

ENVIRONMENTAL  
PROTECTION

# ATC ENVIRONMENTAL INC.

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6 August 1996  
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Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502

Attention: Mr. Barney Chan

SUBJECT: WORKPLAN FOR A SOIL AND GROUNDWATER INVESTIGATION AT  
3927 EAST 14TH STREET IN OAKLAND, CALIFORNIA

Dear Mr. Chan,

ATC Environmental Inc. is pleased to present this workplan for a soil and groundwater investigation at 3927 East 14th Street in Oakland, California (Figure 1). The proposed scope of work includes the installation of two to three groundwater monitoring wells in the vicinity of an underground storage tank (UST) at the site. The scope of work is based on a request by the Alameda County Department of Environmental Health (ACDEH) for additional data to assist in determining whether existing groundwater contamination at the site represents one or more plumes.

## SCOPE OF WORK

The scope of work developed to meet the objective includes the installation of temporarily-cased borings (TCBs) in the interpreted downgradient and crossgradient groundwater flow direction from the UST at the site. Groundwater samples collected from the TCBs will be screened using a State-certified on-site mobile laboratory. Based on the results of the initial groundwater screening, TCBs will be drilled either closer to, or farther from, the UST at the site. This will enable ATC Environmental Inc. to further assess the presence and extent of petroleum hydrocarbons in the soil and groundwater at the site in a more efficient and cost effective manner than could be accomplished with permanent groundwater monitoring wells. Based on the results of the groundwater sample analysis, TCBs will be selected for conversion to permanent monitoring wells.

Field work will be performed concurrent with the removal of the on-site UST by others. ATC will collect up to four sidewall samples, and one groundwater sample if a sufficient amount of groundwater is present in the UST excavation to allow sampling. Based on the available information, it is judged that TCBs, on-site sampling, and conversion of one or more TCBs within the site boundaries (3927 East 14th Street) would be required to efficiently accomplish the objective. We understand that this work would need to be performed during off-hours.

### Mobilization

Monitoring well permits will be obtained from the Zone 7 Water Agency prior to the initiation of the field work. Encroachment permits will be obtained from the City of Oakland as required for the installation of the temporarily-cased borings (TCBs) and monitoring wells in 40th Avenue or on the sidewalk adjacent to 40th Avenue. Two permits (a Monitoring Encroachment Permit and an excavation permit) are currently required to install groundwater monitoring wells. Underground Service Alert (USA) will be notified of the locations of the proposed intrusive activities, and a private underground utility locating service will be used to locate underground utilities in the immediate vicinity of the proposed monitoring well and TCB locations.

A site specific health and safety plan will be prepared by ATC Environmental Inc. This will be designed to minimize the likelihood that exposure of ATC Environmental Inc. personnel and their subcontractors to potentially hazardous materials will occur during the course of the field work. Threshold concentrations for worker exposure, work stoppage and protective procedures will be given in the Health and Safety Plan.

### Field Investigation

Two to three of the TCBs will be selected for conversion to permanent monitoring wells. These two to three soil borings will be drilled using a hollow stem auger. It is currently anticipated that groundwater monitoring wells will be completed to depths of approximately 17 feet below ground surface (BGS). Soil samples will be collected at five-foot intervals, at changes in lithology, and in "areas of obvious contamination" in general accordance with RWQCB guidelines. A sample will also be collected at the approximate soil/water interface. Because gasoline is a non-aqueous phase liquid (LNAPL), and hence "floats" on water, the highest concentrations in soil distant from the original release site generally are just above the saturated zone (just above the groundwater table). It is currently anticipated that two soil samples per soil boring will be submitted to the analytical laboratory for analysis for TPHg and BTEX.

Groundwater monitoring wells will be constructed using 2-inch-diameter flush-threaded Schedule 40 PVC casing materials. The screen casing is anticipated to be machine-slotted with 0.020-inch slots. The well screen intervals are anticipated to be from approximately 7 to 17 feet BGS, based on the currently available groundwater elevation data.

The locations of the two to three proposed permanent groundwater monitoring wells are based on work previously conducted at the site and the adjacent UST site. The approach, which involves the use of TCBs, is designed to generate soil and groundwater data while minimizing the use of permanent monitoring wells. The TCBs installed during this

investigation would consist of an 8-inch diameter hole drilled to approximately 17 feet BGS. Following completion of the drilling, 2-inch PVC casing, with 10 feet of 0.020-inch slotted screen, will be placed in the boring. Groundwater will be purged from the TCB prior to the collection of a groundwater sample.

One TCB will be drilled inside the site building approximately 100 feet west of the UST (Figure 1). This boring will be labeled "AA" for discussion purposes. If field screening of the soil samples and the analytical results obtained from the on-site laboratory indicate that the soil and groundwater have likely not been impacted by petroleum hydrocarbons, TCB "A" will be drilled and sampled. TCB "A" will be located approximately 50 feet west of the UST at the site. If analytical results indicate that soil and groundwater in TCB "A" have not been impacted with elevated concentrations of petroleum hydrocarbons (with emphasis on the benzene concentration), TCB "AA" would be grouted to the surface and TCB "A" would be converted to a permanent groundwater monitoring well. If soil and groundwater samples collected from TCB "A" are reported to contain elevated concentrations of petroleum hydrocarbons, TCB "A" will be grouted to the surface and TCB "AA" will be converted to a permanent monitoring well.

If, however, data indicates that the soil and groundwater in TCB "AA" has been impacted by petroleum hydrocarbons or benzene greater than 50  $\mu\text{g/L}$ , TCB "AAA" would be drilled approximately 150 feet west of the UST and TCB "C" would be drilled approximately 100 feet northwest of the UST (in the interior of 3927 East 14th Street). If TCB "AAA" and "C" are drilled and sampled, and the results indicate that the soil and groundwater have not been impacted, TCB "AA" will be grouted to the surface and TCBs "AAA" and "C" (if appropriate based on the field data) would be converted to permanent monitoring wells.

A similar process, including the drilling of up to three TCBs, field screening, and installation of one permanent monitoring well, will be repeated along 40th Avenue south of the UST at the site (Figure 1). These TCBs are labeled "B", "BB", "BBB", for discussion purposes. During the field investigation, drilling on the south side of the site will begin at TCB "BB". It is proposed to initially drill TCB "BB" approximately 110 feet south of the UST (Figure 1). If field screening of the soil samples and the analytical results obtained from the on-site laboratory indicate that the soil and groundwater have likely not been impacted by petroleum hydrocarbons, TCB "B", approximately 60 feet south of the UST, will be drilled and sampled. If analytical results indicate that soil and groundwater in TCB "B" have not been impacted with elevated concentrations of petroleum hydrocarbons, TCB "BB" would be grouted to the surface and TCB "B" would be converted to a permanent groundwater monitoring well. If soil and groundwater samples collected from TCB "B" are reported to contain elevated concentrations of petroleum hydrocarbons, TCB "B" will be grouted to the surface and TCB "BB" converted to a permanent monitoring well.

If, however, data indicates that the soil and groundwater in TCB "BB" has been impacted by petroleum hydrocarbons or benzene greater than 50  $\mu\text{g/L}$ , TCB "BBB" would be drilled approximately 160 feet south of the UST. If TCB "BBB" is drilled and sampled, and the results indicate that the soil and groundwater have not been impacted, TCB "BB" will be grouted to the surface and TCB "BBB" will be converted to a permanent monitoring well. It is judged likely that the southern extent of the petroleum hydrocarbon impacted soil and groundwater is not further than 150 feet south of the UST at the site. In the event that preferential paths of migration do exist, and elevated concentrations of petroleum hydrocarbons have extended further than 150 feet to the south, if sufficient time is available, a fourth TCB would be drilled and sampled approximately 200 feet south of the UST.

Based on further review of the previous results and conditions encountered in the field, the order of the installation of the TCBs at the site may change. A minimum of four potential drilling locations will be cleared by an underground utility locating service both south and west of the UST.

The above field work will be performed concurrent with the removal of the on-site UST by others. ATC will collect up to four sidewall samples, and one groundwater sample if sufficient groundwater is present in the UST excavation to allow sampling.

#### Laboratory analysis

During the initial field investigation involving the installation of TCBs and permanent groundwater monitoring wells, up to twelve (12) soil samples and five (5) groundwater samples will be analyzed on-site by a State-certified mobile analytical laboratory, or delivered to a State-certified laboratory for analysis on a five- to seven-day turn around basis for TPHg and BTEX by EPA Method Nos. 8015 and 8020, respectively. Groundwater samples will be analyzed by the mobile laboratory on a priority basis with soil samples analyzed as time allows. Samples not analyzed on-site will be delivered to the stationary lab for analysis.

Well installation activities will be coordinated with the removal of the UST so that the lithology in the tank pit may be observed and samples taken from the excavation sidewalls. If sufficient water is encountered, one water sample will also be taken. Sample collection, storage, and transport will be performed in general accordance with chain-of-custody procedures. Excavation-related samples will be transported to a State-certified hazardous waste laboratory for analysis for TPHg/BTEX, TPHd, and TPHmo on a one week turnaround basis.

#### Groundwater monitoring

Groundwater monitoring will be conducted following the installation of the new permanent groundwater monitoring wells. The monitoring event would include the development and sampling of the newly installed groundwater monitoring wells and the sampling of the one

previously installed groundwater monitoring well (MW-1). Depending on their schedule, the groundwater sampling would optimally be conducted in conjunction with the sampling being conducted at the neighboring Motor Partners facility. One groundwater sample would be collected from the one existing on-site monitoring well following measurement of the groundwater level in the well and purging of approximately four to five casing volumes of water. One groundwater sample would be collected from each of the newly installed groundwater monitoring wells following development of the wells. Development of the permanent groundwater monitoring wells would be performed approximately one week following the wells' construction or in conjunction with the sampling of the Motor Partners facility. Development of the monitoring wells removes sediment that may have accumulated in the well during construction and increases the hydraulic communication with the aquifer material. Measurements of pH, temperature, and specific conductivity will be taken during the purging, and data will be recorded on groundwater collection logs.

Groundwater will be sampled following the recovery of wells to at least 80 percent of their initial volume. The purged groundwater will be placed into labeled 55-gallon drums for storage. Groundwater samples will be placed in the appropriate containers supplied by the analytical laboratory. Groundwater samples will be retained on ice in an insulated chest for delivery to the laboratory for analysis. Sample collection, storage, and transport will be performed in general accordance with chain-of-custody procedures. Groundwater sampling will be conducted in general accordance with the field procedures of ATC Environmental Inc., which are in general accordance with Regional Water Quality Control Board (RWQCB) and ACDEH guidelines.

Groundwater samples collected during the monitoring event will be transported to a State-certified hazardous waste laboratory for analysis using chain-of-custody procedures. Samples will be analyzed for total petroleum hydrocarbons as gasoline (TPHg) in general accordance with Environmental Protection Agency (EPA) Method No. 8015 (modified); for total petroleum hydrocarbons as diesel (TPHd) in general accordance with EPA Method No. 8015 (modified); for benzene, toluene, ethylbenzene, and total xylenes (BTEX) in general accordance with EPA Method No. 8020; and for total petroleum hydrocarbons as motor oil (TPHmo) in general accordance with EPA Method No. 8015 (modified). Samples will be analyzed on a five- to seven-day turn around time by the laboratory. One trip blank will be analyzed for TPHg and BTEX in general accordance with modified EPA Method Nos. 8015/8020, respectively.

#### Data evaluation and report preparation


The result of the soil and groundwater investigation will be summarized in a technical report. The report will include a summary of the field activities and procedures, analytical results, a discussion of the results, a site map showing the sample locations, well construction logs, and boring logs. The report will also contain recommendations, if judged appropriate.

**SCHEDULE**

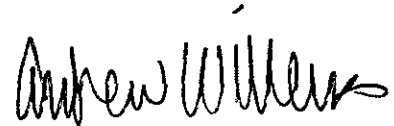
This workplan will be implemented upon the approval of ACDEH. It is anticipated that the field portion of the scope of work will require 3 weeks to complete. The report will be prepared and submitted approximately four weeks following completion of all field activities.

If you have any questions regarding this workplan please call the undersigned at your convenience.

Sincerely,  
ATC Environmental Inc.

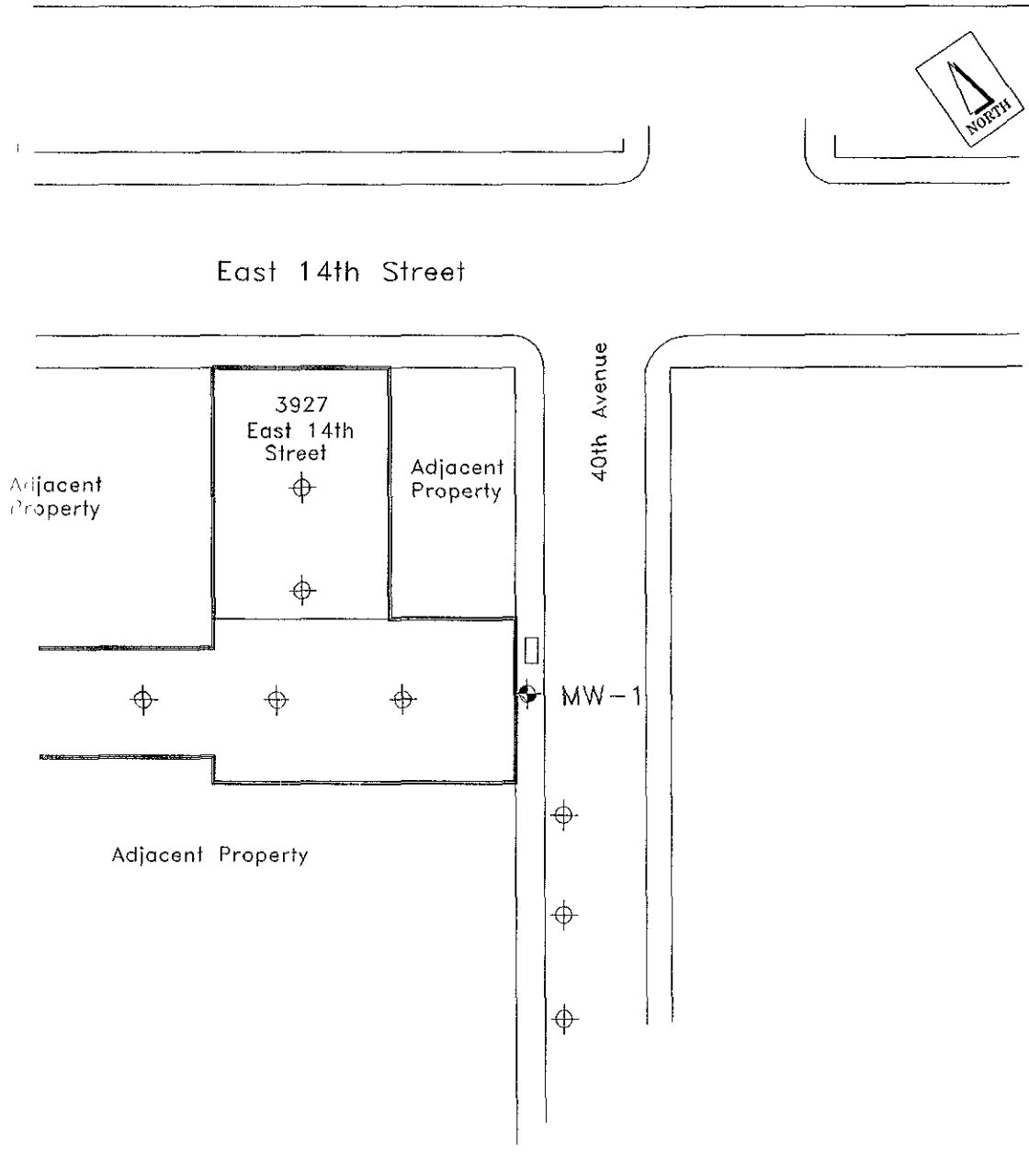


WILLIAM G. THEYSKENS, CEG, CHG  
Branch Manager



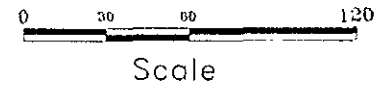
ANDREW F. WILLERTON  
Senior Staff Geologist

cc: Mr. Tommy Conner



EXPLANATION

- ⊕ Location and Designation of Proposed Borings
- ⊕ MW-1 Existing Well



**ATC** ENVIRONMENTAL INC.  
 3927 East 14th Street  
 Oakland, California  
 Project No. 61137.0001 Figure 1