

December 21, 2012

JN 12043E-1

University Motors
4727 Roosevelt Way Northeast
Seattle, Washington 98105

Attention: Rob Will

Subject: **Proposed Work Plan**
University Volkswagen Audi
4724 Roosevelt Way Northeast
Seattle, Washington
VCP Project Number NW2584

References: Bison Environmental Northwest, Incorporated. *Environmental Site Assessment / Checklist Underground Storage Tank Removal, University Volkswagen, 4724 Roosevelt Avenue, Seattle, Washington.* November 1993.

Lee Morse, General Contractor, Incorporated. *Tank Removal Documentation, Job #358 University Volkswagen, 4724 Roosevelt Ave., Seattle, Washington.* March 2, 1994.

Bison Environmental Northwest, Incorporated. *Partial Cleanup, Tank #2, 4,000 gallon gasoline, University Volkswagen, 4724 Roosevelt Avenue, Seattle, Washington.* October 27, 1994.

Adapt Engineering, Incorporated. *Phase 1 Environmental Site Assessment, University Volkswagen Audi, 4724 Roosevelt Way, Seattle, WA, 98105.* March 8, 2012

Dear Mr. Will:

In response to questions regarding the condition of soil and groundwater at specific locations near the southeastern corner beneath the subject property, we have prepared this work plan to address the proposed sampling program at 4724 Roosevelt Way Northeast in Seattle. Data generated by this program will lead to, and be part of, the submittal of a final cleanup report to the Washington Department of Ecology (WDOE).

PROJECT BACKGROUND

Based upon our review of the referenced reports, it appears that the southeastern corner of subject property was occupied by a gas station between 1927 and 1944. Summarizing information in the referenced reports regarding the extent and types of contaminants identified, it appears that:

- One gasoline tank was removed from the subject property on September 22, 1993. It was reported that the tank appeared to be in good condition but a fitting appeared to have leaked. Soil sample results from the north wall of the excavation were above the Model Toxics Control Act (MTCA) cleanup levels for petroleum hydrocarbons. The sample with the highest petroleum concentration was analyzed for volatile organic compounds (VOCs). Except for toluene, ethylbenzene, and xylenes that were above cleanup levels, analysis for VOCs revealed non-detectable levels for the remaining 31 VOC compounds. Analysis results for semi-volatile organic compounds (SVOCs) and total metals were below cleanup levels.
- In August – September 1994, approximately 450 tons of petroleum contaminated soil was reportedly removed and transported to an off-site facility for incorporation into asphalt. The excavation reportedly was as deep as 20 feet below the asphalt parking lot. No groundwater was reported seeping into the excavation. Soil sample results from the south wall and bottom of the tank excavation were above the Model Toxics Control Act (MTCA) cleanup levels for gasoline range petroleum hydrocarbons. Analysis for benzene, toluene, ethylbenzene, and xylenes (BTEX) revealed that no benzene was detected in any of the three samples analyzed. Toluene, ethylbenzene, and xylenes ranged between slightly above method detection limits to greater than cleanup levels.
- On September 12, 1994, four borings were drilled exterior to the tank excavation. The borings were placed so soil beyond the four walls of the excavation could be evaluated. The borings were advanced to a maximum explored depth of 21 feet below the existing grade on the southern side of the excavation. No groundwater was reported in any of the four borings.
- Nine soil samples from the borings were submitted for analysis. Two soil samples from the north boring, referred to as B1 by Bison and one sample from the southern boring B4, by Bison reportedly had detectable concentrations of residual petroleum hydrocarbons as gasoline. Only one sample from B1 had gasoline concentrations above the MTCA Method A cleanup level of 100 parts per million (ppm). The MTCA Method A cleanup for gasoline is 100 when there is no benzene detected in soil.
- During a review of the Bison report, Nnamdi Madakor, of the WDOE indicated that samples from the floor of the excavation exceeded the WDOE cleanup standards. He indicated that a boring placed in the same location would be required to be drilled and sampled until the results are non detect or until groundwater is reached. Soil samples will need to be analyzed for gasoline and BTEX analysis.
- If groundwater was present, samples of groundwater were be collected and analyzed for gasoline-range hydrocarbons, BTEX, and lead.

We conducted a site reconnaissance on April 13, 2012 to familiarize ourselves with the site layout and to assess potential limitations to sampling and analysis. From our recent reconnaissance, the property consists of the asphalt paved parking lot for University Volkswagen, which is located farther to the north. We observed four circular asphalt patches, raised slightly above the surrounding asphalt paving, in the parking areas north, east, west, and south of a patched area in the asphalt reported to be the UST excavation. The locations correspond roughly with the locations of the borings reportedly drilled in 1993.

CLEANUP LEVELS

In the WDOE review, Nnamdi Madakor indicated that the gasoline-range petroleum hydrocarbon concentrations exceeded the WDOE Method A cleanup levels. The cleanup levels for the indicator hazardous substances as gasoline-range petroleum hydrocarbons, and BTEX (benzene, toluene, ethylbenzene, and xylenes) will be those published in Table 720-1 *Method A Cleanup Levels for Groundwater* and Table 740-1 *Method A Soil Cleanup Levels*. The Method A Cleanup levels for the following constituents in groundwater are:

TPH Gasoline	800 parts per billion (ppb) if benzene is present
TPH Gasoline	1,000 ppb if no detectable benzene in groundwater
Benzene	5 ppb
Toluene	1,000 ppb
Ethylbenzene	700 ppb
Xylenes	1,000 ppb
Lead	15 ppb

The Method A Soil cleanup levels for unrestricted uses are:

TPH Gasoline	100 parts per million (ppm) for gasoline mixtures without benzene and the total of ethylbenzene, toluene, and xylenes are less than 1% of the gasoline mixture
TPH Gasoline	30 ppm all other gasoline mixtures
Benzene	0.03 ppm
Toluene	7 ppm
Ethylbenzene	6 ppm
Xylenes	9 ppm
Lead	250 ppm

SYNOPSIS OF THE PROGRAM

The objective of the program is to evaluate the condition of the soil and soil and groundwater (if present) near the center of the former tank excavation and to the north and south of the excavation created in 1993 when contaminated soil was removed.

We recommend providing a copy of this document to all subcontractors working on the site so they can individually prepare site-specific health and safety plans for worker protection. Determination of personal protective equipment (PPE) and monitoring will be the responsibility of each subcontractor. Geotech Consultants, Incorporated will not be responsible for required health and safety plans for the various subcontractors working on the site.

Due to the density of soil and potential depth required, we initially propose to drill and sample three (3) test borings, to an anticipated maximum depth of 50 feet.

We are planning the installation of monitoring wells at this time. If groundwater contamination is discovered, monitoring wells will be required to determine the groundwater flow direction and areal extent of potential contamination.

SOIL SAMPLING and DRILLING PROCEDURES

Geotech Consultant, Incorporated (GCI) shall use reasonable care to limit damage to land, pavement, utilities and other improvements from its operations, and shall not be responsible for the restoration or repair of damage to land, pavement, utilities, and other improvements that occurs in spite of GCI's use of reasonable care. As part of our services, GCI will contact the One-Call public utility locating service to provide supplemental information regarding underground utilities. The purpose of contacting One-Call would be to reduce the client's potential exposure for repair of damaged utilities. We recommend that the drilling subcontractor independently contact the One-Call public utility locating service.

Prior to drilling and sampling The drilling contractor will obtain required well start cards from the WDOE. The drillers shall be responsible for determination of the presence of visible obstructions or overhead hazards.

The drilling equipment will consist of a truck-mounted auger drill. The soil will be sampled with a standard penetration sampler driven 18 inches, at approximate 5-foot intervals throughout the "drilling" range. The most obvious disadvantage is that this method does generate more soil cuttings than probe drilling but is more capable of reaching the desired depth. Soil cuttings generated during drilling will be placed in a drum and stored onsite pending results of laboratory analysis. Decontamination and developmental groundwater will also be placed in a separate drum and stored onsite pending the results of laboratory analysis.

During drilling, a field log will be made by the project geologist or engineer for each boring. Information recorded versus corresponding depth will include soil classification (Unified Soil Classification System), color, texture, moisture, or seepage zones. Odors or visual indications of contamination will be noted on the environmental boring logs.

Soil samples from the environmental test borings will be transferred from the sampler directly to sterilized glass jars with Teflon-sealed lids furnished by the project laboratory. A portion of each sample will be subjected to head space analysis using a Photovac 2020 Photoionization Device (PID) or GASTEC Sensidyne (or similar) to assess potential organic vapor concentrations in soils.

The samples will be stored in an iced chest at the site and taken to the laboratory in the chest. Each jar will be labeled as to boring number, sample depth, and field personnel. EPA-recommended sample management protocol, including the maintenance of chain-of-custody documentation, will be observed at each stage of the project.

Environmental sampling implements will be subjected to a decontamination procedure before re-use to avoid contamination between samples. All components will be washed and scrubbed by brush andalconox soap (or similar) and water. This will be followed by a thorough rinse with clean water.

Monitoring well design and construction methods will conform to requirements and specifications outlined in Washington Administrative Code 173-160 for "resource protection wells" in the State of Washington. A PVC casing, consisting of a blank riser on the upper few feet followed by a slotted well screen, will be installed in the borings. The well screen in each installation will be positioned to span the maximum and minimum range of the anticipated seasonal groundwater fluctuation, thus facilitating representative sampling at any time during the year. The annulus of each well casing will be sand-packed 2 to 3 feet above its well screen. A bentonite seal will be placed above the sand and carried to within 2 feet of the ground surface to prevent the infiltration of surface

contamination along the well casing. A non-shrinking cement grout will be used to stabilize the upper section of each well. Protective casing with provisions for locking access to each wellhead will also be provided.

Prior to groundwater sampling, a sterilized electronic water level indicator will be used to measure the depth to groundwater. A peristaltic pump will be used to purge the well by removing a minimum of three well volumes of water. This procedure will followed to assure that samples obtained from the wells would be representative of ambient groundwater conditions in the surrounding water-bearing strata.

Following purging of the well, a peristaltic pump will used to extract groundwater from each well. The samples will be poured into preconditioned bottles furnished by the project laboratory, stored in an iced chest at or below 4 degrees centigrade, and transported to the project laboratory in this condition. EPA-recommended sample management protocol, including the maintenance of chain-of-custody documentation, will be observed at each stage of the project. Purge and development water will be containerized on site pending the results of laboratory analysis.

Water Table Survey

Information regarding the direction of groundwater movement and hydraulic gradient is frequently useful in risk assessment. To determine relative water levels in each of the wells, our field hydrogeologic staff will use the following procedure:

- (1) A self-leveling builder's level will be used to determine the relative elevation of a measuring point (MP) on the top of each well casing to an accuracy of 0.01 foot. This accuracy is a standard specified for such work by the U.S Geological Survey.
- (2) An electronic water level indicator will be used to sound the depth to groundwater from the MP in each well to an accuracy of 0.01 foot. By subtracting the depth to water from the elevation of the MP, the elevation of the water table in each well may be deduced.

Through interpolation of plotted relative water table elevations for each well on a scale map, approximate contours of equal elevation on the water table will be obtained. As groundwater is known to flow from areas of higher potential to areas of lower potential along lines "normal" (right angles) to such contours, the direction of flow and approximate gradient may be deduced.

LABORATORY ANALYSIS

Based upon the previous analysis which identified gasoline range petroleum hydrocarbons, BTEX, and lead as contaminants of concern, subsequent analysis of soil samples from the borings and groundwater samples (if present) will be accomplished by gas chromatography (GC) in accordance with NWTPH-Gx method for total petroleum hydrocarbons in the gasoline range and EPA Method 8260 for VOCs including BTEX. Metals analysis would be conducted in accordance with EPA Methods 6010 for the lead. Should significant contamination be discovered, additional analyses and/or analysis of additional samples would be required to attempt to define the area of affected soil. Soil samples collected for gasoline and VOC analyses will be collected following EPA Method 5035. Soil samples not analyzed will be archived under refrigeration or frozen at the analytical laboratory.

This analytical approach is intended to provide a basis for comparing the site environment to existing standards offered in the Model Toxics Control Act (MTCA), Chapter 173-340, Washington Administrative Code.

DATA ANALYSIS AND REPORT PREPARATION

At the conclusion of all fieldwork and laboratory analysis, our environmental staff will analyze the results and prepare a report. The report will include a discussion of site conditions, the boring logs and laboratory test results, and a site plan with exploration locations. The environmental report would provide our conclusions and recommendations for additional action, if required.

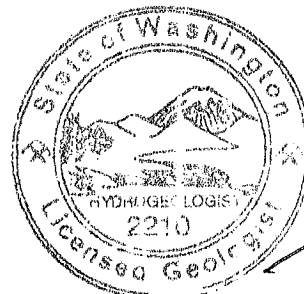
LIMITATIONS

This work plan has been prepared in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area. No other warranty, either expressed or implied, is made. This work plan has been based upon the conditions known at the time of this writing. However, the success of this type of remediation effort is dependent on a number of factors, including, but not limited to, climatic conditions (rainfall and cold weather), timing, third party review, governmental review, and scheduling. Of course, factors beyond our control could increase or decrease the estimated timing. Finally, we accept no liability for third party opinions or reviews.

If you have any questions, or if we can be of further service, please do not hesitate to contact us.

Respectfully submitted,

GEOTECH CONSULTANTS, INC.



Timothy Alan Johnson

Timothy A. Johnson
Licensed Hydrogeologist
WDOE-Registered Site Assessor