EMAIL ONLY

January 17, 2017

Michael D. Cimis
Assistant Director of Environmental Health & Safety
Dartmouth College
37 Dewey Field Road, Suite 6216
Hanover, NH 03755

Subject: Hanover – Dartmouth College Rennie Farm Site, Hanover Center Road
DES Site #20111109, Project #27737

Remedial Design Plans and Construction Specifications Report, prepared by GZA GeoEnvironmental (GZA), dated December 2, 2016

Dear Mr. Cimis:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the above-referenced submittal for the Dartmouth College Rennie Farm site in Hanover, as recently submitted to NHDES by your environmental consultants, GZA. Based on our review, NHDES approves the remedial design plans and construction specifications as presented in the subject Report. The additional comments and information provided therein also adequately respond to NHDES’ prior questions and comments as provided in our September 27, 2016 letter.

Based on our review, we developed the following additional comments. As indicated below, please address these latest review comments via submittal of revised plans (for NHDES review and approval), or as part of preparation of the as-built plans to be prepared following final construction of the site groundwater treatment facility, as appropriate.

General Comments

- As previously discussed, based on the anticipated water quality characteristics of the boiler blowdown water as reported in the subject submittal, discharge of the blowdown to site groundwater via the proposed dry well is not permittable. Please revise the proposed management of this waste stream to preclude on-site discharge. As alternatives to on-site discharge, Dartmouth and GZA may wish to evaluate options for on-site treatment (to achieve water quality conditions comparable to site background groundwater quality) prior to discharge, or temporary containment and periodic off-site disposal to an appropriately-permitted facility. Please provide revised plans detailing the proposed approach for management of the boiler blowdown.

- The expected waste products section of the Report discusses the proposed use of liquid-phase granular activated carbon (LGAC) to adsorb the 1,4-dioxane resulting from the regeneration of the Ambersorb media. Please provide examples of projects where this method of extracting and storing 1,4-dioxane has been successfully used.
Groundwater Extraction and Treatment System Layout – GZA Sheets

Sheet 2:

- The arrow from the note that reads in part “Concrete pad foundations for propane tank, air dryer...” points to a Conex box without a concrete foundation. Please have the arrow point to one of the units that is intended to have a concrete foundation.

- The two infiltration beds appear to measure 25 ft. by 50 ft., resulting in an area of 1,250 square feet (sf) per bed and a total disposal area of 2,500 sf. The RAP calls for two beds each with an area of 2,500 sf, for a total area of 5,000 sf. Please explain why the area of the infiltration beds in the construction drawings is half that called for in the text of the RAP.

- Please provide the revised/final dimensions for the infiltration beds.

- Please provide a cross-section through the infiltration beds.

- Please provide dimensions of the stone equipment pad.

- The plan includes a general description of the treated groundwater effluent discharge outfall, but does not provide dimensions. Please provide dimensions for the discharge outfall.

- The plan does not show a detail for the proposed boiler blowdown dry well. If the revised approach for management of the boiler blowdown (noted above) includes a dry well, please provide a supporting detail. The note for the dry well calls for the dry well to be set in 1” of stone. Depending upon the volume of water per discharge cycle, this depth of stone appears to be inadequate for the volume to be disposed.

Sheet 3:

- Please provide a schedule for dimensions of concrete pads showing lengths and widths for each of the four equipment items requiring pads.

ECT2 Groundwater Treatment System Drawings

Sheet P-103:

- The plan shows groundwater from the recovery wells directed to bag filters. Sheet P-102 and GZA Sheet 3 show groundwater discharged to the groundwater influent equalization tank and from there pumped to the bag filters shown on that sheet. Please revise the drawings to be consistent.

- The plan shows the discharge line from the sump pump labeled as 18-P-111. Sheet P-111 shows this line labeled as 13-P-103. Please review and revise as necessary.

- The plan does not provide any instrumentation for the influent equalization tank; i.e., high water or low water alarm. Please explain.
In the responses to the NHDES’ prior comments as provided in the Report, it states “The sump pump is not needed and has been removed.” However, Sheet P-103 (and Sheet P-111) still show a sump pump. Please address.

Sheet P-106:

- The plan shows a single treated water tank, T-1300. Sheet 3 shows three treated water storage tanks. Please address this discrepancy.

- The plan shows a single effluent discharge line from the Treatment Conex. Sheet 2 shows two effluent lines to the infiltration beds, one to each bed, and a separate line to the outfall. Please revise the plan to show the three alternate discharge lines.

Sheet P-108:

- The plan shows the line from the softener regeneration to be shown on Sheet P-109; the label should reference Sheet P-107. Please revise.

Should you have any questions with regard to any of our comments as provided herein, please contact me directly at the NHDES’ Waste Management Division.

Sincerely,

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Attention Health Officer, Town of Hanover