraction wells EW-06 and EW-07 at Sites 1&3 Landfill. These extraction wells were deactivated on 19 November 1997; therefore, the treatment for metals was no longer required.

3. To keep up with the progress of the work, MEDEP would like to be provided with brief weekly updates on the progress of the installation, pilot testing and prove out.

Response: Brief weekly email updates will be provided to all project stakeholders. We will begin these weekly updates at the end of the week of 25 September 2009.

4. Please add documentation from the Brunswick Sewer District agreeing to accept the prove-out water to the final work plan.

   Response: The Brunswick Sewer District's correspondence will be included as an attachment to the final work plan.

5. In the final pilot test report please include schematic drawings of the plant components showing active and inactive components and the flow of water and waste through the system.

   Response: The HiPOx Pilot Test Report will include these figures. In addition, please see response to comment No. 6 and these figures will also be included in the report.

SPECIFIC COMMENTS:

6. Sections 1.2.2 and 1.2.3 reference Figures 1-4 and 1-5, neither of which is included in the Work Plan. It appears Figure 3-1 shows the same schematic drawing. Please correct, as necessary.

   Response: Figures 1-3, 1-5, and 1-6 (GWETS flow chart figures) were not included in the draft work plan. In addition, Figure 1-3 was misidentified in the draft work plan and should have been referenced as Figure 1-4. The figure call outs in the work plan will be corrected in the final version. Flow chart figures 1-3, 1-5, and 1-6 are attached to this response to comment document for your review.

ATTACHMENTS

1. **Brunswick Sewer District Conditional Approval Letter**
2. **Work Plan Figures 1-3, 1-5, and 1-6**

Brunswick Sewer District

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04 September 2009

Environmental Department
Naval Air Station Brunswick
437 Huey Drive
Brunswick, Maine 04011

Attn: Mr. Walter A. Lach
Environmental Protection Specialist

Re: Extraction Well EW-05B Activation
Effluent Discharge to the Municipal Sanitary Sewer System

Subject: Authorization to Discharge

Dear Mr. Lach:

Based on the recommendation of our consultant following their review of the data provided to us in TABLE 1 – CONSERVATIVE ESTIMATE OF TREATED EFFLUENT AT 50-60 GPM FROM EXTRACTION WELLS EW-01; EW-02; EW-04; AND EW-05B GROUND-WATER EXTRACTION AND TREATMENT SYSTEM (BUILDING 50) NAVAL AIR STATION, BRUNSWICK, MAINE, attached herein and made part of this authorization, the Brunswick Sewer District is granting authorization to proceed with the proposed effluent discharge from the Ground-Water Extraction and Treatment System (GWETS) to the municipal sanitary sewer system per the:

- Quantity requested: 50-60 GPM;
- Time frame requested: 24 hours per day, for 2-3 weeks;
- And within the Discharge Limits indicated in Table 1.

This authorization to discharge is conditioned upon:

1. The District receiving confirmation, prior to commencement of discharge, that the following metals of concern do not exceed the District's effluent toxicity discharge limit as established by MeDEP, which limits have been provided to the US Navy's consultant ECC for review and report: aluminum, copper, mercury, silver, and selenium.

2. The District to be furnished timely all testing results derived from the HiPOx confirmatory samples collected during the HiPOx pilot testing conducted during the term of this authorization. It is our understanding that the sampling schedule will be daily for the first week, then weekly thereafter.

Yours,
BRUNSWICK SEWER DISTRICT

Leonard Blanchette
Assistant General Manager

Copy: Gregory H. Thulen, Treatment Operations Supervisor, Brunswick Sewer District

Encl. (1)

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TABLE 1

CONSERVATIVE ESTIMATE OF TREATED EFFLUENT WITH EXTRACTION WELLS EW-01; EW-02A; EW-04; AND EW-05B GROUND-WATER EXTRACTION AND TREATMENT SYSTEM (BUILDING 50) NAVAL AIR STATION, BRUNSWICK, MAINE

Parameter[a]	Method	Anticipated Range	Discharge Limit [b]	MEG (ppb)	MCL (ppb)
TREATMENT PLANT EFFLUENT					
Arsenic, Total	EPA6010B	1 - 3	50	10	10
Chromium, Total	EPA6010B	0.25 - 2	10	40	100
Cyanide, Total	EPA9010	0	34	140	200
Nickel, Total	EPA6010B	0.25 - 2	78	140	100*
Lead, Total	EPA6010B	0	15	10	15
Zinc, Total	EPA6010B	3 - 8	200	2,000	2,000*
Iron, Total	EPA6010B	2 - 8	NA	NA	NA
Manganese, Total	EPA6010B	0 - 2	NA	500	NA
1,1,1-Trichloroethane	EPA8260B	0	750	200	200
1,1-Dichloroethane	EPA8260B	0	94	70	NA
1,1-Dichloroethene	EPA8260B	0	7	0.6	7
cis-1,2-Dichloroethene	EPA8260B	0	70[c]	70	70
trans-1,2-Dichloroethene	EPA8260B	0	--	140	100
Methylene chloride	EPA8260B	0	5	NA	NA
Tetrachloroethene	EPA8260B	0	5	7	5
Trichloroethene	EPA8260B	0	5	32	5
Vinyl chloride	EPA8260B	0	2	0.2	2
1,4-Dioxane	EPA8260B/SIM	**20 - 50**	NA	32	NA

(a) Results reported in µg/L.
(b) Maximum effluent discharge limit established by Brunswick Sewer District Draft Permit (Dec. 1994).
(c) Combined 1, 2-dichloroethane (*cis* and *trans*) not to exceed 70 µg/L.
* - EPA Health Advisory
NOTE: EPA = U.S. Environmental Protection Agency.
NA = Discharge limit applicable to treatment plant effluent only.
SIM = Selective Ion Monitoring

FIGURE 1-3
GWETS with Air-Stripper and GAC

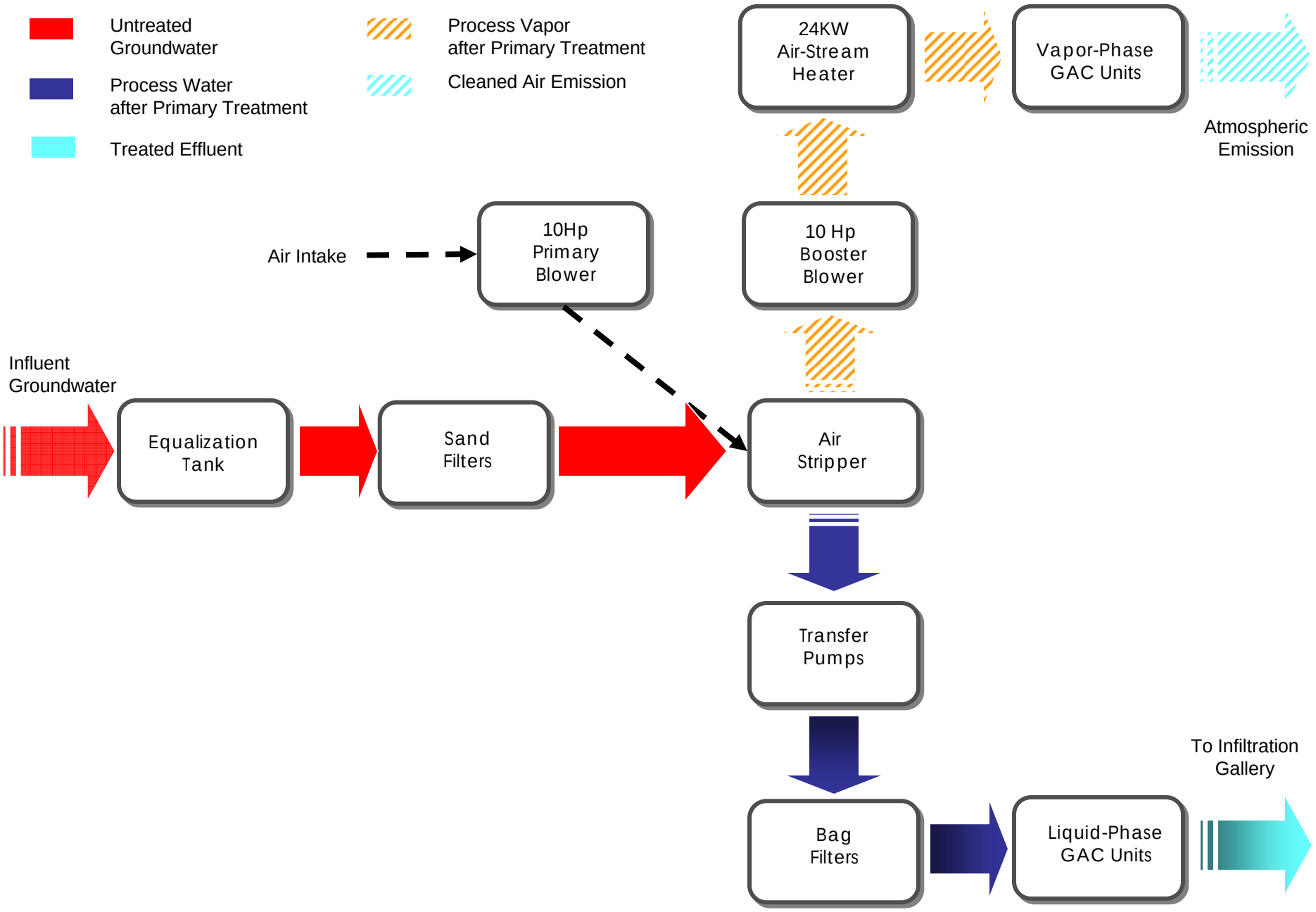

FIGURE 1-5
GWETS with HiPOx and Air-Stripper

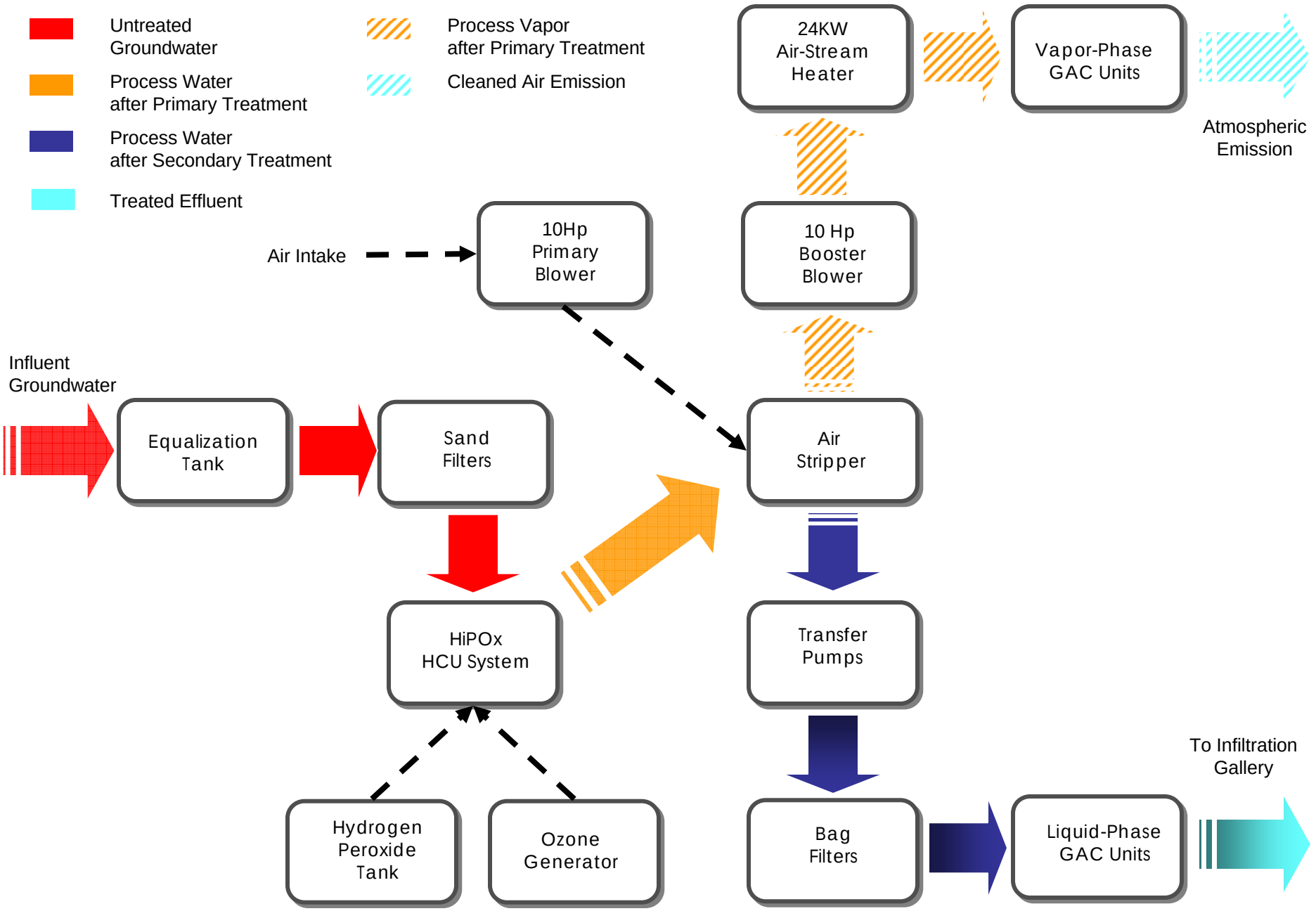

FIGURE 1-6
GWETS with HiPOx and Liquid-Phase GAC