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November 13, 2006

Mr. Jerry Wickham
Alameda County
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: **StID#3337**
Site Address: 3609 International Blvd., Oakland, California

Dear Mr. Wickham:

SOMA's "Work Plan for the Installation of a Groundwater Extraction Well in UST Cluster Backfill" for the subject property has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

Thank you for your time in reviewing our report. If you have any questions or comments, please call me at (925) 734-6400.

Sincerely,

REGISTERED PROFESSIONAL ENGINEER
MANSOUR SEPEHR
No. C042928
Exp. 3-31-08
CIVIL
STATE OF CALIFORNIA

Enclosure

cc: Mr. Abolghassem Razi w/report enclosure
Tony's Express Auto Service

Mr. Vince Tong w/report enclosure
Traction International

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Work Plan for the Installation of a Groundwater Extraction Well in UST Cluster Backfill at 3609 International Boulevard Oakland, California Fuel Leak Case #RO0000265

Project 2330

November 13, 2006

Prepared for

Mr. Abolghassem "Tony" Razi
50 Stewart Drive
Tiburon, California

Prepared by

SOMA Environmental Engineering, Inc.
6620 Owens Drive, Suite A
Pleasanton, California 94588

CERTIFICATION

This workplan has been prepared by SOMA Environmental Engineering, Inc. on behalf of Mr. Abolghassem “Tony” Razi, the property owner of 3609 International Boulevard, Oakland, California, to comply with a request from the Alameda County Environmental Health Services in correspondence to Mr. Razi dated October 24, 2006.

Mansour Sepehr, Ph.D., P.E.
Principal Hydrogeologist

REGISTERED PROFESSIONAL ENGINEER
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No. C042928
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1.0 INTRODUCTION

This workplan has been prepared by SOMA Environmental Engineering, Inc. (SOMA) on behalf of Mr. Abolghassem “Tony” Razi, the property owner of 3609 International Boulevard, Oakland, California (Site). The location of the Site is shown on Figure 1. Currently, the Site is an operating gasoline service station.

Due to the continued detection of elevated concentrations of fuel hydrocarbons in the groundwater at the Site, indicating that a significant contaminant source remains at the Site, this work plan has been prepared in response to a request from the Alameda County Environmental Health Services (ACEHS) to increase the rate of mass removal from the area of the underground storage tank (UST) cluster. The ACEHS’s request was included in correspondence to Mr. Razi, dated October 24, 2006. In a meeting at the ACEHS’s offices on October 24, 2006, attended by Mr. Razi, the ACEHS and SOMA, the ongoing remedial measures on the Site were discussed, leading the ACEHS to conclude that plume control appears to be achieved through groundwater extraction, however the rate of mass removal appears to be low. Based on the relatively high concentrations of dissolved fuel hydrocarbons detected near the UST cluster, in groundwater monitoring wells MW-1 and MW-3, SOMA indicated that increased mass removal could be achieved by extracting groundwater from the UST cluster backfill.

2.0 SCOPE OF WORK

The objectives of this workplan have been organized into the following tasks:

1. Permit acquisitions and preparation of a health and safety plan;
2. Installing one groundwater extraction well in the UST cluster backfill and incorporating the extraction well into the Site’s groundwater remediation system; and
3. Prepare a well installation report.

2.1 Field Preparation and Permit Acquisition

Prior to commencing field activities, SOMA will obtain a drilling permit from the ACEHS. The site-specific Health and Safety Plan (HASP) that was previously prepared by SOMA will be updated to address safety provisions during the field activities and provide procedures to protect the field crew from physical and chemical hazards resulting from the drilling. The HASP will establish personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans.

To comply with the HASP, SOMA will also contact Underground Service Alert (USA) to clear the proposed drilling areas of underground utilities. Following the USA clearance, a private utility locator will also survey the proposed drilling areas to locate additional subsurface conduits, if any, and recommend the safest location to drill.

2.2 Groundwater Extraction Well

The location of the proposed groundwater extraction well is illustrated on Figure 2. The groundwater extraction well will be completed to an approximate depth of 20 feet below ground surface (bgs), depending upon the depth of the UST cluster backfill material and native soil lithology encountered, and screened across the UST backfill material. The well will be drilled and completed using hollow-stem auger drilling and well completion/construction techniques. A boring log for the extraction well will be completed. Soil samples will not be collected for laboratory analyses. The well will be developed following completion.

The well will be constructed with 4-inch diameter, Schedule 40 PVC blank casing and well screen with 0.020-inch slotting. Filter pack material will consist of No. 3 Monterey sand. The well screen interval will be selected based on field observations during the well borehole drilling, but a screen interval of 15 feet would be adequate. The well will be developed by surging and bailing following construction completion. A California-licensed land surveyor will survey the well to determine latitude, longitude, and top of casing elevation relative to the California State Coordinate system, using NAD 83 and vertical elevation using NAVD 88. The well survey data and an updated site map will be uploaded to the GeoTracker system.

Following the well completion, an electrical pump will be installed inside the well for pumping purposes. The pumped groundwater from this well will be discharged into the equalization tank for treatment.

Soil and wastewater generated during the boring activities will be temporarily stored on-site in separate DOT-rated 55-gallon steel drums pending characterization, profiling and transportation to an approved disposal/recycling facility.

A description of the general field procedures is included in Attachment 1.

2.3 Report Preparation

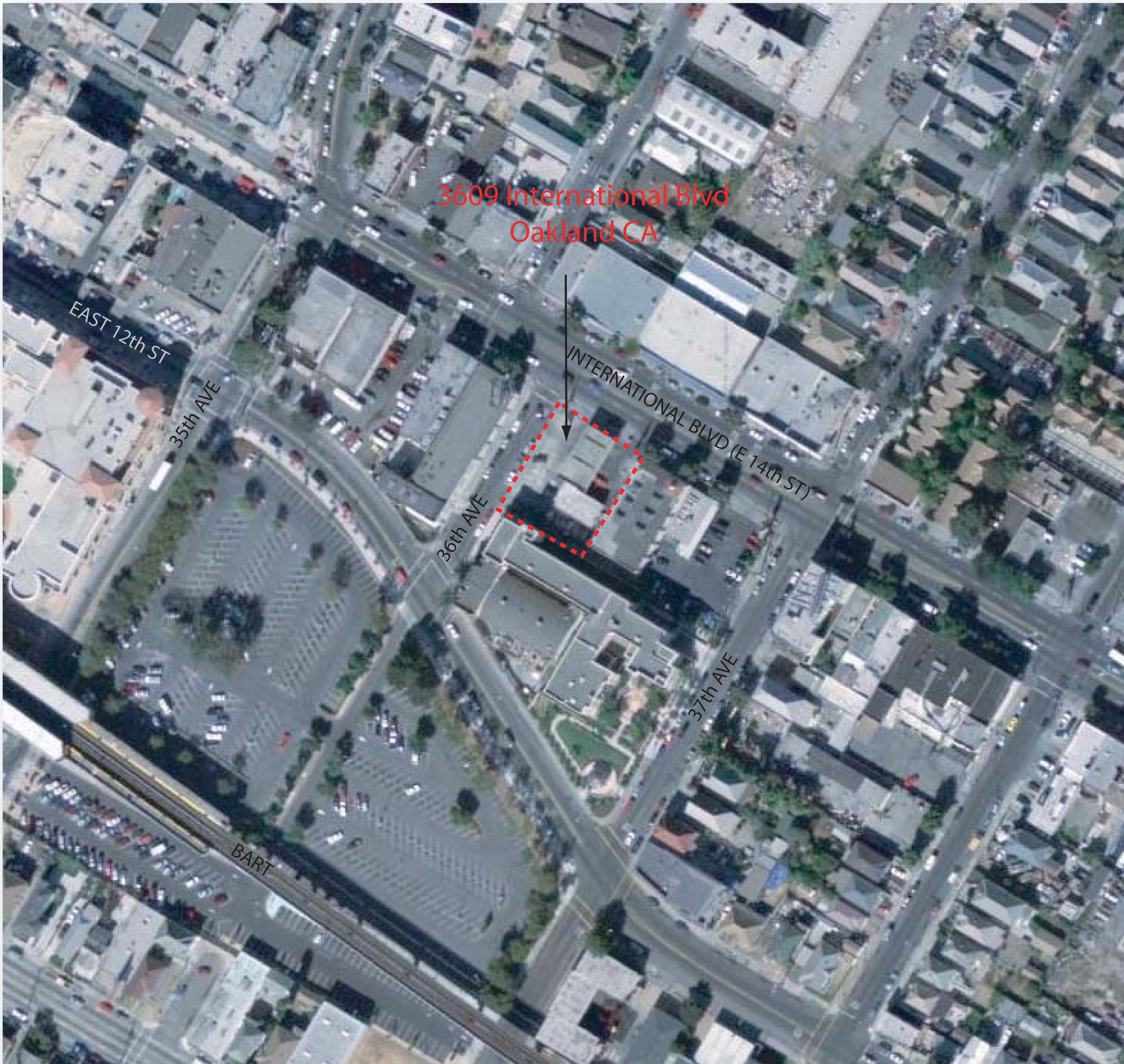
SOMA will prepare a report that will include the following:

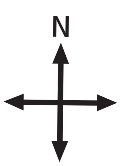
- A description of the field activities;
- Boring log; and,
- A map illustrating the location of the groundwater extraction well.

3.0 SCHEDULE

This work plan will be implemented upon receiving written authorization from the ACEHS. SOMA anticipates that the scope of work described in this work plan will be completed within a time period of eight to ten weeks, under normal conditions, from the date of obtaining necessary approvals, authorizations and permits. Field activities will be scheduled according to the availability of necessary equipment and personnel.

FIGURES





approximate scale in feet
0 150 300

Figure 1: Site vicinity map.

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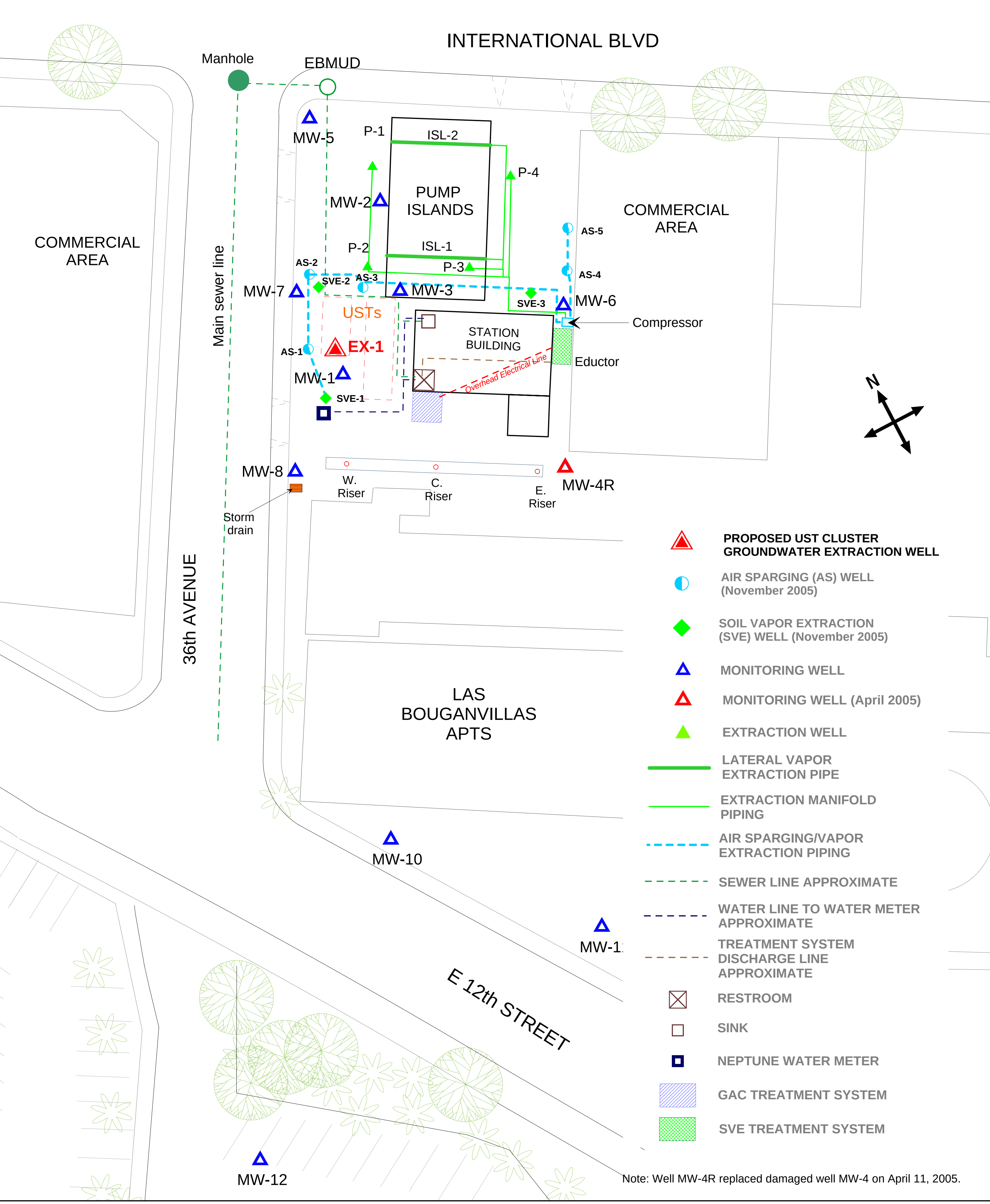

Figure 2: Site map showing locations of air sparging wells, groundwater monitoring wells, proposed UST cluster groundwater extraction well, additional soil vapor wells, GAC system, & SVE system.

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ATTACHMENT 1

Field Procedures

FIELD AND LABORATORY PROCEDURES

Direct-Push, Hydraulic Push (Geoprobe) Drilling and Soil Sampling

Soil borings are advanced using direct-push large bore techniques. Soil sampling is performed using a Large Bore (LB) sampler containing a removable polybutyrate liner. Soil samples are collected at five feet depth intervals to total depth at each boring location. The sampler is driven over the sampling interval by hydraulic ram. The sampler is then retrieved and the liner exposed to extrude the sampled soil. The soil is screened with a Photo-Ionization Detector (PID), and examined and described in accordance with the Unified Soil Classification System. The portion of the liner to be submitted for laboratory analysis is then trimmed to an approximate 6-inch length, covered at both ends with Teflon tape, sealed at both ends with polyethylene end caps, labeled, logged on a chain-of-custody form, and placed in an ice chest containing ice, and kept at 4^0C for transport to the analytical laboratory for analyses.

Alternatively, precleaned push rods (typically one to two inches in diameter) are advanced using a hydraulic push type rig for the purpose of collecting samples and evaluating subsurface conditions. Upon arriving at the designated sampling point, the pointed push tip is retracted to expose the sampler lined with brass, stainless steel or plastic sample tubes. The sampler is pushed, or driven using a hydraulic hammer, into underlying soil approximately 12 to 18 inches to fill the sample tubes. Once the sample is collected, the rods and sampler are retracted and the sample tubes are removed from the sampler head. The sampler head is then cleaned, filled with clean sample tubes, inserted into the borehole and advanced to the next sampling point where the sample collection process is repeated. The soil is screened with a Photo-Ionization Detector (PID), and examined and described in accordance with the Unified Soil Classification System. The portion of the liner to be submitted for laboratory analysis is then trimmed to an approximate 6-inch length, covered at both ends with Teflon tape, sealed at both ends with polyethylene end caps, labeled, logged on a chain-of-custody form, and placed in an ice chest containing ice, and kept at 4^0C for transport to the analytical laboratory for analyses.

Upon completion of drilling and sampling, the rods are retracted, and the resulting borehole is filled with concrete, bentonite grout, hydrated bentonite chips or pellets as required by the regulatory agency. Cement is tremied into place as the push rods are removed. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finish grade.

Groundwater Sampling

Groundwater samples are collected at each boring location using a Screen Point 15 (SP15) groundwater sampler. Once the sampler is set the screen sleeve was pulled back exposing a five-foot length of slotted PVC screen.

Groundwater samples are collected using a small diameter stainless steel or disposable bailer and transferred to laboratory supplied and preserved glass containers with Teflon lined lids at the base of the bailer, via a Teflon check valve and nipple. Each sample container is completely filled allowing no headspace following placement of the Teflon-lined lid. Following transference, each sample container is labeled, logged on a Chain-Of-Custody form, and placed in an ice chest to be kept at 4^0C during transport to the analytical laboratory. Prior to initial collection and between borings, the stainless steel bailer is field decontaminated to avoid cross-contaminating the collected groundwater samples.

During the sampling process a physical description of observed soil characteristics (i.e. moisture content, consistency, odor, color, etc.), drilling difficulty, and soil type as a function of depth are described on boring logs in accordance with the Unified Soil Classification System (USCS).

No soil cuttings are generated during drilling as the underlying soils are displaced by the push rods. However, hand auger cuttings generated in the upper five feet during the initial utility clearance may be compacted in the upper portion of the hole immediately under the asphalt cap.

Groundwater Monitoring Well Drilling and Soil Sampling

Groundwater monitoring well and soil sampling/exploratory borings are drilled using Hollow-Stem Auger (HSA) drilling equipment. Soil samples from borings are collected at five-foot intervals using a modified California split spoon sampler fitted with three 1-1/2 inch by 6-inch brass or stainless steel liners. Soil samples are collected by advancing the borehole to the desired sampling increment (five-foot intervals) and lowering the modified California sampler through the hollow-stem auger string to the bottom of the borehole. The sampler is then advanced 18-inches ahead of the auger string using a 140-pound hammer. The sampler is then removed from the borehole and hollow-stem auger string and broken down into its component parts. The first, or tip, liner is retrieved for possible laboratory analyses. The collected sample is then labeled, logged on a Chain-Of-Custody form, and placed in an ice chest containing ice, and kept at 4^0C for transport to the analytical laboratory for analyses. The second liner is screened for the presence of fuel hydrocarbon concentrations using a photo-ionization detector (PID). The contents of the second and third liner are extruded and examined to prepare a soil lithologic log for each boring in accordance with the Unified Soil

Classification System, and to inspect the soil for visual evidence of fuel hydrocarbons including staining, discoloration or odors.

Soil cuttings generated during drilling are placed in 55-gallon capacity DOT rated steel drums, labeled, and stored on the Site pending transport for offsite treatment/disposal. Each drum is labeled with date of accumulation, station address, contents, owner, and a contact phone number.

Drill bits, drill stem, drive casing and other tools used in well borehole drilling and soil sampling are thoroughly steam cleaned before initial use and between use at each subsequent well borehole location. The modified California sampling tube and stainless steel liners are washed in clear water, washed in a mixture of Liquinox and clear water, rinsed in clear water, rinsed in distilled water, rinsed in deionized water, and allowed to air dry prior to their initial use, and prior to subsequent use downhole. Water produced during equipment decontamination is contained in 55-gallon capacity DOT rated steel drums, labeled, and stored on the Site pending transport for offsite treatment/disposal. Each drum is labeled with date of accumulation, station address, contents, owner, and a contact phone number.

Groundwater Monitoring Well Installation

In each well boring, when the desired borehole depth is reached, blank casing, screen, filter pack, and bentonite seal are installed inside the HSA auger string. During the installation of well construction materials, the HSA auger string is removed in sequence, leaving the completed monitoring well installation in the borehole. A bentonite/cement grout slurry was then tremied into place to ground surface.

Materials used for constructing each monitoring well include 2 to 4-inch diameter interior/exterior flush threaded NSF approved rigid PVC Schedule 40 well casing and well screen. Well screen perforations are precision machine slotted. Screen slot sizes are 0.02-inch (20 slot) to maximize development of the monitoring well, expedite purging of the well prior to sampling, and lower groundwater entrance velocities thereby minimizing volatilization of groundwater quality samples collected from the monitoring well. The well screen is positioned to provide at least 5 feet of screen length above and below the elevation at which saturated conditions are encountered in the boring during drilling, so as to adequately compensate for any annual fluctuations in the groundwater surface, thereby allowing accurate determination of groundwater elevations at any time of the year, and provide representative groundwater samples. All screen/casing strings are threaded together. The use of solvent glues is not allowed to assemble the screen/casing strings. Filter pack material utilized is clean, rounded, water-worn material, and is installed in the annular space adjacent to the well screen, to a distance of at least 2-feet above the top of the well screen section. Within the annular space above the filter pack material, a minimum 2-foot thick hydrated bentonite chip seal is placed. The remaining portion of the annular space is sealed with a slurry equivalent to a 10.3 sack mix (188 pounds of sand and 94 pounds of cement per 7 gallons of water) to ground surface. To protect the monitoring wells from accidental damage or tampering, a traffic rated minimum 12-inch diameter utility box with an internal steel protective cover and locking cap is placed over each monitoring wellhead set in concrete and resting flush with existing grade.

All well screen/casing strings are thoroughly steam cleaned prior to insertion in each well borehole. All well construction materials (filter pack, bentonite and cement) are stockpiled away from drilling and sampling activities on polyethylene sheeting and covered to prevent contamination. Each well is completed utilizing rigid NSF approved PVC casing and screen.

Groundwater Monitoring Well Development

Groundwater monitoring wells are developed by mechanically surging the screened portion of each well with a vented surge block, followed by bailing the well to remove material entering the well through the well screen in response to surging operations. Development operations continue until pH, conductivity and temperature readings stabilize to within 10 percent of the previous two readings, or 10 borehole volumes of groundwater have been removed from the well. Temperature, pH and conductivity were measured using a hand-held field meter. The meter was calibrated prior to daily use in accordance with the manufacture's specifications.

Water produced during well development activities is contained in 55-gallon capacity DOT rated steel drums and securely stored on the Site pending transport for offsite treatment/disposal. Each drum is labeled with date of accumulation, street address, contents of the drum, owner, and a contact phone number.

Groundwater Monitoring Well Purging and Sampling

Prior to purging, the monitoring well is evaluated for the presence of LNAPL using an electrical interface probe. Groundwater surface elevation in the monitoring well is then measured. Measurements are made using an electrical water level meter graduated in tenths of inches. The elevations are measured at the top of casing of each well. The top of casing of each well is referenced to the site-specific benchmark.

Each well is then purged of stagnant groundwater prior to sampling utilizing a 2-inch electrical submersible pump to assure the collection of representative samples of groundwater for analyses. Purging continues until pH, conductivity and temperature readings stabilize to within 10 percent of the previous two readings, or 5 borehole volumes of groundwater have been removed from the well. Temperature, pH and conductivity are measured using a hand-held field meter. The meter is calibrated prior to daily use in accordance with the manufacture's specifications. Water produced well purging is contained in 55-gallon capacity DOT rated steel drums and securely stored on the Site pending transport for offsite treatment/disposal. Each drum is labeled with date of accumulation, street address, contents of the drum, owner, and a contact phone number.

Following purging, groundwater samples from each well are collected utilizing a 1-inch diameter by 5-foot long unused, disposable, polyethylene point-source bailer. Groundwater samples are transferred to laboratory supplied and preserved glass containers with Teflon lined lids at the base of the bailer, via a Teflon check valve and nipple. Each sample container was completely filled allowing no headspace following placement of the Teflon-lined lid. Following transference, each sample container was labeled, logged on a Chain-Of-Custody form, and placed in an ice chest to be kept at $4^{0}C$ during transport to the analytical laboratory.

Prior to initial use and between subsequent purging events the submersible pump used for well purging is field decontaminated by submerging the pump in a mixture of Liquinox and clear water and pumping approximately 15 gallons of the mixture through the pump and the discharge line. Discharge is contained in a 55-gallon capacity DOT rated steel drum and securely stored on the Site pending transport for offsite treatment/disposal. The drum is labeled with date of accumulation, street address, contents of the drum, owner, and a contact phone number. The pump is then removed and rinsed in clear water, rinsed in distilled water, rinsed in deionized water, and allowed to air dry. The outer casing of the discharge line is washed in clear water, washed in a mixture of Liquinox and clear water, rinsed in clear water, rinsed in distilled water, rinsed in deionized water, and allowed to air dry. At each monitoring well, a clean, unused bailer line was utilized to lower and raise the sampling bailer.