April 28, 2016

New Mexico Environment Department
Groundwater Quality Bureau
P.O. Box 5469
Santa Fe, New Mexico 87502

Attn: Ms. Kristie Kilgore, State Cleanup Team Leader/Supervisor
Email: Kristiea.kilgore@nm.state.us **SENT VIA EMAIL**

RE: Voluntary Stage 1 Work Plan
One Hour Martinizing
1091 St. Francis Drive
Santa Fe, Santa Fe County, New Mexico, 87505
Zia Project No. NALE-16-009

Dear Ms. Kilgore:

Zia Engineering & Environmental Consultants, LLC (Zia) appreciates the opportunity to submit this Voluntary Stage 1 Work Plan for the One Hour Martinizing facility located at 1091 St. Francis Drive in Santa Fe, Santa Fe County, New Mexico, 87505. This Voluntary Stage 1 Work Plan (WQCC 20.6.2.4106.B) is designed to collect data necessary to select and design an effective abatement plan. An outline of currently proposed tasks and Zia's scope of services, including schedule, are provided in the following sections.

PROJECT UNDERSTANDING

The subject property consists of approximately 0.5 acre of land and one approximately 8,800 square-foot dry cleaning operation. Zia understands that dry cleaning activities have been conducted at the subject property since about 1964 or 1965. Mr. Squires acquired the property and the business in 1972. A tetrachloroethylene (PCE) release was first suspected at the subject property in 1999. Environmental Consultants, Inc. (ECI) installed three groundwater monitoring wells in 2001 and 2003. MW-1 is located hydrologically down-gradient (south of the building), MW-2 is located up-gradient (north of the building), and MW-3 is located east of the building. The wells were sampled eight times between 2004 and 2006. PCE concentrations in groundwater (MW-1 and MW-3) are above regulatory standards. At least one well was installed with nested vapor probes. The vapor probes were only sampled once for PCE concentrations.

The depths to groundwater at the subject property vary between approximately 61 feet and 65 feet. Groundwater flows to the south.

A Stage 1 Abatement Plan was requested by the New Mexico Environment Department (NMED) Ground Water Quality Bureau (GWQB) in 2007 but was not pursued. The GWQB again requested additional investigation and potential remediation at the subject property in February 2016 and this Voluntary Stage 1 Work Plan is proposed to address the GWQB's request.

Initial environmental investigations at the subject property were performed on a voluntary basis and will continue on a voluntary basis.

PROPOSED PROJECT APPROACH

The purpose of the proposed investigation will be to collect current data regarding groundwater and soil vapor PCE concentrations and to address indoor air quality concerns expressed by NMED GWQB.

HEALTH AND SAFETY

Zia will prepare a site-specific health and safety plan (HASP) for work at the subject property. PCE is a suspected carcinogen. The HASP will discuss appropriate personal protective equipment and the location of the nearest medical facility. Nitrile gloves will be worn while collecting samples. A respirator with organic vapor cartridges, first aid kit, and fire extinguisher will be available on-site.

INDOOR AIR QUALITY MONITORING

Zia will monitor each corner of the building and one or more central location(s) for volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) with a 10.6 eV ultraviolet lamp. The ionization potential for PCE is 9.2 eV so the 10.6 eV lamp is appropriate for field monitoring. Direct reading measurements will not be converted into PCE-equivalent units because there is no assurance that VOCs detected by the PID would be specifically PCE. The peak PID measurement obtained during each minute of monitoring will be recorded in a field log.

One Summa canister will be placed inside the building at a location to be determined in the field. Any interior location with elevated VOC measurements by PID will be considered for placement of the Summa canister. If the PID monitoring does not identify a preferred sample location for a 24-hour test, then the Summa canister will be centrally placed. The Summa canister will be fitted with a constant flow velocity 24-hour valve and a pressure gauge. The pressure gauge values will be recorded upon opening and closing the valve. The Summa canister will be returned to the laboratory and the contents will be analyzed using EPA Method TO-15 for dry cleaning compounds. Temperature and barometric pressure readings will be collected during the vapor monitoring.

OUTDOOR AIR QUALITY MONITORING

Zia will use the PID to collect 5-minute measurements at each corner of the subject property. In addition, 5-minute field measurements will be collected outside each adjacent building that is readily accessible. Approximately 20 exterior field PID measurements will be recorded in a field log. Zia will also sample accessible manholes for underground utilities at the subject property. Two-minute measurements will be collected from each manhole that is accessible.

MONITORING WELL VAPOR SCREENING

Zia will open the tops of the three monitoring wells at the site. At least one monitoring well was constructed with multiple nested vapor monitoring probes that were connected to the surface via copper tubing. Zia will sample all vapor tubes with the calibrated PID. Measurements will be taken long enough to purge the tubing and until readings have stabilized. The maximum measurement from each vapor sample port will be recorded in the field log.

GROUNDWATER MONITORING

Zia will use a water level indicator to measure the top of water in each monitoring well and calculate the volume of water in each well casing. Disposable bailers will be used to remove a minimum of three well volumes from each well before sampling. Purge water will be discharged to the asphalt to evaporate. Temperature, conductivity, and pH will be measured while purging and sampling the wells.

Groundwater samples from each well will be decanted slowly into laboratory-prepared sample jars with appropriate preservatives. The groundwater samples will be labeled with an indelible marker and placed on ice in a cooler for transportation to the laboratory. The samples will be hand-delivered to Hall Environmental Analytical Laboratory under chain of custody. The groundwater samples will be analyzed using EPA Method 8260B for VOCs. One duplicate groundwater sample will be collected and analyzed using EPA Method 8260B.

If future groundwater sampling is required, future laboratory analyses will include indicative parameters (manganese, iron, total alkalinity, total organic carbon, etc.).

SUB-SLAB INVESTIGATION

A direct push rig will be used to insert probes approximately 15 feet beneath the building slab and vapor samples will be collected for field screening and laboratory analysis. Four angle borings will be drilled beneath the slab. At least one soil sample from each angle boring will be collected and analyzed using EPA Method 8260b for VOCs. One additional soil sample will be collected so that it can be sieved to establish grain size and gradation.

QUALITY ASSURANCE/QUALITY CONTROL

Zia will calibrate the PID in the field every four hours to verify that it is working properly. Zia personnel will wear disposable nitrile gloves while collecting all samples. Duplicate PID measurements will be collected hourly during vapor monitoring.

A duplicate sample for the Summa canister monitoring is not proposed at this time. The analyzing laboratory will provide a Summa canister with a certification that it is clean.

For each event of groundwater sampling, the analyzing laboratory will provide a trip blank that will be analyzed using EPA Method 8260b for VOCs. One duplicate groundwater sample will be collected and analyzed using EPA Method 8260b during each groundwater sampling event. The analyzing laboratory will provide properly-preserved sample jars for the groundwater samples.

ADDITIONAL SERVICES

Zia does not propose additional services at this time. If elevated PCE concentrations are indicated as a result of this initial round of monitoring, then Zia will likely propose the following additional services:

- Quarterly groundwater monitoring will be proposed. Field parameters analyzed during future groundwater sampling will include dissolved oxygen.
- Groundwater indicator parameters (manganese, iron, total alkalinity as $CaCO_3$, total organic carbon, etc.) will be analyzed at a laboratory so that trends may be assessed.

SCHEDULE

If the project scope or deliverables are modified or extraordinary delays are caused that are beyond the reasonable control of Zia, we reserve the right to request and negotiate appropriate adjustments in professional fees and schedule. Zia proposes to complete the various tasks of the Voluntary Stage 1 Work Plan on the schedule shown in Table 1.

Reports will be submitted to the client and NMED one month after each task of field work is completed. The reports become public domain after submittal to NMED.

Our proposed schedule is based on typical time frames required to obtain laboratory analytical services. Zia reserves the right to request an extension of time for completion of the project if laboratory delays are encountered.

TABLE 1: WIRTCO SCHEDULE AND TASKS

Schedule	Task
June 2016	Indoor vapor sampling with PID; Perimeter vapor sampling with PID; Adjacent property vapor sampling with PID; Accessible utility manholes with PID; Monitoring well sampling with PID; Interior sampling with Summa canister.
August 2016	Soil and vapor sampling with direct push under building slab.
October 2016	First round of groundwater sampling.
If warranted	Reinitiate quarterly groundwater monitoring. Future groundwater laboratory analyses will include indicative parameters.

DELIVERABLES

Two paper copies of each report and one PDF will be submitted to Wirtco, Inc., which will discuss the results of each task of the proposed Work Plan. One paper copy and one PDF of each task report will be submitted to NMED GWQB. The approximate locations of the monitoring wells, Summa canister, indoor vapor monitoring, and outdoor vapor monitoring will be marked on a scaled site map.

LIMITATIONS OF LIMITED PHASE II ESA

The analysis, comments, and recommendations presented in the reports will be based on the information collected as discussed in this Work Plan. Please note that Zia does not warrant the work of an independent laboratory or other third parties supplying information used in the preparation of the reports.

Phase II ESAs of a limited scope, such as the one proposed for this site, do not completely eliminate the risk of identifying all site contamination. Based on historical data collected and reviewed, the approach discussed in this Voluntary Stage 1 Work Plan is considered reasonable for identifying current site conditions and designing an effective abatement strategy. The limitations of this assessment should be recognized.

In closing, Zia appreciates the opportunity to submit this Voluntary Stage 1 Work Plan for environmental services. Should you have questions or need additional information, please contact Ken Hunter (direct line: 505.702.8697 or khunter@ziaeec.com).

Sincerely,
Zia Engineering & Environmental Consultants, LLC

Ken Hunter
Associate Scientist

Mark Matranga
Vice President