Environmental
Science &
Engineering, Inc.
A CILCORP Company

March 26, 1993

Project No. 6-91-5228

Ms. Patty Woods, Project Manager
The Hertz Corporation
225 Brae Boulevard
Park Ridge, NJ 07656-0713

SUBJECT: **Work Plan for Additional Soil and Ground-Water Investigation at Hertz Rent a Car, No. 1 Airport Drive, Oakland International Airport, Oakland, Alameda County, California**

Dear Ms. Woods:

Environmental Science & Engineering, Inc. (ESE) presents this work plan for additional investigation pursuant to your approval of ESE Proposal 93-C-059 (February 19, 1993) and authorization to proceed, dated March 22, 1993. The work plan addresses activities associated with defining the extent of petroleum hydrocarbons in soil and ground water downgradient of the existing site monitoring well control at the facility (Figure 1 - Location Map). This work also includes conducting one quarter of ground water monitoring and reporting as mandated by the Alameda County Health Care Services Agency (Alameda County) and the San Francisco Bay Regional Water Quality Control Board (Regional Board). The tasks to be completed for this phase of work are presented below.

BACKGROUND

Investigation of soil and ground water at the site was initiated in November 1988 with the excavation and removal of three underground storage tanks (USTs) and associated piping. In December 1989, Woodward-Clyde Consultants installed three ground water monitoring wells (MW-1, MW-2, MW-3; Figure 2 - Site Plan). ESE summarized the results of that investigation and other pre-July 1991 activities at the site in our Proposal for Quarterly Monitoring and Well Drilling (July 9, 1991) and subsequent monitoring reports (September and December 1991, and March 1992).

In February 1992, ESE installed well MW-4 adjacent to the facility fuel dispenser island (Figure 1). Analytical results for ground water samples collected from MW-4 and existing wells reported no detectable Total Petroleum Hydrocarbons as Gasoline (TPH-G) or Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) in wells MW-1, MW-2, and

MW-3. However, the sample from MW-4 showed TPH-G and BTEX concentrations as high as 6,600 micrograms per liter (μg/L) or parts per billion (ppb), respectively. The observed results indicated that petroleum hydrocarbons exist in soil and ground water near the southwestern (and downgradient) site margin. Results of the additional investigation and February 1992 quarterly monitoring were presented in ESE's February 1992 Quarterly Monitoring Report (April 1, 1992).

In October 1992, ESE installed two wells in locations at the extreme southwest portion of the site (MW-5) and approximately 20 feet south of the Hertz property on Port of Oakland property (MW-6). These well locations were selected to assess the extent of petroleum hydrocarbons in soil and ground water both south and west of the site. The results of these activities, which showed that petroleum hydrocarbons were present in soil and ground water downgradient of the site, were summarized in ESE's Fourth Quarter Ground Water Monitoring and Subsurface Investigation Report (December 1992). Based on those findings, ESE proposed additional investigation to the south and west to determine the extent to which petroleum hydrocarbons have moved offsite.

During First Quarter 1993 ground water monitoring (February 3, 1993), ESE noted that well MW-5 had been paved over with asphalt, presumably during site repaving conducted by Hertz in December 1992. ESE collected ground water samples from the remaining wells, and summarized results in the First Quarter 1993 Report of Findings, currently being forwarded to the appropriate agencies.

SCOPE OF WORK

ESE will install three additional offsite ground water monitoring wells to define the extent of petroleum hydrocarbons in ground water south and west of existing wells MW-5 and MW-6. The locations of the wells (MW-7, MW-8, and MW-9) are shown in Figure 2. In addition, ESE will monitor ground water in the new and existing wells for one quarterly monitoring period (Second Quarter 1993). Specific tasks associated with the scope of work are as follows.

Task 1 - Obtain Permits for Wells

ESE intends to install the wells on Port of Oakland property (see Figure 2). The locations of the wells are as far downgradient from the Hertz site as possible due to existing structures, and are within 50 to 60 feet of the existing well control.

ESE will obtain permits for the wells through the Alameda County Flood Control and Water Conservation District, and will coordinate permission and site access with the Port of Oakland Environmental Department to install the wells and periodically monitor them. It is ESE's understanding that the current right of entry agreement between Hertz and the

Port of Oakland will be valid for the work. ESE will assist Hertz in providing the Port of Oakland with any additional documentation pertaining to this investigation that may be required. ESE will obtain clearance from underground obstructions through Underground Service Alert (USA) and the Port of Oakland, as necessary.

In association with gaining site clearance and marking well locations, an ESE field technician will use portable underground obstruction locating equipment to identify the location of well MW-5. It is ESE's understanding that an asphalt cover only about two inches thick lies over the well, which should facilitate removing the asphalt such that access to the monitoring well can be made possible.

Task 2 - Prepare Health & Safety Plan

ESE will prepare a health & safety plan (HASP) for current work at the Hertz site addressing potential physical and chemical hazards associated with drilling soil borings, collecting soil samples, installing monitoring wells, and collecting ground water samples. The HASP will list appropriate emergency procedures and contacts. The HASP will be reviewed and approved by ESE's Concord Office Health & Safety Officer prior to its implementation. All ESE field personnel and subcontractors, and authorized visitors will be required to review and acknowledge the HASP before they are permitted within the immediate work area.

Task 3 - Drill Soil Borings and Install Monitoring Wells

After receiving the appropriate permits, offsite access, and clearance from underground utilities, ESE will direct the drilling of soil borings at the appropriate locations. Based on previous investigation at the site, ESE anticipates that ground water will be found approximately five feet below ground surface. ESE will drill borings approximately 13 feet deep at the recommended locations using 8-inch hollow-stem augers. ESE will log the soil borings in accordance with the Unified Soil Classification System (USCS). One soil sample from approximately five feet deep, immediately above the anticipated saturated zone, will be preserved from each boring for analysis. All drilling, logging, and soil sampling will be conducted in accordance with ESE Standard Operating Procedure (SOP) No. 1 for Soil Borings and Soil Sampling with Hollow-Stem Augers in Unconsolidated Formations (attached)

Soil samples collected from the borings will be transferred under appropriate chain-of-custody documentation to a state-certified laboratory, where they will be analyzed for TPH-G (EPA Method 5030/8015 Modified), Total Extractable Hydrocarbons (TEH; California DOHS methodology), and BTEX (EPA Method 5030/8020).

Following completion of the borings, ESE will direct the conversion of them to ground water monitoring wells. The wells will be constructed with 2-inch diameter, 0.02-inch slotted PVC casing from 13 feet to 4 feet below grade, and blank PVC casing from 4 feet deep to the surface. The well annulus will be packed with No. 3 Monterey sand from 13 feet to 3.5 feet, hydrated bentonite pellets from 3.5 to 3 feet, and neat cement from 3 feet to a traffic-proof well box at the surface. ESE will develop the wells by mechanical surging and bailing prior to placing the annular seal. These procedures are consistent with ESE SOP No. 2 for Monitoring Well Installation and Development (attached). Each well head will have a locking cap. Well development water, equipment decontamination rinsate, and soil cuttings will be contained onsite in DOT-rated 55-gallon drums pending laboratory analysis of samples.

Task 4 - Sample Ground Water and Survey Wells

Approximately 72 hours after well installation, ESE will return to the site to purge the new wells, collect ground water samples from them, and survey their elevation relative to mean sea level. ESE will also measure static water levels in all nine wells in order to estimate site hydraulic gradient. Monitoring and ground water sampling will be conducted in accordance with ESE SOP No. 3 for Ground Water Monitoring and Sampling from Monitoring Wells (attached). Ground water samples will be collected from the new wells with dedicated plastic disposable bailers and stored on ice in appropriately labeled glassware for transport to a State-certified laboratory. Samples (including appropriate quality assurance samples) will be analyzed for TPH-G, TEH, and BTEX.

ESE will conduct a level survey of the new wells and tie their elevations to those of the other site wells. This will allow calculation of ground water elevations for individual wells, from which the magnitude and direction of ground water from beneath the site will be estimated.

Upon receipt of analytical results a licensed waste disposal contractor will be engaged to remove the soil cuttings, development/purge water, and decontamination rinsate stored in drums onsite (ESE estimates that two drums of soil and two drums of water will be present). ESE assumes for purposes of this submittal that the soil only contains petroleum hydrocarbons related to gasoline and/or diesel fuel, and that these materials are not determined to be hazardous wastes.

Task 5 - Prepare Report of Findings

Upon receipt of analytical results for soil and ground water samples, ESE will prepare a report of findings documenting the proposed investigation. The report will contain tables summarizing water level and analytical data, and contour maps showing ground water elevations and hydrocarbon concentrations. Conclusions and recommendations will be presented as appropriate.

The draft report will be submitted to Hertz for review and comment. Upon receiving the comments of Hertz, ESE will amend the report accordingly and finalize it for submittal to the following regulatory agencies and interested parties.

Alameda County Health Care Services Agency, Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621
Attn: Mr. Barney Chan

California Regional Water Quality Control Board, San Francisco Bay Region
2101 Webster Street, 4th Floor
Oakland, CA 94612
Attn: Mr. Eddy So

Port of Oakland, Airport Properties Development
9532 Earhart Road
Oakland, CA 94621
Attn: Ms. Emily Regnier

This work plan is also being forwarded to these parties.

Task 6 - Conduct One Quarter of Ground Water Monitoring and Sampling

ESE will conduct one quarterly ground water monitoring event, which will include measurement of static water levels and collection of ground water samples in all nine wells, and preparation of a report of findings. All monitoring activities will be conducted in accordance with the referenced ESE SOPs. Reporting format will be consistent with that for previous ESE submittals to Hertz. The proposed term of quarterly monitoring is for the second quarter of 1993.

Ground water samples will be analyzed by a state-certified laboratory for TPH-G, TEH, and BTEX using the analytical methodologies described above. In addition, ESE will collect a laboratory supplied trip (travel) blank and a duplicate ground water sample for quality assurance/quality control (QA/QC) purposes and have them analyzed for TPH-G, TEH, and BTEX. Standard analytical turn around time of ten working days for ground water and QA/QC samples will be requested.

Purge and decontamination water resulting from monitoring activities will be collected in DOT-rated drums pending receipt of analytical results for ground water samples. Upon receiving and evaluating analytical results for ground water samples, ESE will coordinate disposal of purge and decontamination water from sampling activities through a licensed waste hauler and recycling facility. As with previous disposal of liquid and soils from the

site, manifesting from the materials will be coordinated through Hertz representatives, who will provide signatory certification for the appropriate documentation.

ESE will reduce and evaluate ground water elevation data and analytical results from quarterly monitoring and sampling activities, and prepare a brief report of findings suitable for submittal to Alameda County, the Regional Board, and the Port of Oakland. The report will present current and historical analytical data in a tabular format, contour maps of ground water elevations and petroleum hydrocarbon concentrations in ground water (if present), and a discussion of findings.

SCHEDULE

Permitting the new wells has already been initiated, and ESE anticipates that they will be installed and sampled by April 9, 1993. The report of findings will be submitted in draft form to Hertz by May 3, 1993, approximately two weeks following receipt of analytical results. ESE will incorporate the review comments of Hertz into a final report and submit four copies to Hertz within one week of receiving written or verbal review comments.

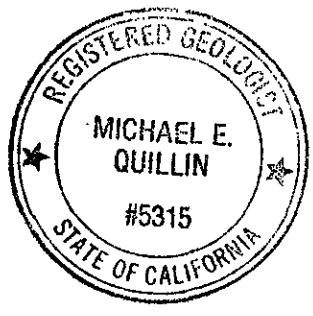
We appreciate the opportunity to perform this additional work for Hertz. If you have any questions or require additional information please contact Mike Quillin at (415) 685-4053.

Sincerely,

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

Christopher H. Valcheff
Staff Geologist

Michael E. Quillin, RG
Senior Hydrogeologist



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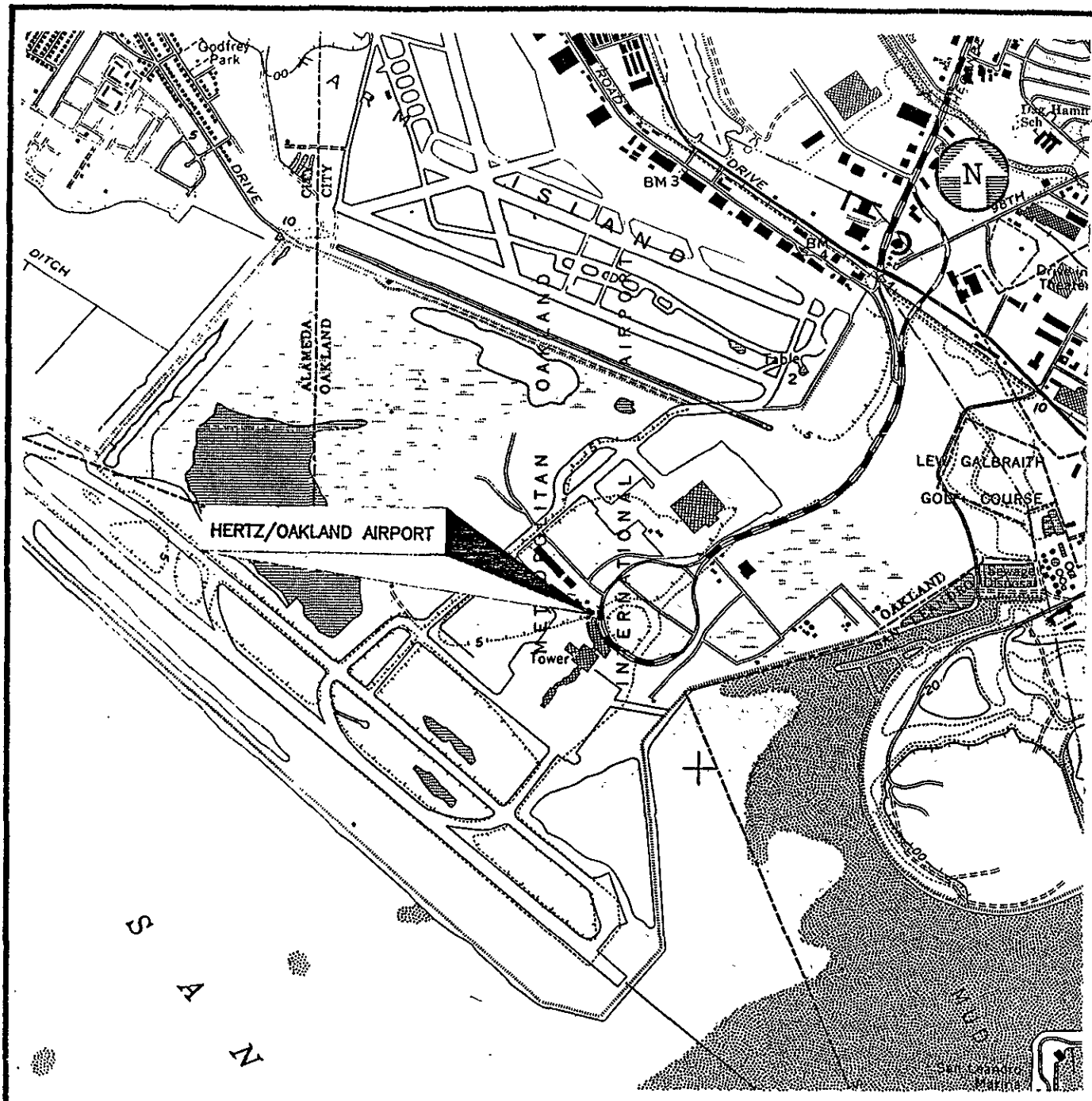

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ESE A CLCORP Company Environmental Science & Engineering, Inc.	DATE 8/91	PROJ/PROP 6-91-5228	HERTZ/OAKLAND AIRPORT OAKLAND, CALIFORNIA
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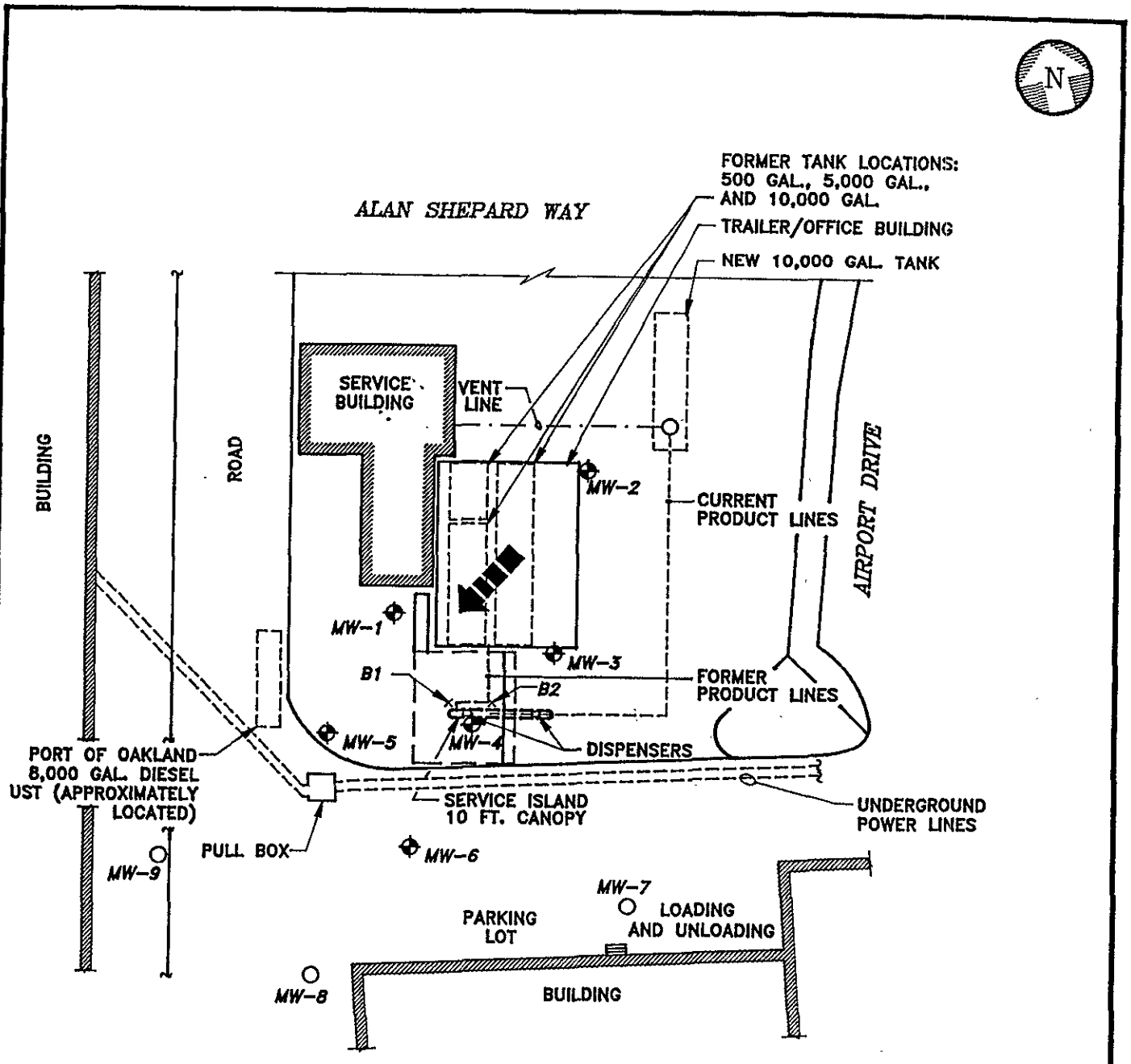
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	APPROVED BY	REVISED DWR 3/93	FIGURE 2 LOCATION MAP



Environmental Science & Engineering, Inc. (A CELCORP Company)	DATE 8/91	PROJ/PROP 6-91-5228	HERTZ/OAKLAND AIRPORT OAKLAND, CALIFORNIA
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4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	APPROVED BY	REVISED DWR 3/93	FIGURE 2 SITE PLAN

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.
CONCORD, CALIFORNIA OFFICE

STANDARD OPERATING PROCEDURE 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. 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.
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STANDARD OPERATING PROCEDURE NO. 2
FOR MONITORING WELL INSTALLATION AND DEVELOPMENT
PAGE 1

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.