

August 29, 2008

Mr. Douglas B. Carl
Commonwealth of Virginia
Department of Environmental Quality
West Central Regional Office
3019 Peters Creek Road
Roanoke, Virginia 24019

**RE: Limited Site Characterization Report
Robertson Residence**

**PC #2007-2014N
Apex Project #799305.001**

Dear Mr. Carl:

In accordance with the Virginia Department of Environmental Quality (DEQ)-approved scope of work, Apex Companies, LLC has completed limited site characterization activities at the above referenced property (Figure 1). The DEQ West Central Regional Office (WCRO) requested that Apex perform site characterization activities associated with a release of heating oil from an underground storage tank (UST) formerly serving the residence.

Apex received a call from the property owner, Mr. Tom Robertson, who stated that a heating oil odor was noticeable in the residence's attached garage and there was staining on the garage's concrete wall and floor. Mr. Robertson believed that the odor and staining were coming from a heating oil UST that is located on the opposite side of the concrete wall and beneath a porch. Apex mobilized to the site to assess the staining and odor and to collect a soil sample from the vicinity of the UST to confirm the presence or absence of heating oil-impacted soil. During Apex's site visit, Mr. Robertson informed Apex that they have never used the UST, but the staining and odor have been present since they purchased the home over 15 years ago. During Apex's initial site visit, the UST was gauged for the presence of heating oil or water. Apex found that the UST was empty. The UST is covered by a screened in porch that was added on to the house after the installation of the UST. This limited soil sample collection from around the UST since the owner did not want Apex to core holes in the porch floor, which is constructed of slate. Apex used a rotary combination hammer with a two-inch drill bit to drill a hole in the decorative rock retaining wall along the stairwell located beneath the screened porch. Apex then drove a one-inch metal sampling sleeve into the subsurface material to collect a representative

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soil sample adjacent to the UST. The sample was labeled and stored on ice pending delivery to Air, Water, & Soil Laboratories, Inc. (AWS) in Richmond, Virginia for total petroleum hydrocarbon (TPH) semi-volatile fractions analysis by U.S. EPA SW846 method 8015B. Strict sample security and chain-of-custody documentation were observed during all phases of transport. TPH was identified in the soil sample collected at a concentration of 43,600 milligrams per kilogram (mg/kg), which is well above the DEQ-established soil saturation value for heating oil of 13,000 mg/kg. The laboratory Certificate of Analysis and chain-of-custody records are provided in Attachment I. Apex reported the soil sample results to the DEQ WCRO on behalf of Mr. Robertson.

The DEQ and Apex met out at the residence and determined that removal of the UST was not feasible or practical. Apex and the DEQ decided that the best approach would be to apply a vapor remediation product onto the surfaces of the concrete wall and floor in an attempt to stabilize as much heating oil odor as feasible. Apex applied five gallons of VaporRemed™ using a multipurpose gallon spray applicator over a two day period. During the application, Apex also scrubbed the concrete surfaces in order to remove as much staining as possible. After the VaporRemed™ had been applied and dried, Apex returned to the residence and sealed the concrete wall and floor with a clear concrete sealer.

Per DEQ directives, Apex collected an additional soil sample from underneath the asphalt driveway in the vicinity of the stained concrete and rock walls. Apex used a hand auger to collect the sample. Refusal was encountered at one foot. The soil sample was submitted to AWS for TPH semi-volatile fractions analysis. Analytical results yielded 143 mg/kg in the soil sample. The laboratory Certificate of Analysis and chain-of-custody records are provided in Attachment I.

Apex returned to the site several days after the application of the concrete sealer. A slight odor was still apparent in the garage. The property owners stated that the odor had diminished from levels prior to the remedial efforts and that the odor has never been apparent in any of the living quarters of the residence. Based on the hand auger soil sample results and the limited amount of risk to human health regarding the odor in the garage, Apex recommends closure of pollution complaint #2007-2014N.

As always, should you have any questions regarding the above information, please feel free to contact me at (540) 563-4920. The completed Activity Authorization Form for the release investigation is enclosed.

Best Regards,

Robert S. Wagner
Program Manager

Attachments
Enclosure

cc: Mr. Tom Robertson

FIGURE

ATTACHMENT I

Laboratory Certificate of Analysis
and Chain-of-Custody Documentation