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**Subject:** VGS - further follow up  
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[EXTERNAL]

Bill,

On behalf of VGS, I am writing with an update on VGS's contact with Vermont Agency of Natural Resources (ANR) staff on the ANGP trench breaker issue. VGS's environmental consultant, VHB, has had much of the direct contact with ANR personnel on this topic.

As you know, trench breaker is a term from the pipeline industry that refers to barriers placed within the excavated pipeline trench in order to impede water flow and reduce erosion, thus preventing the constructed pipeline from becoming a subsurface drainage path. Two types of trench breakers were used during the construction of the ANGP: 1) a typical trench breaker constructed with sandbags, and 2) a bentonite trench breaker constructed using two rows of sandbags with the void filled with bentonite. The purpose of the bentonite trench breaker is to provide a plug within the trench to prohibit the lateral flow of water through the trench breaker along the pipeline that may otherwise be able to pass along the pipeline or through a standard sandbag trench breaker. If you would like more information from VGS about the specific ANGP trench breaker requirements, just let me know.

The ANGP involved the use of sand and bentonite trench breakers, and the conversations with ANR addressed the trench breaker issues broadly. Below is a timeline of the coordination between VGS (mostly through VHB) and ANR staff. Based on the contact, meetings and calls, VGS understands that ANR staff is satisfied there have been no adverse impacts to wetlands or streams observed, which relate to trench breaker issues. However, to date, ANR has not made any filing with the PUC regarding the follow up collaboration between VGS and ANR and confirming that the trench breaker issue has been satisfactorily resolved.

Summary of VGS follow up with ANR:

- Early March 2018 – In response to allegations by Intervenors about trench breakers, VGS reviews source materials (CHA As-Built data and daily inspector reports) for bentonite trench breaker locations in coordination with VHB
- March 22, 2018 – ANR letter to PUC in response to Intervenors' Motion to Broaden Scope is filed. ANR notes that "lack of permanent bentonite trench breaker in a location that necessitates a trench breaker has the potential to result in a significant impact to a wetland or stream resource."
- April 24, 2018 and April 27, 2018 – VHB conducts field visit at 10 individual locations associated with five (5) Class II wetlands preliminarily identified by VGS as potentially lacking bentonite trench breakers and finds that there is no apparent unpermitted impact occurring as a result of the potentially missing bentonite trench breakers.
- May 2, 2018 – VGS, VHB and ANR meet to provide update on VGS internal trench breaker review
  - VGS provides ANR with a draft table and map set showing trench breaker locations and type (standard vs. bentonite) on the ANGP
  - VHB presents technical summary that no unpermitted impacts observed from the April

site visits to potentially missing bentonite trench breaker locations

- Action item includes future ANR site visit to subject wetland areas
- May 4, 2018 – ANR letter to PUC stating that independent review should include trench breakers review.
- August 9, 2018 – ANR (Laura LaPierre) email to VHB (Carla Fenner) indicates that ANR does not believe that a site visit is necessary at potentially missing bentonite trench breaker locations. ANR requests documentation related to bentonite plug along the bottom of the trench in Class II wetlands where blasting was used (per Vermont Wetlands Permit #2012-184 (“VWP”) Condition J - Where bedrock is encountered during construction of the project within Class II wetlands or buffers, a bentonite plug will be installed at the base of the trench, through the blasted segment of the wetland).
- September 11, 2018 – Site visit to Condition J locations tentatively scheduled but cancelled.
- September 2018 – Conversation between ANR (Laura LaPierre) and VHB (Carla Fenner). Based on this conversation, VGS understands that no further action/review is needed in wetland areas where no blasting occurred, and ANR is awaiting VGS follow up on trench breakers in wetland areas that were blasted.
- September 2018 – Based on VGS review, all wetlands in proximity to blasting areas have documented bentonite TBs. Two individual TBs of unknown type (based on prior review) located at different wetland locations were confirmed bentonite. VGS used ground penetrating radar to locate the trench breaker at Wetland 2012-CM-91 and confirm that it is bentonite. Second, later review of construction photographs in the vicinity of wetland 2012-JB-12 show evidence of bentonite storage proximate to the location where the unspecified type of trench breaker was installed indicating that it is likely a bentonite trench breaker.
- July 11, 2019 – ANR email to VHB\VGS confirming request for Condition J documentation
- August 20, 2019 – VHB submits Condition J memo to ANR concluding that, as required under the VWP, a bentonite plug was installed at all Class II wetland and Class II wetland buffer locations where blasting occurred.
- November 5, 2019 – ANR acknowledges receipt of the memo to “support compliance of Condition J of the Vermont Wetlands Permit #2012-184 and subsequent amendments.”
- November 2019 – Based on the detailed review of ANGP bentonite trench breakers, including the regulatory basis, their presence/absence, and the field visit conducted in April 2018, VHB has reached the conclusion that the potential absence of 10 trench breakers located at 5 wetlands did not observably or significantly alter the wetland hydrology to the extent that any Class II wetland boundaries or functions were impacted beyond what was permitted. VHB also concludes that bentonite trench breakers were installed at all stream locations as specified.

Let me know if you need additional information.

Deb

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