The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Robert R. Scott, Commissioner

EMAIL ONLY

June 19, 2018

Maureen O'Leary, PhD
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 #**201111109**, Project #27737

Requested Sampling for PFAS, prepared by GZA GeoEnvironmental, Inc. (GZA), and dated June 11, 2018

Dear Dr. O'Leary:

The New Hampshire Department of Environmental Services (NHDES) has reviewed the above-referenced submittal, as prepared by Dartmouth's environmental consultants, GZA, and recently submitted to NHDES. The GZA submittal notes NHDES' May 18, 2017 and October 19, 2017 letters, wherein we required active hazardous waste sites such as the Rennie Farm site to complete an initial screening for the presence of per- and polyfluoroalkyl substances (PFAS) in groundwater. In the subject submittal, GZA renders the opinion that site conditions do not warrant any sampling of groundwater for PFAS analysis. In support of this opinion, GZA provided the following rationale:

- Review of inventories of materials disposal of by Dartmouth at the site do not include PFAS-related materials;
- PFAS-related materials are not known to have been used in activities related to the materials formerly disposed of at the site;
- Evidence of potential PFAS-related materials was not noted during the 2011 and 2016 waste excavations completed at the site, during which animal carcasses, laboratory containers, and contaminated soils were removed from the site; and,
- The groundwater sampling completed to date (which has not included testing for PFAS) has identified a 1,4-dioxane plume in groundwater with no indication of a multi-constituent contaminant source.

NHDES has reviewed the rationale provided by GZA in the subject submittal, and the relevant site data provided to NHDES relative to the prior waste removals and on-going groundwater monitoring, and prepared the response comments which follow below.

As "emerging contaminants," the awareness of PFAS as potential environmental contaminants of concern associated with waste disposal and other sites has only occurred within the last several years, following widely-reported PFAS investigations at sites in New York, Vermont, and southeastern New Hampshire. Given the era of active waste disposal at the Rennie Farm site (approximately 1966 to 1978), NHDES considers it extremely unlikely that the former operations would have been aware of PFAS, to the extent that specific PFAS constituents would have been noted on the prior waste inventories and related historical documentation. The laboratory containers and waste materials, as observed with the buried animal carcasses, were not expected based on the pre-excavation planning that preceded the initial (2011) waste removal operations at the site; nor was 1,4-dioxane identified as an anticipated site-related contaminant. These considerations appear to nullify an argument that no prior mention of PFAS in the historical documentation available for the site could suggest an absence of PFAS in the wastes disposed therein.

In the reports previously submitted to NHDES, the waste materials encountered have been described as including: *laboratory and chemical wastes, syringes, and plastic, glass and rusted metal containers (many broken) of various sizes*. Due to their properties to resist heat, oils, and water, PFAS are widely known to have been used in the formulation of many laboratory and common products, which may include:

- Teflon, Teflon coatings, and similar non-stick products;
- Low-friction, clot resistant coatings on needles, seals, and gaskets on medical equipment;
- Teflon or Teflon-containing chemical/medical containers, including Teflon septa.

Based on the considerations outlined above, NHDES concludes that the potential presence (or absence) of PFAS as a site-related contaminant can only be assessed via targeted groundwater sampling specific to these analytes, and thus we continue to require that Dartmouth complete an initial groundwater screening for PFAS. As part of this effort, please sample a representative number of upgradient/background, source-area, and downgradient groundwater monitoring locations. At a minimum, please analyze the site groundwater samples for at least the nine individual PFAS as listed in the current guidance from NHDES (link below), and ensure that all sampling protocols and analytical test methods are consistent with current recommendations from NHDES, which are available via the following link (under *PFAS in the Environment / Guidance for Waste Sites*):

https://www4.des.state.nh.us/nh-pfas-investigation/

Please note also that, along with the routine submittal of documents through the NHDES OneStop website, NHDES is requesting that all PFAS analytical results also be uploaded to the Environmental Monitoring Database (EMD). Storage of PFAS analytical data in the EMD allows NHDES to use geographic information systems (GIS) as part of our on-going, state-wide assessment of the data. Guidance for the EMD upload process can be found at:

https://www.des.nh.gov/organization/commissioner/documents/pfas-emd-guidance.pdf

If you have questions regarding our response comments, please contact me directly at NHDES' Waste Management Division.

Sincerely,

Waste Management Division

Digitally signed by Waste Management Division
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