BCM Environmental & Land Law, PLLC
Solutions for Northern New England

Via Email Only November 3, 2021
N.H. Department of Environmental Services, Solid Waste Division

Michael Wimsatt
michael.wimsatt@des.nh.gov

Jamie Colby
Jaime.M.Colby@des.nh.gov

Re: **NHDES File Number: 2021-52265 Solid Waste Standard Permit Application; Subject Property: Douglas Dr., Dalton, Tax Map #M405/406, Lot #33/ 1, 2.1, 2.3, 2.4, 2.5, 3 and Bethlehem Tax Map #406, Lot #1, 2 ("Application") Hydrogeological Comments from Calex Environmental, LLC**

Dear Director Wimsatt and Mr. Colby,

I write in continued representation of the North Country Alliance for Balanced Change. Attached you will find a letter from Muriel Robinette at Calex Environmental, LLC regarding the above-referenced application. Please make this letter and the attached letter from Calex a part of your record in this Application.

Thank you for your attention to this matter.

Very truly yours,

Amy Manzelli, Esq.
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Cc:
Clients
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Town of Carroll, selectmen@townofcarroll.org
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North Country Council, klamb@nccouncil.org; nccinc@nccouncil.org

November 02, 2021

BCM Environmental and Land Law, PLLC
3 Maple Street
Concord, New Hampshire 03301

Attn: Amy Manzelli, Esq.

SUBJECT: Hydrogeological Comments
Response to NHDES Incomplete Application (July 21, 2021) by GSL
regarding Standard Solid Waste Permit Application
Proposed Granite State Landfill – Phase I, Dalton, New Hampshire

Dear Attorney Manzelli,

Calex Environmental, LLC, (Calex), has reviewed the Response to NHDES Incomplete Application submitted July 21, 2021 regarding the Application for Standard Permit for Solid Waste Landfill (Phase I Landfill and Infrastructure Development) submitted by Granite State Landfill (GSL), (the Applicant) to the New Hampshire Department of Environmental Services (NHDES), herein referred to as the Response. In addition, Calex is aware of three meetings between DES and GSL that occurred after submittal of the Response (August 19, 2021; September 16, 2021 and October 1, 2021), the notes from which Calex has reviewed.

Background

The initial application by GSL for the Solid Waste permit (dated March 2021) relied upon a *Hydrogeological Report and Seismic Study* (Attachment V(4)), (*Hydrogeological Study*) which, in Calex's opinion, was very deficient in its hydrogeological analyses of both the landfill site and surrounding water resources that included wetlands, surface water and water supply wells. Calex's comments (dated May 26, 2021) on the initial application pointed out very specific omissions and deficiencies in the original hydrogeological study that required additional work in order for regulatory decisions to be made on comprehensive hydrogeological data.

Calex notes that the NHDES apparently saw the hydrogeological information in the initial application in much the same light and chose to deem it incomplete due to missing hydrogeological and other information (NHDES "Incomplete Application – Request for Additional Information" Letter dated June 1, 2021). GSL responded to the NHDES letter on July 21, 2021 (the Response).

Calex's comments regarding the hydrogeological deficiencies of the Response are provided below:

Comments on the Response

Calex's analysis of the Applicant's initial *Hydrogeological Study* and the Applicant's Response reveals major hydrogeological deficiencies in two significant areas:

- The *Hydrogeological Study* illustrated variable, and highly transmissive surficial bedrock conditions exhibiting downward hydraulic gradient conditions within the proposed footprint of the Phase I portion of the landfill. These site-specific hydraulic conditions are indicative of pathways into deeper bedrock flow systems. These pathways and systems are currently unidentified and uninvestigated at the site and vicinity, yet may serve as contaminant

migration pathways during landfill operations, not only from the landfilled area, but also from areas associated with the landfill operations, as acknowledged by the DES in its September 16, 2021 meeting notes. This significant deficiency of the hydrogeological understanding of the site means that a monitoring program for the Release Detection Permit would be inadequate and incomplete.

  - Env-Or 702.15 of the Release Detection Permit rules defines in the following manner - *"Potential receptor" means a living organism or an environmental medium that is in the pathway of contamination from a discharge.* The deep bedrock aquifer, which sources water to area wells and surface water resources, is a 'Potential Receptor' within the proposed landfill area and should be understood and appropriately monitored. This concern was also apparently discussed at the DES Sept 6, 2021 meeting, as reflected in note #6.

- The design of the initial hydrogeological study focused on shallow investigations (top 25' of the aquifer system), which provided no rationale for subsurface locations. This resulted in inadequate hydrogeological information for 1) landfill location and design purposes (e.g., located on water supplies; groundwater separation distances to liners) and 2) monitoring purposes of hydrogeological pathways to potential receptors, as required in the Release Detection Permit.

  - The Release Detection Permit rule (Env-Or 703.06 (c)(5)) requires *"Supporting hydrogeologic and groundwater quality information justifying the locations, frequency, and parameters selected"*. Neither the current *Hydrogeological Study* of the site, nor the proposed additional wells in the Response, evaluate the hydrogeology and interconnections of the shallow and deep bedrock aquifer system, and thus cannot provide suitable technical guidance for locating wells in the Release Detection system.

  - The Solid Waste Permit rule (Env-Sw 314.10(b)(3)c) requires that the Site Report include *"A discussion of any known or suspected conditions at the site which are or should be of environmental, public health or safety concern"*. Calex argues that the published identification of bedrock lineaments, measured highly transmissive shallow fractured bedrock zones and downward hydraulic gradients on site, all point to potential recharge to the regional deep bedrock aquifer system from the potential landfill area, all of which constitutes a suspected condition at the site which **is** of environmental and public health concern with so many surrounding water supply wells and water resources.

  - Env-Sw 314.10(b)(4) requires maps and narrative regarding the landfill and its potential impact on local area water supplies and surface water bodies, yet neither the *Hydrogeological Study* nor the Response's additional wells make any effort to collect data or understand the site's interconnections with area water supplies or water resources, instead only evaluating the top 25' of aquifer and ignoring any hydrogeological interconnections to the numerous and critical offsite resources.

  - Env-Sw 314.10(b)(5) requires that the *Hydrogeological Study* provide adequate data in support of the monitoring design for the Leak Detection Permit. These data

currently have not been provided, nor will be with the proposed 5 additional well couplet locations proposed in the Response.

The Applicant provided no additional hydrogeological data in their Response, but instead proposed to install 5 additional, shallow well couplets within the Phase I landfill area, including a schematic (Attachment 8 of the Response) showing locations. There was no rationale provided for the well locations, nor was there any proposed mapping or field work to strategically locate these wells, such as geophysical studies for locating bedrock topography or lineaments. DES notes from the October 1, 2021 meeting regarding bedrock investigations show that DES apparently questioned bedrock well siting rationale such that onsite mapping data (geophysical) will be collected and submitted. In summary, the proposed scope would certainly not provide adequate hydrogeological information to support the Release Detection Permit application, and is still inadequate to fill the data gaps in the landfill siting and design requirements.

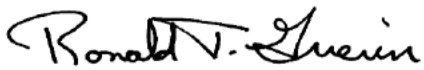
Summary and Conclusions

The July 21, 2021 Response from the Applicant does not provide any further hydrogeological data to fill data gaps regarding siting of the landfill in area of suspected characteristics that could impact environmental and public health conditions. Data are still lacking to demonstrate minimum separation requirements for liner installation or for design of a comprehensive leak detection monitoring system. The study scoped in the Response is inadequate because there is no technical, geophysical or structural basis for the proposed locations of additional subsurface investigations. Given that the initial *Hydrogeological Report* documented that groundwater gradients were downward into the bedrock within the proposed Phase I landfill area, there was no provision in the proposed study that would determine where to intersect the deep bedrock flow, such that its pathway can be intersected and monitored as part of the Release Detection Permit. This point also appears to be an important technical issue for the DES, as noted in their August 19, 2021 meeting notes (#8).

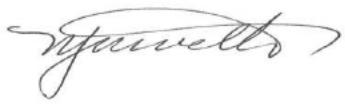
Please do not hesitate to call if you have any questions. Thank you.

Sincerely,

CALEX ENVIRONMENTAL, LLC



Ronald Guerin
President



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