Environmental
Science &
Engineering, Inc.
A CILCORP Company

November 21, 1995

Mr. Dale Klettke, CHMM
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

SUBJECT: WORKPLAN FOR PRELIMINARY SITE ASSESSMENT
JAMES RIVER FACILITY
2101 WILLIAMS STREET
SAN LEANDRO, CALIFORNIA
ESE PROJECT NO. 6595207

Dear Mr. Klettke:

This workplan describes the proposed scope of work to assess the extent of petroleum hydrocarbon (previously identified as lubricant) migration in soil and ground water at the subject facility (Figure 1 - Location Map). Pursuant to your written request to James River Corporation (James River) dated October 10, 1995, Environmental Science Engineering, Inc. (ESE) herein presents this workplan to perform a Preliminary Site Assessment (PSA).

INTRODUCTION

PURPOSE AND SCOPE

ESE presents this limited workplan to perform a PSA to ascertain the extent of lubricant in soil and ground water. The main objective of the PSA will be to:

- Delineate the extent of free phase floating product and dissolved phase product in soil and ground water at the edges of the building containing the vault.

The following work scope is proposed to achieve the above referenced objective:

- Perform a site visit and geophysical survey;
- Drill three soil borings and collect soil samples for chemical analysis;

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- Install three temporary monitoring wells and collect ground water samples for chemical analysis;

- Evaluate the field and analytical data to assess the extent of lubricant migration in soil and ground water and assess the need for additional characterization; and

- Prepare a technical report documenting the investigative procedures, summary of the findings, and present conclusions and recommendations.

BACKGROUND

At the request of James River, ground water sampling was performed by Harding Lawson Associates (HLA) at the site on December 21, 1993. One sample of ground water was manually collected from inside the ram housing of the bailer system located at the bottom of a 20-foot deep vault (vault). Approximately 0.4-foot of free phase floating petroleum hydrocarbon product was reported to be observed floating on ground water. Laboratory chromatographic patterns of the ram house lubricant and the floating product were reported to be similar to the laboratory standard for motor oil.

A soil boring was drilled under the supervision of HLA on February 1, 1994 at a location approximately 20-feet west-southwest and hydraulically downgradient from the vault. Subsurface sediments were reported to be comprised of sandy gravel fill material to a depth of five feet underlain by sandy clay to a depth of 21 feet. Free phase product was encountered at a depth of approximately 15.5 feet.

Analytical results for two soil samples collected beneath 15.5 feet were reported to contain 3,100 and 5,700 milligrams per kilogram (mg/Kg) of total petroleum hydrocarbons as motor oil (TPH-MO). Ground water was encountered at a depth of approximately 19-feet below warehouse grade. One Hydropunch® ground water sample collected in the boring was reported to contain 110 milligrams per liter (mg/L) TPH-MO. The sample of virgin lubricant was analyzed and compared to the gas chromatograph (GC) pattern of the free product and found to be similar. HLA concluded that lubricant from the bailer mechanism had leaked from the vault into the surrounding soil and downgradient from the vault.

At the request of James River, ground water sampling of existing site wells has been performed by ESE since the First Quarter, 1995. Ground water samples have been collected from wells W-7 and W-8 located south (cross-gradient) from the vault at a distance of approximately 170 feet and 270 feet, respectively.

One ground water sample collected from well W-7 on May 2, 1995 was reported to contain 9.6 mg/l TPH-MO. Ground water samples collected on February 22, 1995 and July 6, 1995 from W-7 were not reported to contain detectable concentrations of TPH-MO.

Based on these findings, the Alameda County Health Care Services Agency (HCSA) has confirmed the occurrence of a release from the vault system and has requested that a PSA be performed to determine the extent of petroleum hydrocarbon impact to soil and ground water.

PROPOSED INVESTIGATIVE PROCEDURES

This PSA will consist of a field investigation, a laboratory testing program, and preparation of a technical report. This work and the activities summarized below are intended to be consistent with the requirements of the HCSA. Standard operating procedures (SOPs), relevant to the field investigation and laboratory activities, are described in Appendix A.

FIELD INVESTIGATION

The field investigation will consist of a site visit and geophysical survey, drilling soil borings and collection of soil samples for chemical analyses, and temporary monitoring well installation and sampling.

Site Visit and Geophysical Survey

Immediately after submitting the workplan to HCSA for approval, ESE will prepare a Health and Safety Plan (HASP) and will perform a site visit to observe the site layout, the proposed soil boring locations, and all existing blueprints delineating underground utilities. In addition, ESE will conduct a geophysical survey to delineate subsurface utilities and trenches. The survey will consist of the application of Ground-Penetrating Radar (GPR) to identify the location, shape, and trend of subsurface objects caused by variations in material density such as solid utility lines and trench backfill. The survey will also utilize a locating device which induces an electromagnetic signal into the ground and detects electromagnetic fields generated by metallic objects such as utility lines, tanks, and pipes. This is a critical step to ensure that drilling activities do not impact James River site operations and to identify potential pathways for the migration of lubricant product in highly permeable backfill materials.

Soil Boring Locations and Soil Sampling Criteria

Within ten working days of workplan approval by the HCSA, ESE will schedule drilling activities with James River. Soil borings will be drilled and soil samples collected and analyzed to evaluate the vertical and horizontal extent of lubricant migration through the soil and ground water. Figure 2 shows the proposed soil boring locations. The final soil boring locations may be adjusted in the field due to underground utilities and other site improvements.

The subsurface investigation will occur over a period of one day and will be comprised of drilling at the three proposed locations subsequent to utility clearance (Figure 2 - Site Map). ESE will notify the HCSA of the scheduled field activities at least 48 hours prior to commencement. Upon arrival at the site and prior to the commencement of field activities, ESE will meet with subcontractor personnel to review the HASP and James River health and safety guidelines. ESE will supervise Exploration Geoservices, Inc. (EGI) of San Jose, California (a State-licensed drilling contractor) during all drilling activities. The soil borings will be advanced to the occurrence of ground water, estimated to be at a depth of approximately 20-feet below grade, using eight-inch outer diameter hollow stem augers. An ESE geologist will record the subsurface sediments on a boring log according to the Unified Soil Classification System (USCS), identify the occurrence of any impacted soil in the unsaturated and saturated zones, and determine the depth to ground water. Soil samples will be collected at five-foot intervals and at the soil-ground water interface in accordance with ESE Standard Operating Procedure (SOP) No. 1 (Appendix A) and screened for volatile organic compounds (VOCs) using a photoionization detector (PID).

Soil samples collected at the soil-ground water interface in each boring (total of three) will be labeled, placed in a cooler, and transported under chain-of-custody documentation to Curtis & Tompkins, Ltd. (a State-certified laboratory) of Berkeley, California.

Temporary Monitoring Well Installation

ESE will install and develop temporary four-inch diameter ground water monitoring wells in each of the soil borings. The lower 15 feet of the well casings will be comprised of factory perforated PVC (0.010-inch slots) and the upper 5 feet of the wells will be comprised of blank PVC. A sand pack comprised of No. 2/12 sand will be placed in the borehole annulus, from the bottom of the well casing up to one to two feet above the top of the slotted portion, by pouring the clean sand through the hollow stem augers. Approximately one foot of bentonite pellets will be placed on top of the sand pack. To facilitate easy removal or permanent installation of the wells within approximately two weeks, the bentonite pellets will not be hydrated by the addition of water. However, the pellets will hydrate if infiltrated with surface water from a storm event thereby preventing the potential introduction of contaminants. A locking well cap will be placed on the top of the PVC casing and the well area will be protected using a barricade. All well completion details will be recorded by the ESE geologist on the geologic boring logs. The ESE geologist will mark the top of the casing of each temporary well and will survey the elevation of that mark using existing well casings with known relative elevations. All surveying will be performed using an automatic level. The temporary monitoring wells will be developed using surging and bailing techniques as described in ESE SOP No. 2 (Appendix A).

ESE will purge and collect ground water samples from the three temporary wells and from two of the existing site wells identified as W-7 and W-10 located cross-gradient and upgradient, respectively. All ground water monitoring will be performed in accordance with ESE SOP No. 3 (Appendix A). All ground water samples collected will be visually examined for the presence of free phase product. If no free phase product is identified, the samples will be decanted into appropriate laboratory containers, placed in a cooler with ice, and transported under chain-of-custody documentation to Curtis & Tompkins. If free phase floating product is identified on a ground water sample, James River will authorize ESE to collect one free phase product sample for chemical analysis by Curtis & Tompkins.

Soil and Water Disposal

All soil cuttings, purge water, and decontamination rinseates will be placed in 55-gallon DOT-rated steel drums and stored onsite at a location designated by a James River representative pending receipt of analytical results. For cost-effectiveness, disposal of the drummed materials will be performed upon completion of all ground water monitoring well installation activities related to this project or within 90 days, whatever occurs first.

LABORATORY TESTING PROGRAM

The soil and ground water samples will be analyzed on a normal 10-day turnaround time basis for total petroleum hydrocarbons as hydraulic fluid (TPH-HF) using EPA Method 8015 (modified per CA LUFT). ESE will request that Curtis & Tompkins compare the sample chromatograms specifically with the laboratory hydraulic fluid standard.

If free phase floating product is identified on a ground water, James River will authorize ESE to sample the product and analyze it for the chemical constituents which impose the greatest degree of risk including BTEX using EPA Method 8020, the UST five metals, and semivolatile organic compounds (SVOCs) using EPA Method 8270.

TECHNICAL REPORT PREPARATION

Upon completion of the field and laboratory activities, ESE will prepare a PSA report in accordance with Tri-Regional Water Quality Control Board guidelines and HCSA requirements summarizing results and findings. The report will describe all site activities and present findings, conclusions, and recommendations. The report will also include site maps, a hydraulic gradient map, boring logs, and laboratory reports with chain-of-custody documents.

PROJECT SCHEDULE

It is estimated that the proposed scope of work will take approximately four weeks to complete following the issuance of permits by the HCSA. This preliminary schedule is tentative and does not take into consideration additional time delays caused by significant changes in the scope of work, delays not caused by ESE and its subcontractors, and items considered Force Majeure. A summary of the estimated time to complete individual tasks is outlined below.

Upon receipt of HCSA review comments:

Week 1-2 Complete site visit and geophysical survey, subsurface investigation and ground water sampling;

Week 3 Submit draft PSA report to James River for review;

Week 4 Upon receipt of review comments, submit final PSA report to James River and the HCSA.

If you should have any questions regarding this workplan please do not hesitate in contacting Eric Garcia at (510) 685-4053.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

FOR:

Eric W. Garcia
Senior Staff Geologist

David Blunt, RG 4516
Senior Geologist

Attachments: Figure 1. Location Map
Figure 2. Site Map
Appendix A. ESE Standard Operating Procedures (SOPs)

cc: Regina Colbert, James River Corp.

SCALE 1:24,000

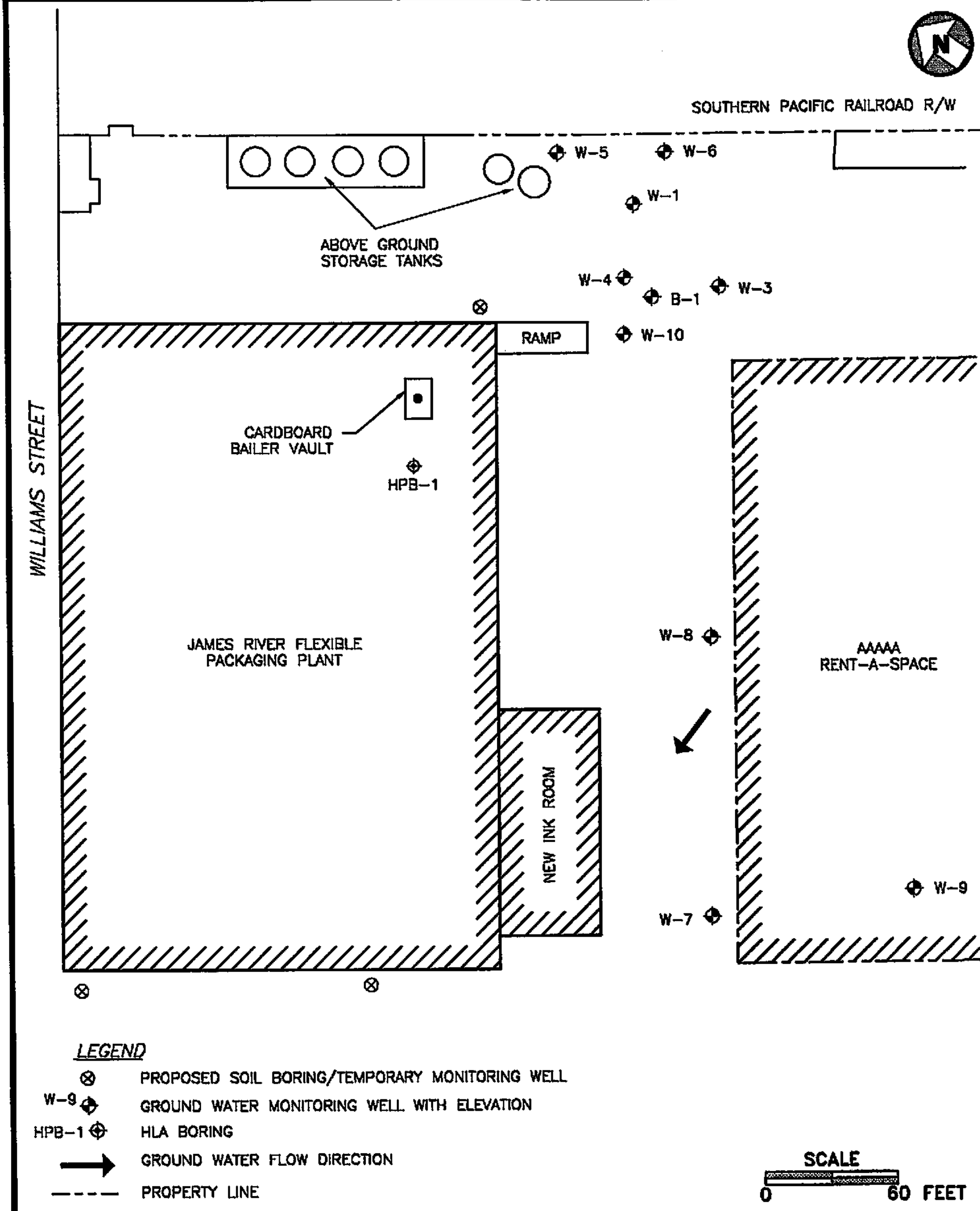
1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

ADAPTED FROM U.S.G.S. SAN LEANDRO, CA. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP 1959, PHOTOREVISED 1980.

ESE Environmental Science & Engineering, Inc. A CILCORP Company	DATE 11/21/95	LOCATION MAP	FIGURE NO. 1
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED / CAD FILE 65520701	JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA	PROJ. NO. 65-95-207



Environmental Science & Engineering, Inc.	DATE 11/21/95	SITE MAP	FIGURE NO. 2
	REVISED		
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 65520702	JAMES RIVER CORPORATION 2101 WILLIAMS STREET SAN LEANDRO, CALIFORNIA	PROJ. NO. 65-95-207

APPENDIX A

ESE STANDARD OPERATING PROCEDURES (SOPs)

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURES NO. 1
FOR SOIL BORINGS AND SOIL SAMPLING WITH HOLLOW-STEM AUGERS
IN UNCONSOLIDATED FORMATIONS

Environmental Science & Engineering, Inc. (ESE) typically drills soil borings using a truck-mounted, continuous-flight, hollow-stem auger drill rig. The drill rig is owned and operated by a drilling company possessing a valid State of California C-57 license. The soil borings are conducted under the direct supervision and guidance of an experienced ESE geologist. Prior to drilling, the ESE geologist will clear the borehole location with a hand auger to a depth of five feet. The ESE geologist logs each borehole during drilling in accordance with the Unified Soil Classification System (USCS). Additionally, the ESE geologist observes and notes the soil color, relative density or stiffness, moisture content, odor (if obvious) and organic content (if present). The ESE geologist will record all observations on geologic boring logs.

Soil samples are collected during drilling at a minimum of five-foot intervals by driving an 18-inch long Modified California Split-spoon sampler (sampler), lined with new, thin-wall brass sleeves, through the center of and ahead of the hollow-stem augers, thus collecting a relatively undisturbed soil sample core. The brass sleeves are typically 2-inches in diameter and 6-inches in length. The sampler is driven by dropping a 140-pound hammer 30-inches onto rods attached to the top of the sampler. Soil sample depth intervals and the number of hammer blows required to advance the sampler each six-inch interval are recorded by the ESE geologist on geologic boring logs. The ends of one brass sleeve are covered with Teflon sheeting, then covered with plastic end caps. The end caps are sealed to the brass sleeve using duct tape. Each sample is then labeled and placed on ice in a cooler for transport under chain-of-custody documentation to the designated analytical laboratory. A portion of the remaining soil in the sampler is placed in either a new Ziploc® bag or a clean Mason Jar® and set in direct sunlight to enhance the volatilization of any Volatile Organic Compounds (VOCs) present in the soil. After approximately 15-minutes that sample is screened for VOCs using a photoionization detector (PID). The PID measurements will be noted on the geologic boring logs. The PID provides qualitative data for use in selecting samples for laboratory analysis. Soil samples from the saturated zone (beneath the ground-water table) are collected as described above, are not screened with the PID, and are not submitted to the analytical laboratory. The samples from the saturated zone are used for descriptive purposes. Soil samples from the saturated zone may be retained as described above for physical analyses (grain size, permeability and porosity testing).

If the soil boring is not going to be completed as a well, then the boring is typically terminated upon penetrating the saturated soil horizon or until a predetermined interval of soil containing no evidence of contamination is penetrated. This predetermined interval is typically based upon site specific regulatory or client guidelines. The boring is then backfilled using either neat cement, neat cement and bentonite powder mixture (not exceeding 5% bentonite), bentonite pellets, or a sand and cement mixture (not exceeding a 2:1 ratio of sand to cement). However, if the boring is to be completed as a monitoring well, then the boring is continued until either a competent, low estimated-permeability, lower confining soil layer is found or 10 to 15-feet of the saturated soil horizon is penetrated, whichever occurs first. If a low estimated-permeability soil layer is found, the soil boring will be advanced approximately five-feet into that layer to evaluate its competence as a lower confining layer, prior to the termination of that boring.

All soil sampling equipment is cleaned between each sample collection event using an Alconox® detergent and tap water solution followed by a tap water rinse. Additionally, all drilling equipment and soil sampling equipment is cleaned between borings, using a high-pressure steam cleaner, to prevent cross-contamination. All wash and rinse water is collected and contained onsite in Department of Transportation-approved containers (typically 55-gallon drums) pending laboratory analysis and proper disposal/recycling.

Environmental Science & Engineering, Inc. (ESE) typically installs ground-water monitoring wells in unconsolidated sediments drilled using a truck-mounted hollow-stem auger drill rig. The design and installation of all monitoring wells is performed and supervised by an experienced ESE geologist. Figure A - Typical ESE Monitoring Well Construction Diagram (attached) graphically displays a typical ESE well completion. Prior to the construction of the well, the portion of the borehole that penetrates a lower confining layer (if any) is filled with bentonite pellets. The monitoring well is then constructed by inserting polyvinylchloride (PVC) pipe through the center of the hollow stem augers. The pipe (well-casing) is fastened together by joining the factory threaded pipe ends. ESE typically uses two-inch or four-inch diameter pipe for ground-water monitoring wells. The diameter of the borehole is typically 6-inches greater than that of the diameter of the well-casing, but is at least four-inches greater than that of the well casing. The lowermost portion of the well-casing will be factory perforated (typically having slot widths of 0.010-inch or 0.020-inch). The slotted portion of the well-casing will extend from the bottom of the boring up to approximately five-feet above the occurrence of ground water. A PVC slip or threaded cap will be placed at the bottom end of the well-casing, and a locking expandable well cap will be placed over the top (or surface) end of the well-casing. A sand pack (typically No. 2/12 or No. 3 Monterey sand) will be placed in the borehole annulus, from the bottom of the well-casing up to one to two-feet above the top of the slotted portion, by pouring the clean sand through the hollow stem augers. One to two-feet of bentonite pellets will be placed on top of the sand pack. The bentonite pellets will then be hydrated with three to four-gallons of potable water, to protect the sand pack from intrusion during the placement of the sanitary seal. The sanitary seal (grout) will consist of either neat cement, a neat cement and bentonite powder mixture (containing no more than 5% bentonite), or a neat cement and sand mixture (containing no more than a 2:1 sand to cement ratio). If, the grout seal is to be greater than 30-feet in depth or if standing water is present in the boring on top of the bentonite pellet seal, then the grout mixture will be tremied into the boring from the top of the bentonite seal using either a hose, pipe or the hollow-stem augers, which serve as a tremie. The well will be protected at the surface by a water tight utility box. The utility box will be set into the grout mixture so that it is less than 0.1-foot above grade, to prevent the collection of surface water at the well head. If the well is set within the public right of way, then the utility box will be Department of Transportation (DOT) traffic rated, and the top of the box will be set flush to grade. If the well is constructed in a vacant field a brightly painted metal standpipe may be used to protect the well from traffic. If a standpipe is used, it will be held in place with a grout mixture and will extend one to two-feet above ground surface. All well completion details will be recorded by the ESE geologist on the geologic boring logs.

Subsequent to the solidification of the sanitary seal of the well (a minimum of 72 hours), the new well will be developed by an ESE geologist or field technician. Well development will be performed using surging, bailing and overpumping techniques. Surging is performed by raising and lowering a surge block through the water column within the slotted interval of the well casing. The surge block utilized has a diameter just smaller than that of the well casing, thus, forcing water flow through the sand pack due to displacement and vacuum caused by the movement of the surge block. Bailing is performed by lowering a bailer to the bottom of the well and gently bouncing the bailer off of the well end cap, then removing the full bailer and repeating the procedure. This will bring any material (soil or PVC fragments) that may have accumulated in the well into suspension for removal. Overpumping is performed by lowering a submersible pump to the bottom of each well and pumping at the highest sustainable rate without completely evacuating the well casing. Effective well development will settle the sand pack surrounding the well-casing, which will improve the filtering properties of the sand pack and allow water to flow more easily through the sand pack; improve the communication between the aquifer and the well by aiding the removal of any smearing of fine sediments along the borehole penetrating the aquifer; and, remove fine sediments and any foreign objects (PVC fragments) from the well casing. The ESE geologist or technician will monitor the ground water purged from the well during development for clarity, temperature, pH and conductivity. Development of the well will proceed until the well produces relatively clear, sand-free water with stable temperature, pH and conductivity measurements. At a minimum, 10 well-casing volumes of ground water will be removed during the development process. Measurements of temperature, conductivity, pH and volume of the purged water and observations of purge water clarity and sediment content will be recorded on the ESE Well Development Data Forms. All equipment used during the well development procedure will be cleaned using an Alconox® detergent and tap water solution followed by a tap water rinse prior to use in each well. All ground water purged during the well development process and all equipment rinse water will be collected and contained onsite in DOT approved containers (typically 55-gallon drums) pending analytical results and proper disposal or recycling.

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE NO. 3 FOR GROUND-WATER MONITORING AND SAMPLING FROM MONITORING WELLS

Environmental Science & Engineering, Inc. (ESE) typically performs ground-water monitoring at project sites on a quarterly basis. As part of the monitoring program an ESE staff member will first gauge the depth to water and free product (if present) in each well, then collect ground-water samples from each well. Depth to water measurements are taken by lowering an electric fiberglass tape measure into the well and recording the occurrence of water in feet below a fixed datum set on the top of the well-casing. If free-phase liquid hydrocarbons (free product) are known or suspected to be present in the well, then an electric oil/water interface probe is used to determine the depth to the occurrence of ground-water and the free product in feet below the fixed datum on the top of the well-casing. Depth to water and depth to product measurements are measured and recorded within an accuracy of 0.005-foot. The electric tape and the electric oil/water interface probe are washed with an Alconox® detergent and tap water solution then rinsed with tap water between uses in different wells.

Ground-water samples are collected from a well subsequent to purging a minimum of three to four well-casing volumes of ground water from the well, if the well bails dry prior to the removal of the required minimum volume, then the samples are collected upon the recovery of the ground water in that well to 80% of its initial static level. Ground water is typically purged from monitoring wells using either a hand-operated positive displacement pump, constructed of polyvinylchloride (PVC); a new (precleaned), disposable polyethylene bailer; or, a variable-flow submersible pump, constructed of stainless steel and Teflon®. The hand pumps and the submersible pumps are cleaned between each use with an Alconox® detergent and tap water solution followed by a tap water rinse. During the well purging process the conductivity, pH and temperature of the ground water are monitored by the ESE staff member. Ground-water samples are collected from the well subsequent to the stabilization of the of the conductivity, pH and temperature of the purge water, and the removal of four well-casing volumes of ground-water (unless the well bails dry). The parameters are deemed to have stabilized when two consecutive measurements are within 10% of each other, for each respective parameter. The temperature, pH, conductivity and purge volume measurements, and observations of water clarity and sediment content will be documented by the ESE staff member on ESE Ground-Water Sampling Data Forms.

Ground-water samples are collected by lowering a new (precleaned), disposable polyethylene bailer into the well using new, disposable nylon cord. The filled bailer is retrieved, emptied, then filled again. The ground water from this bailer is decanted into appropriate laboratory supplied glassware and/or plastic containers (if sample preservatives are required, they are added to the empty containers at the laboratory prior to the sampling event). The containers are filled carefully so that no headspace is present to avoid volatilization of the sample. The filled sample containers are then labeled and placed in a cooler with ice for transport under chain of custody documentation to the designated analytical laboratory. The ESE staff member will document the time and method of sample collection, and the type of sample containers and preservatives (if any) used. These facts will appear on the ESE Ground-Water Sampling Data Forms. ESE will collect a duplicate ground-water sample from one well for every ten wells sampled at each site. The duplicate will be a blind sample (its well designation will be unknown to the laboratory). The duplicate sample is for Quality Assurance and Quality Control (QA/QC) purposes, and provides a check on ESE sampling procedures and laboratory sample handling procedures. When VOCs are included in the laboratory analyses, ESE will include a trip blank, if required, in the cooler with the ground-water samples for analysis for the identical VOCs. The trip blank is supplied by the laboratory and consists of deionized water. The trip blank is for QA/QC purposes and provides a check on both ESE and laboratory sample handling and storage procedures. Since disposable bailers are used for sample collection, and are not reused, no equipment blank (rinsate) samples are collected.