

Date: September 28, 2020
From: Glenn L. Smith
To: Richard Robbins, Chairman
Subject: Forestburgh Pond Subdivision – Shooting Range

Richard,

I reviewed the “Firing Lane Site Characterization Investigation Report” prepared by Keystone Associates, dated September 24, 2020, pertaining to the above-noted project. This report supersedes the original Keystone report of June 23, 2020 since it incorporates a more extensive sampling and testing protocol for both Total Lead and TCLP Lead in the affected area of the property. This included the hydraulic boring and collection of soil core samples to a maximum depth of 4 feet, followed by laboratory analysis of each sample for material selected at the 0”-2” and 12” – 16” depths in each core, which totaled 24 samples tested. It appears that those two depth horizons would represent typical “surface affect” soils that could be more affected by direct physical contact with the lead bullets (0” – 2”); and deeper sub-soils that could only be affected by progressive leaching and infiltration of lead by precipitation (12” – 16”).

Of the 12 core samples collected at the shooting range targets of 25’, 50’, 75’ and 100’ measured from the shooting bench, the majority (10 of 12) encountered bedrock at depths ranging from 1.7 ft. to 4ft. This would coincide with the “Sullivan County Soils Survey” which describes the site soils at that location as an Arnot-Lordstown Complex, a bedrock controlled soil with a hard, grey sandstone typically found at the 16” to 25” depths.

The lab testing results for TCLP Lead did not show any exceedances of the EPA Toxicity limit of 5 mg/kg in the 24 samples from both depths.

The lab testing results for Total Lead did show exceedances of the DEC Total Lead limit of 63 mg/kg in five (5) of the 12 samples taken from the 0” – 2” (surface soil) depths; and none in the 12 samples collected at the 12” – 16” depths.

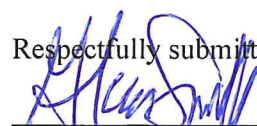
This would appear to indicate that Lead particles scattered around the surface soils near the targets were represented in some upper soil samples but have not migrated to the deeper soils below the 12” depth, even after many years of rainfall and snowmelt infiltration.

The shallow sandstone bedrock found throughout that vicinity would also likely limit or restrict further Lead infiltration and contamination deeper into the aquifer, even if Lead managed to reach the rock layer, which does not appear likely.

Based on the test results, I agree with the report conclusions that drilling and developing a monitoring well for long-term analysis of sub-soil or groundwater conditions does not appear to be warranted.

Thank you.

Respectfully submitted,



Glenn L. Smith, P.E.

GLS/mdc