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**Sent:** Wednesday, May 27, 2020 7:49 AM  
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**Subject:** RE: SRP flow fill drainage issues

Hi Kurt,

As follow up to our phone call yesterday, DES has a few questions/comments regarding the proposal.

1. How long does it take for the flowable fill to fully harden?
2. When will the leaching of the calcium carbonate from the flowable fill stop?
3. How often and where do you plan to monitor for pH? Please provide DES with a monitoring plan that explain these details.
4. How do you know these are only surface waters affected by the calcium carbonate from the flowable fill?
5. Please provide a plan showing the location of the duct bank and where the calcium carbonate leachate has entered a nearby wetland in the area south of Gregg Hall access road.

Thanks and let us know if you have questions or need anything clarified.

Dave

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**Subject:** SRP flow fill drainage issues

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Hi Dave and Gregg,

To follow-up on my voicemails to Dave on May 20 and today, and my voicemail to Gregg today, I'm providing you with additional information about recent developments related to the construction of the Seacoast Reliability Project ("Project"). In particular, there are two areas that Eversource and its consultants have been assessing on the terrestrial underground portions of the Project. At both locations it appears that the transmission line duct bank and flowable fill (aggregate and concrete mix) has altered drainage patterns of shallow groundwater, which appears to have caused groundwater to seep to the ground surface. In addition, it appears that there has been some leaching of calcium carbonate (lime) from the flowable fill at these locations. A summary of the conditions at each location is provided below:

### **Veitas Property Gundalow Landing Newington**



In the area of the Veitas property located at Gundalow Landing in Newington, it appears that the drainage patterns have shifted and a white precipitate from groundwater seepage has accumulated over time on the sod in an approximately 10 x 20 ft area above the cable duct bank (which is also in the vicinity of a stormwater culvert). Eversource has removed the precipitate from the ground surface and we are monitoring the area.

Eversource sampled the precipitate and confirmed it to be primarily Calcium Carbonate ( $\text{CaCO}_3$ ). To assess water quality in the vicinity of the seepage, we sampled and have continued to monitor pH at this location. According to our investigation, the seepage that pooled in this area had an elevated pH (as high as 12.5). We also have been monitoring standing water at two locations approximately 50' and 100' downstream in the drainage course; pH levels significantly decline further down the drainage course. As a result of our investigation, we have determined that there is no continuous flow in the drainage course, and therefore, we are confident that the high pH levels from the seepage are localized and have not impacted groundwater or any surface water. The data is provided below.

**Table 1: pH Monitoring Data in Gundalow Landing/Brickyard Circle Drainage Course**

<b>Monitoring Location</b>	<b>Monitoring Event</b>		
	05/18/2020	05/19/2020	05/20/2020
Gundalow Landing Culvert Inlet	12.1	12.5	12.1
Gundalow Landing Culvert Outlet	10.7	10.6	9.0
Brickyard Circle Culvert Outlet	8.8	7.1	6.7

While this drainage course interfaces with Little Bay approximately 400' downstream, we have not identified any releases of water with elevated pH to Little Bay or any other surface water.

We have developed a plan to mitigate the seepage and reduce elevated pH levels. Eversource plans to (1) excavate the tight soils and flowable fill in the identified area to a depth of 2' below grade, (2) install a permeable sand and gravel layer in place of the flowable fill; and (3) construct a subdrain to improve drainage. Eversource plans to undertake these activities on Tuesday May 26. We are confident that removing a portion of the flowable fill and improving drainage in the area will reduce contact time with the remaining flowable fill and will improve conditions. We will continue to monitor pH at this location and we will have a contingency in place to recover a seepage if water with elevated pH is discovered onsite.

**Waterworks Road Area - UNH**

UNH has recently alerted us that there has been an altered drainage pattern in the vicinity of Waterworks Road and the Gregg's Hall access Road. From our investigation, it appears that shallow groundwater has been discharging to the ground surface at the edge of the roadway. In cooperation with UNH, and after receiving approval from the University, Eversource has installed a subdrain to alleviate the seepage that previously occurred in this area. To date, it appears that the restoration activities at this site have corrected the drainage pattern. In addition, we monitored and continue to monitor for pH to confirm that there are no elevated pH discharges entering the stormwater drainage system or to any surface waters in the vicinity.



On a related but separate note, we have identified an area of calcium carbonate leachate that has entered a nearby wetland in an area to the south of the Greggs Hall access road. It appears that due to the installation of the duct bank, calcium carbonate from the flowable fill has leached from soils on the south side of the access road and entered a cattail swamp in this area.

Eversource measured pH in standing water in the wetland and found pH levels ranging from 7.1 to 9.6. Additionally, on 5/18 a pH reading of 11.7 was observed in a shallow dug hole at the edge of the wetland.

To remedy this situation, Eversource proposes to remove the visible traces of precipitate from the pooled area on the boundary of the wetland and monitor pH levels in this area. We will report our findings to the Department.

Please contact me directly at your convenience.

Sincerely,

Kurt I. Nelson  
Sr. Land Use Licensing & Permitting Specialist

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