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BY: via email (JP)
LAND USE DEPT.

J3207-01-01
September 9, 2020

Mr. Dan Eastman
40 Hallie Lane
Somers, Connecticut 06071

Re: Impact on Nearby Wells from Proposed Rock Excavation
40 Hallie Lane Residence
Somers, Connecticut

Dear Mr. Eastman:

Per your request, O'Reilly, Talbot & Okun Associates, Inc. (OTO) provides this additional information to address comments from the Town of Somers, Department of Environmental Health regarding potential impacts to the nearby potable supply wells during the excavation of bedrock at your residence.

As we have discussed in our previous letters, Uranium is naturally occurring in bedrock in the Somers area. Uranium is slightly soluble in water and can also degrade into a highly soluble Radon Gas. Uranium can be present in a drinking water supply well in both its soluble form or as the result of sediment in the well. Radon is a natural by-product or the degradation of the U-235 isotope of Uranium. The gas formed by this degradation is highly soluble in water. Thus, it is not unusual to see both Uranium and Radon in groundwater in the Somers area.

We have considered whether the rock removal operations at the Eastman property could increase the concentration of Uranium/Radon in water from the nearby supply wells, either by increasing the amount of dissolved Uranium in groundwater or the breakdown of U-235 to Radon Gas. This could potentially occur if the vibrations are sufficient to break the rock mass, increasing the surface area available for Uranium to dissolve into groundwater and/or for Radon Gas to migrate through new fissures into the well.

The proposed rock removal process will involve the drilling of shallow holes at a tight space (less than five feet) followed by the fracturing of the rock using hydraulic pressure. We understand that the drilling and hydraulic fracturing will use little or no fluids. Given the highly fractured nature of the near surface rock, the shallow fracture zone (approximately four feet) and close spacing of the drill holes any vibrations will be small, limited to the near surface soils and rock, and insignificant for all practical purposes. Most (if not all) vibrations will likely dissipate through nearby drill holes or out the ground surface. Therefore, any vibrations will be limited in the shallow zone and are unlikely to fracture rock at any significant depth below the four foot deep drill hole. We note that the potable water supply wells in the area are approximately 500 feet or greater distance and likely 200 feet or more deep, and most of the water zones for the supply wells are likely present at those depths. Based on these data it is our opinion that any vibrations from the proposed drilling or fracturing operation will not penetrate to that depth or impact the wells.

Rock Excavation Impacts
Eastman Residence, 40 Hallie Lane
Somers, Connecticut
September 9, 2020

We appreciate the opportunity to provide services for this project. If you have any questions, please do not hesitate to contact us.

Sincerely yours,
O'Reilly, Talbot & Okun Associates, Inc.



Michael J. Talbot, P.E.
Principal



Ashley Sullivan, P.E.
Principal

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