Aztech Environmental
TECHNOLOGIES
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March 27, 2020

Michael Kilmer
New York State Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561

RE: Soil Vapor Intrusion (SVI) Sampling Workplan
DANZIG Groundwater
Oak Tree Road, Tappan, NY 10983
NYSDEC Site No. 344082

Dear Mr. Kilmer,

Aztech Environmental Technologies (Aztech) has prepared this work plan to determine if contamination from the former Danzig ("Site") has impacted individual parcels ("Property") via soil vapor migration pathways. Any deviation from this work plan will be memorialized in writing to both the NYS Department of Environmental Conservation (DEC) and to the Property owner.

Site Background
The Site is located on the border of New York and New Jersey in the hamlet of Tappan, Rockland County, New York. The Site is approximately 74 acres in size and consists of 41 parcels. NY-303 runs through the center of the Site. The Site is a State Superfund site and is the subject of an on-going remedial investigation.

The contaminants of concern are 1,1-dichloroethane, chloroform, trichloroethene (TCE), 1,1-dichloroethene, tetrachloroethene (PCE), 1,1,1-trichloroethane (TCA), cis-1,2-dichloroethene, 1,1,2-TCA, and 1,2-dichloroethane.

Indoor Air and Sub-Slab Soil Vapor Intrusion Sampling
To achieve the stated goal of this work plan, indoor air and sub-slab soil vapor samples will be collected from the Property. In particular, the indoor air and sub-slab samples will be collected on the lowest occupied level of the property (basement preferred). Additional indoor air (IA) and sub-slab (SS) collection points will be based upon the sampler's observations while onsite. These determinations to add sampling points will be representative of how the building's occupied space is divided.

For commercial properties the sample locations within individual tenant spaces will be placed in locations mutually agreed upon while representative parties are onsite.

Pre-Sampling Preparation
An indoor air survey will be completed using the NYSDOH "Indoor Air Quality Questionnaire and Building Inventory" form and the indoor air will be monitored with a photoionization detector (PID) that gives readings in parts per billion.

Each sub-slab vapor sample will be collected from below the building concrete slab. An approximately 1/2-inch diameter hole will be drilled with a hammer drill through the building floor and continued approximately six (6)-inches below the slab. The hole will then be swept to remove drill cuttings/dust from the area. A 1/4-inch diameter piece of Teflon tubing is subsequently inserted into the concrete slab and the annulus is sealed using an inert sealant such as VOC-free permagum or clay which prevents the migration of indoor air into the sub-slab (or visa-versa).

Helium leak tests will be conducted at each of the locations per the NYSDOH guidance (NYSDOH, 2006) to ensure samples are representative of sub-surface conditions and not ambient air. Helium tests will be conducted by encapsulating the sample points (e.g., with a bucket sealed to the ground surface with clay). The encapsulated area will be filled with helium, and care will be taken not to pressurize the enclosure. The soil vapor sample ports will be tested for helium breakthrough by purging with a portable helium monitoring device both before and after collection of the soil vapor sample. If greater than 10 percent of the tracer vapor are detected in a screening sample, then that sample point seal will be enhanced, and the procedure repeated. Upon completion of the leak testing, a 6-liter SUMMA®-type canister with a 24-hour flow valve will be connected to the tubing at each sampling port.

Sample Collection

SVI samples will be collected over an approximate 24-hour period. Flow rate will be less than 0.2 liters per minute as required by NYSDOH and collected per the NYSDOH guidance (NYSDOH, 2006) as described below. A single sub-slab sample will also be collected per every 20 samples as a field duplicate.

Indoor air (IA) samples will be collected in 6-liter SUMMA®-type canisters in the vicinity of the sub-slab vapor sample collection points and on the lowest occupied level of the property. Indoor air samples will be collected from approximately four (4) to six (6) feet above the floor level (if necessary, Teflon tubing will be extended from the canister to attain the proper intake height). Indoor air samples will be set up with 24-hour flow regulators. A single IA sample will also be collected per every 20 samples as a field duplicate.

A single outdoor ambient air (OA) sample will be collected in a 6-liter SUMMA®-type canister from the vicinity of the Bravo Cleaners property located at 38 NYS Rt. 303 in Tappan. The sample will be collected from approximately four (4) to six (6) feet above ground surface. The OA sample will be set up with a 24-hour flow regulator. One (1) OA sample will also be collected per sampling event as per NYSDOH guidance.

Once the sub-slab vapor sample canisters, IA sample canisters, and OA canister have been set up with 24-hr flow valves for an individual location, the valves from all containers will be opened. The sample collection time, canister vacuum (in inches Mercury), and weather conditions will be recorded.

Approximately 24 hours after initiating sample collection, the flow valves will be closed. The time, vacuum remaining in the canister, and barometric pressure will be noted. Samples will be submitted and transported under standard chain of custody procedures to TestAmerica of Knoxville, TN. SVI samples will be analyzed via EPA Method TO-15. Analysis will achieve a minimum reporting level of 1.0 µg/m3 for most compounds, and a minimum reporting level of 0.2 µg/m3 for the remaining compounds TCE, cis-1,2 DCE, 1,1-DCE, carbon tetrachloride, and VC. The lower reporting limits will be required for accurate comparison to the NYSDEC Soil Vapor/Indoor Air decision matrices dated May 2017.

Restoration
Upon completion of the sampling, the tubing and clay will be removed from the building floor and the holes will be filled completely with a fast-drying hydraulic concrete (e.g. Quickcrete). The floor will be swept and cleared of any and all debris generated during testing, and best efforts will be made to completely restore each sampling location to its pre-sampling condition. All soil vapor sampling activities will be documented using a soil vapor sampling record.

Reporting
The soil vapor sampling record and laboratory results will be reviewed by the project managers at both DEC and Department of Health, and provided to and discussed with the Property owner. If needed, any potential next steps will be discussed at that time.

Respectfully submitted,

Aztech Environmental Technologies a LaBella Company

Todd Rollend
Environmental Scientist/Project Manager