GETTLER-RYAN INC.

ENVIRONMENTAL PROTECTION
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TRANSMITTAL

TO: Mr. David De Witt
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
San Ramon, CA 94583

DATE: February 16, 2000
PROJECT # 140061.03-1

SUBJECT: Work Plan for Monitoring Well Installation at Tosco 76 Branded Facility No. 0018.

STO 512

FROM:
Barbara Sieminski
Project Geologist
Gettler-Ryan Inc.
6747 Sierra Court, Suite G
Dublin, California 94568

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1	02/15/00	Work Plan for Monitoring Well Installation at Tosco 76 Branded Facility No. 0018, 6201 Claremont Avenue, Oakland, California.

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cc: Mr. Thomas Peacock, Alameda County Health Care Services Agency
GR File

COMMENTS: Attached is a copy of the final work plan for your use. Copies of this report have been submitted to the parties listed above. Please call if you have questions.

GETTLER-RYAN INC.

WORK PLAN FOR MONITORING WELL INSTALLATION

at

Tosco 76 Branded Facility No. 0018
6201 Claremont Avenue
Oakland, California

Report No. 140061.03-1

Prepared for:

Mr. David B. De Witt
Tosco Marketing Company
2000 Crow Canyon Place, Suite 400
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R.G. 6882

February 15, 2000

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WORK PLAN FOR MONITORING WELL INSTALLATION

at

Tosco 76 Branded Facility No. 0018
6201 Claremont Avenue
Oakland, California

Report No. 140061.03-1

INTRODUCTION

At the request of Tosco Marketing Company (Tosco), Gettler-Ryan Inc. (GR), has prepared this Work Plan for a limited subsurface investigation to evaluate soil and groundwater conditions beneath the subject site. This Work Plan was prepared in response to a letter from the Alameda County Health Care Services Agency (ACHCSA) dated May 27, 1998. The proposed work includes: preparing the site safety plan; obtaining the required drilling permit; installing three on-site groundwater monitoring wells; surveying the wellhead elevations; developing and sampling the wells; collecting and submitting selected soil and groundwater samples for chemical analysis; aranging for Tosco's contractor to dispose of the waste materials; and preparing a report presenting the findings of this investigation.

The scope of work proposed in this Work Plan is intended to comply with the State of California Water Resources Control Board's *Leaking Underground Fuel Tanks (LUFT) Manual* and *California Underground Storage Tank Regulations, 1994*, the Regional Water Quality Control Board's (RWQCB) *Tri-Regional Board Staff Recommendations for Preliminary Investigation and Evaluation of Underground Tank Sites*, and the ACHCSA guidelines.

SITE DESCRIPTION

General

The subject site is an active service station located on the northern corner of the intersection of Claremont and College Avenues in Oakland, California (Figure 1). Site aboveground facilities consist of two service islands and a station building. Gasoline underground storage tanks (USTs) are located immediately south of the station building in the common pit that fully encompasses the former gasoline UST pit. A former waste oil UST was located near the southern corner of the station building. Pertinent site features are shown on Figure 2.

Geology and Hydrogeology

The subject site is located at the eastern margin of the East Bay Plain, approximately 3.5 miles east of the eastern shore of San Francisco Bay. The local topography is relatively flat at an elevation of approximately 210 feet above mean sea level. As mapped by E. J. Helley and others (1979), soil in the site vicinity consists of late Pleistocene alluvium consisting of weekly consolidated slightly weathered poorly sorted irregularly interbedded clay, silt, sand and gravel. The nearest surface water is Claremont Creek,

approximately 0.1 mile northeast of the site. Based on the site topography, the regional groundwater flow in the vicinity of the site is inferred to be toward the southwest.

Previous Environmental Work

In March 1997, two 12,000-gallon gasoline USTs and associated product lines were replaced and one 280-gallon waste oil UST was removed at the subject site. Three holes of approximately ¼-inch in diameter were present on top of the former waste oil UST. The former gasoline USTs had no apparent holes or cracks. Kaprealian Engineering Inc. (KEI) collected soil and grab groundwater samples during UST and product line replacement activities. One soil sample (WO1) was collected from native soil beneath the former waste oil UST at a depth of approximately 8 feet below ground surface (bgs). Four soil samples (D1 through D4) were collected from native soil beneath the former product dispensers at a depth of approximately 2 feet bgs. Four native soil samples (A1, A2, B1 and B2) were collected from the former gasoline UST excavation at an approximate depth of 16 feet bgs (just above groundwater). One grab groundwater sample was collected from groundwater standing in the former gasoline UST excavation. Sample locations are shown on Figure 2.

Total petroleum hydrocarbons as gasoline (TPHg), benzene or methyl tertiary butyl ether (MTBE) were not detected in the soil samples collected beneath the gasoline and waste oil USTs, or product dispensers with the exception of 2.6 parts per million (ppm) of TPHg detected in sample A2 and 1.4 ppm TPHg, 0.012 ppm benzene and 1.4 ppm MTBE detected in sample D1. Total oil and grease (TOG), total petroleum hydrocarbons as diesel (TPHd), volatile organic compounds (VOCs) or semi-volatile organic compound (SVOCs) were also not detected in the soil sample collected from beneath the former waste oil UST. However, the grab groundwater sample collected from the former gasoline UST excavation contained 6,100 parts per billion (ppb) TPHg and 54 ppb benzene. MTBE was not detected in the grab groundwater sample collected from the former UST excavation.

PROPOSED SCOPE OF WORK

GR proposes to advance three on-site groundwater monitoring wells (MW-1 through MW-3) to evaluate subsurface conditions at the locations shown on Figure 2. GR Field Methods and Procedures are included in Appendix A. To perform this scope of work, GR proposes the following tasks:

Task 1. Pre-Field Activities

GR will prepare the site-specific safety plan, and obtain the necessary drilling permit from the Alameda County Public Works Agency. A private underground line locator will be contracted to locate on-site subsurface utilities. Underground Service Alert (USA) will be notified a minimum of 48 hours prior to drilling.

Task 2. Well Installation

Three groundwater monitoring wells will be installed in the locations shown on Figure 2. Drilling will be performed by California-licensed driller. Each boring will be hand-augered to 5 feet bgs to verify the absence of subsurface utilities. A GR geologist will observe drilling, collect soil samples for chemical analyses, describe the encountered soil, and prepare a log of each boring. The well borings will be advanced using 8-inch-diameter hollow-stem augers and truck mounted drill rig.

Groundwater monitoring wells MW-1 through MW-3 will be constructed of 2-inch-diameter Schedule 40 polyvinyl chloride (PVC) well casing and 0.01-inch machine slotted PVC well screen. The screened interval will extend from approximately 10 feet bgs to 30 feet bgs. Proposed Well Construction Details are shown on Figure 3.

Soil samples for description and possible chemical analyses will be obtained from each boring at five-foot intervals, as a minimum. Soil from each sampled interval will be screened in the field for the presence of volatile organic compounds using a photoionization detector (PID). These data will be collected for reconnaissance purposes only, and will not be used as verification of the presence or absence of petroleum hydrocarbons. Screening data will be recorded on the boring logs. Although the actual number of samples submitted for chemical analysis will depend on site conditions and field screening data, we anticipate a minimum of one unsaturated soil sample from each boring will be submitted for chemical analysis as described in Task 5.

Drill cuttings will be stockpiled at the site pending disposal. Stockpiled cuttings will be placed on and covered with plastic sheeting. Four soil samples from the drill cuttings will be collected for disposal characterization as described in Appendix A. These samples will be submitted to the laboratory for compositing into one sample, then analyzed as described in Task 5. Drill cuttings will be disposed of by a Tosco approved soil disposal contractor.

Task 3. Wellhead Survey

Following installation, the top of casings for wells MW-1 through MW-3 will be surveyed to mean sea level by a California-licensed surveyor. Horizontal coordinates of the well locations will be obtained at the same time.

Task 4. Well Development and Sampling

Groundwater monitoring wells MW-1 through MW-3 will be developed after being allowed to stand a minimum of 72 hours following installation. Depth to water will be measured and all wells will be checked for the presence of separate-phase hydrocarbons prior to development. The wells will be sampled after development. Rinsate water and groundwater purged from the wells during

development and sampling will be properly disposed of. The groundwater samples will be analyzed as described in Task 5.

Task 5. Laboratory Analyses

All samples will be submitted to California state-certified Hazardous Material Testing Laboratory. Soil and grab groundwater samples will be analyzed for TPHg, benzene, toluene, ethylbenzene and xylenes (BTEX), and MTBE by EPA Methods 5030/8015/8020.

Task 6. Reporting

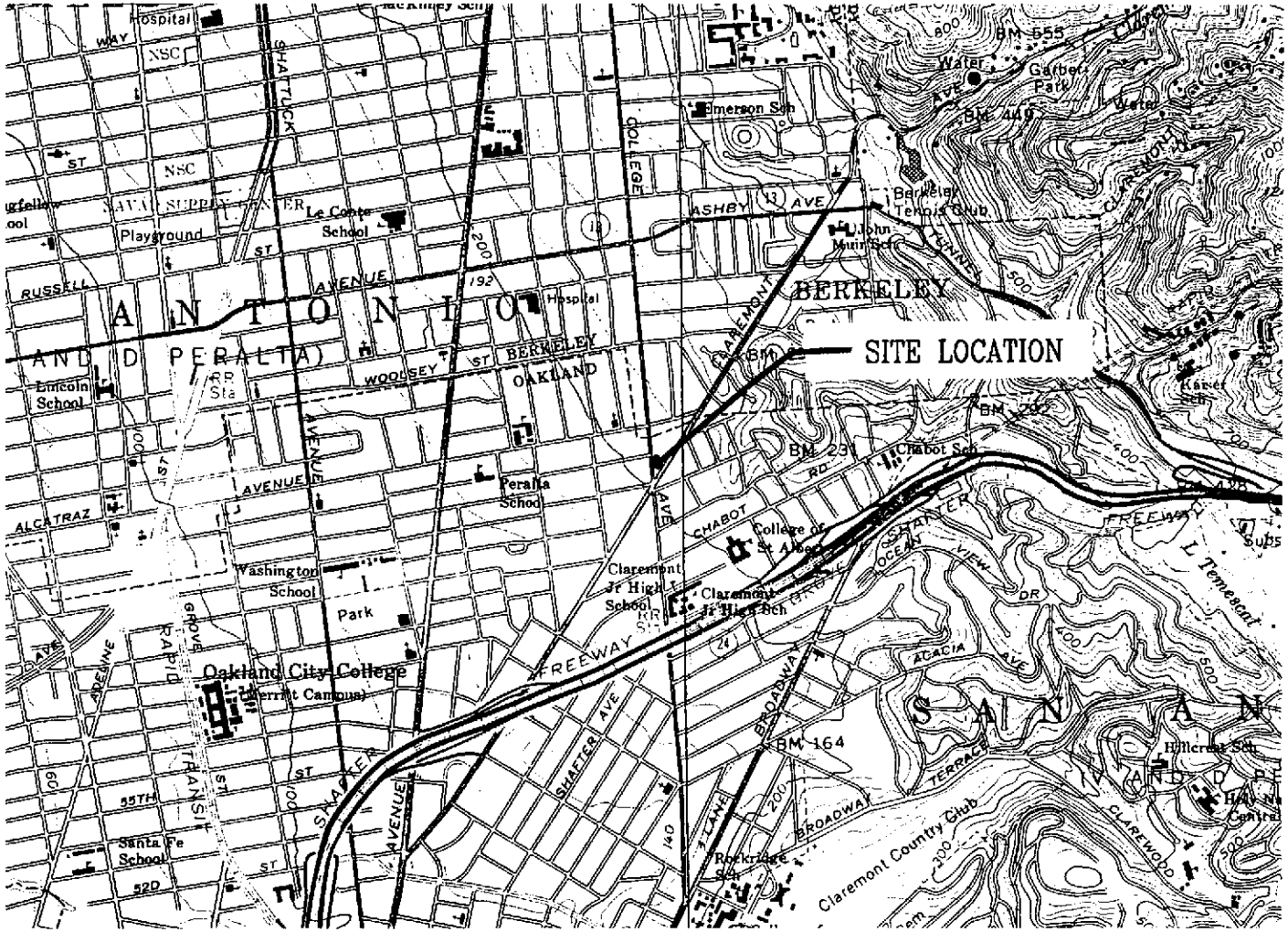
Following receipt and analysis of all data, a report will be prepared which summarizes the procedures and the results associated with this investigation. This report will be submitted to Tosco for their use and distribution.

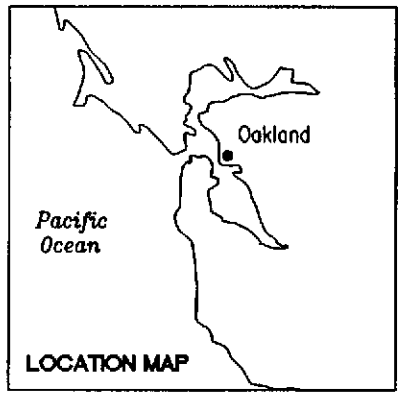
PROJECT STAFF

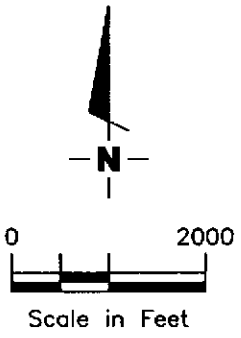
Ms. Barbara Sieminski, a Registered Geologist in the State of California (R.G. No. 6676), will provide technical oversight and review of the work. Mr. Douglas J. Lee, Project Manager, will supervise and direct field and office operations. GR employs a staff of geologist, engineers, and technicians who will assist with the project.

SCHEDULE

Implementation of the proposed scope of work will commence upon receipt of regulatory approval and a soil boring permit.







Base Map: USGS Topographic Map

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VICINITY MAP
Tosco 76 Branded Facility No. 0018
6201 Claremont Avenue
Oakland, California

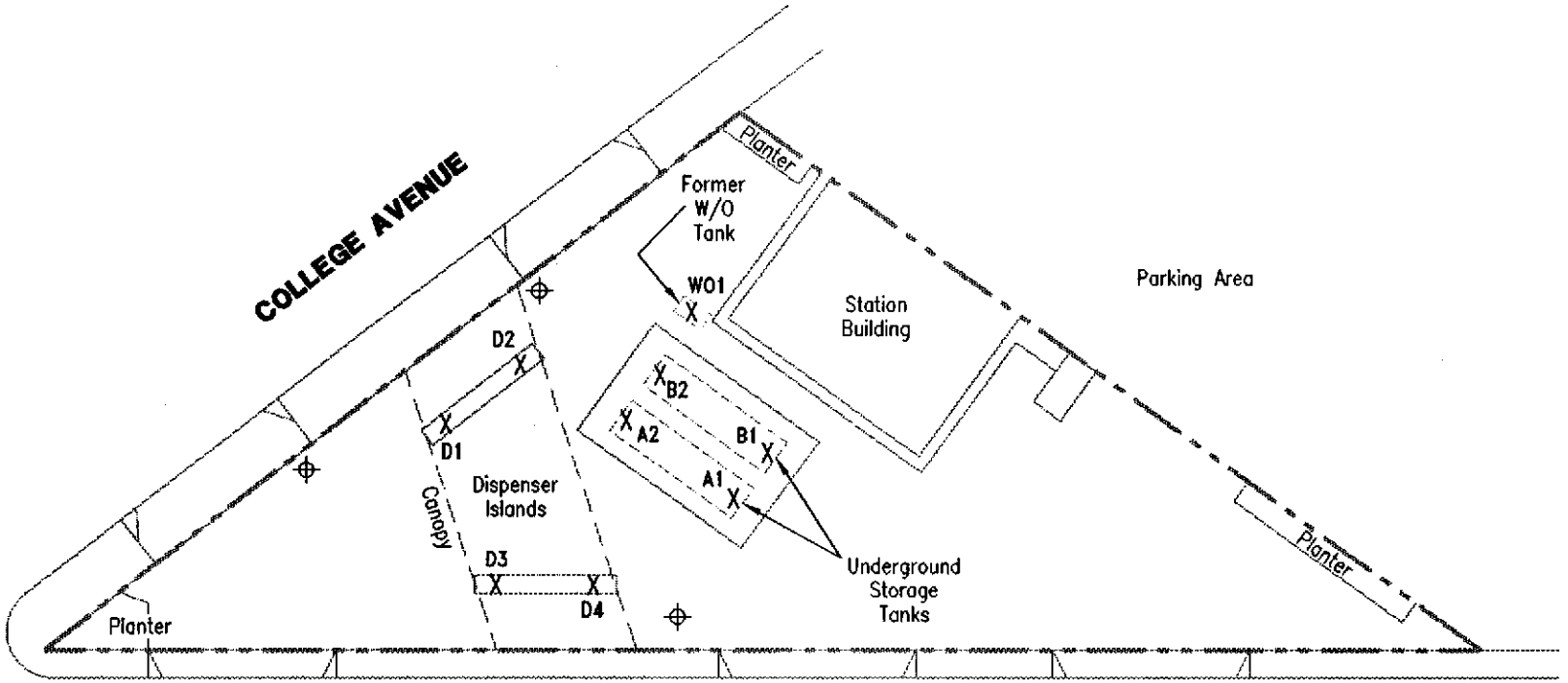
FIGURE
1

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140061		June, 1998	

EXPLANATION

X Soil sample

⊕ Proposed groundwater monitoring well



0 40

Scale in Feet

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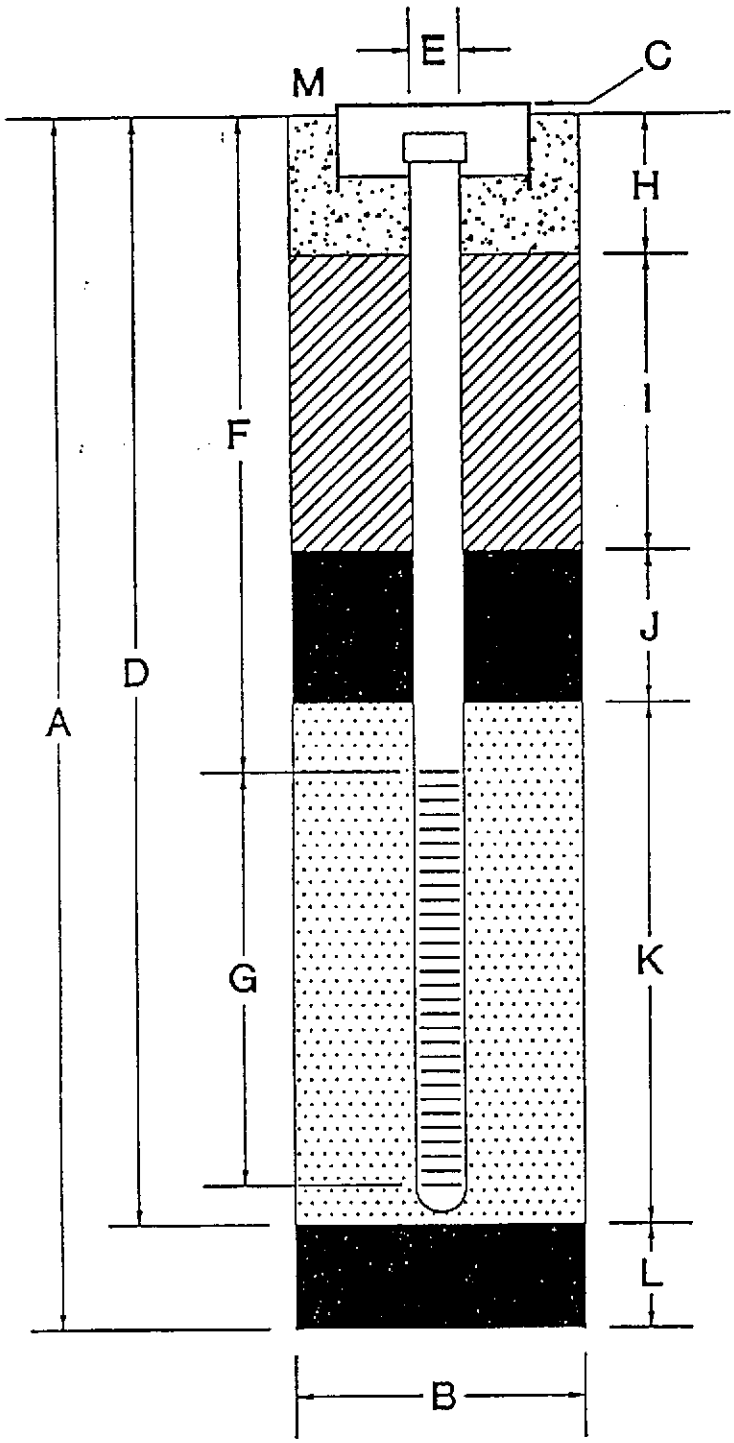
SITE PLAN
Tosco 76 Branded Facility No. 0018
6201 Claremont Avenue
Oakland, California

FIGURE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140061.03		12/99	

WELL CONSTRUCTION DETAIL



A Total Depth Of Boring 30 ft.

B Diameter Of Boring 8 in.
Drilling Method Hollow-stem Auger

C Top Of Box Elevation _____ ft.
☐ Referenced To Mean Sea Level
☐ Referenced To Project Datum

D Casing Length 30 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth To Top Perforations 10 ft.

G Perforated Length 30 ft.
Perforated Interval From 10 to 30 ft.
Perforation Type machine slot
Perforation Size 0.01 in.

H Surface Seal From 0 to 1 ft.
Seal Material concrete

I Backfill From 1 to 8 ft.
Backfill Material neat cement

J Seal From 8 to 9 ft.
Seal Material bentonite

K Gravel Pack From 9 to 30 ft.
Pack Material Lonestar #2/12

L Bottom Seal None ft.
Seal Material _____

M Vault Box with waterproof locking well cap and lock.

Proposed Monitoring Well

Tosco 76 Branded Facility No. 0018
6201 Claremont Avenue
Oakland, California

Note: Depths Measured From Initial Ground Surface.

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3164 Gold Camp Drive, Suite 240
Rancho Cordova, CA 95670

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140061.03-1		01/00	

Figure 3

APPENDIX A

GR FIELD METHODS AND PROCEDURES

GETTLER - RYAN
FIELD METHODS AND PROCEDURES

Site Safety Plan

Field work performed by Gettler-Ryan, Inc. (GR) is conducted in accordance with GR's Health and Safety Plan and the Site Safety Plan. GR personnel and subcontractors who perform work at the site are briefed on the of these plans contents prior to initiating site work. The GR geologist or engineer at the site when the work is performed acts as the Site Safety Officer. GR utilizes a photoionization detector (PID) to monitor ambient conditions as part of the Health and Safety Plan.

Collection of Soil Samples

Exploratory soil borings are drilled by a California-licensed well driller. A GR geologist is present to observe the drilling, collect soil samples for description, physical testing, and chemical analysis, and prepare a log of the exploratory soil boring. Soil samples are collected from the exploratory soil boring with a split-barrel sampler or other appropriate sampling device fitted with clean brass or stainless steel liners. The sampling device is driven approximately 18 inches with a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler each successive 6 inches is recorded on the boring log. The encountered soil is described using the Unified Soil Classification System (ASTM 2488-84) and the Munsell Soil Color Chart.

After removal from the sampling device, soil samples for chemical analysis are covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Samples are selected for chemical analysis based on:

a. depth relative to underground storage tanks and existing ground surface
b. depth relative to known or suspected groundwater
c. presence or absence of contaminant migration pathways
d. presence or absence of discoloration or staining
e. presence or absence of obvious gasoline hydrocarbon odors
f. presence or absence of organic vapors detected by headspace analysis

Field Screening of Soil Samples

A PID is used to perform head-space analysis in the field for the presence of organic vapors from the soil sample. This test procedure involves removing some soil from one of the sample tubes not retained for chemical analysis and immediately covering the end of the tube with a plastic cap. The PID probe is inserted into the headspace inside the tube through a hole in the plastic cap. Head-space screening results are recorded on the boring log. Head-space screening procedures are performed and results recorded as reconnaissance data. GR does not consider field screening techniques to be verification of the presence or absence of hydrocarbons.

Stockpile Sampling

Stockpile samples consist of four individual sample liners collected from each 100 cubic yards (yd^3) of stockpiled soil material. Four arbitrary points on the stockpiled material are chosen, and discrete soil sample is collected at each of these points. Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless steel or brass tube into the stockpiled material with a wooden mallet or hand driven soil sampling device. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, placed in the cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected

soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

Construction of Monitoring Wells

Monitoring wells are constructed in the exploratory borings with Schedule 40 polyvinyl Chloride (PVC) casing. All joints are thread-joined; no glues, cements, or solvents are used in well construction. The screened interval is constructed of machine-slotted PVC well screen which generally extends from the total well depth to a point above the groundwater. An appropriately-sized sorted sand is placed in the annular space adjacent to the entire screened interval. A bentonite transition seal is placed in the annular space above the sand, and the remaining annular space is sealed with neat cement or cement grout.

Wellheads are protected with water-resistant traffic rated vault boxes placed flush with the ground surface. The top of the well casing is sealed with a locking cap. A lock is placed on the well cap to prevent vandalism and unintentional introduction of materials into the well.

Storing and Sampling of Drill Cuttings

Drill cuttings are stockpiled on plastic sheeting or stored in drums depending on site conditions and regulatory requirements. Stockpile samples are collected and analyzed on the basis of one composite sample per 50 cubic yards of soil. Stockpile samples are composed of four discrete soil samples, each collected from an arbitrary location on the stockpile. The four discrete samples are then composited in the laboratory prior to analysis.

Each discrete stockpile sample is collected by removing the upper 3 to 6 inches of soil, and then driving the stainless or brass sample tube into the stockpiled material with a hand, mallet, or drive sampler. The sample tubes are then covered on both ends with teflon sheeting or aluminum foil, capped, labeled, and placed in a cooler with blue ice for preservation. A chain-of-custody form is initiated in the field and accompanies the selected soil samples to the analytical laboratory. Stockpiled soils are covered with plastic sheeting after completion of sampling.

Wellhead Survey

The top of the newly-installed well casing is surveyed by a California-licensed Land Surveyor to mean sea level (MSL).

Well Development

The purpose of well development is to improve hydraulic communication between the well and surrounding aquifer. Prior to development, each well is monitored for the presence of separate-phase hydrocarbons and the depth-to-water is recorded. Wells are then developed by alternately surging the well with the bailer, then purging the well with a pump to remove accumulated sediments and draw groundwater into the well. Development continues until the groundwater parameters (temperature, pH, and conductivity) have stabilized.

Groundwater Monitoring and Sampling

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. During field sampling, equipment placed in a well are decontaminated before purging or sampling the next well by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water.

Water-Level Measurements

Prior to sampling each well, the static water level is measured using an electric sounder and/or calibrated portable oil-water interface probe. Both static water-level and separate-phase product thickness are measured to the nearest ± 0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinylchloride (PVC) bailer, measured to the nearest ± 0.01 foot with a decimal scale tape. The monofilament line used to lower the bailer is replaced between borings with new line to preclude the possibility of cross-contamination. Field observations (e.g. product color, turbidity, water color, odors, etc.) are noted. Water-levels are measured in wells with known or suspected lowest dissolved chemical concentrations to the highest dissolved concentrations.

Sample Collection and Labeling

A temporary PVC screen is installed in the boring to facilitate a grab groundwater sample collection. Samples of groundwater are collected from the surface of the water in each well or boring using the teflon bailer or a pump. The water samples are then gently poured into laboratory-cleaned containers and sealed with teflon-lined caps, and inspected for air bubbles to check for headspace. The samples are then labeled by an adhesive label, noted in permanent ink, and promptly placed in an ice storage. A Chain-of-Custody Record is initiated and updated throughout handling of the samples, and accompanies the samples to the laboratory certified by the State of California for analyses requested.