Chevron U.S.A. Inc.
2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
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Marketing Department

92 JAN 28 AM 11:44

January 24,1992

Mr. Scott Seery
Alameda County Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Re : Chevron Service Station #9-8139
16304 Foothill Rd.
San Leandro, California

Mr. Seery :

Enclosed is the work plan for the additional subsurface investigation at the above referenced site. Briefly, two monitoring wells will be installed off-site and developed. A report documenting well installation and findings will be forwarded to you.

If you have any questions or comments, call me at (510) 842-8752.

Sincerely,

Kenneth Kan

Kenneth Kan
Engineer

LKAN/MacFile 9-8139R1

Enclosure

cc : Mr. Lester Feldman, RWQCB-S.F.Bay Region
2101 Webster Str., Suite 500, Oakland, CA 94612

Mr. Bill Scudder, Chevron U.S.A., Inc.

received 2/10/92
SOS

BURLINGTON
ENVIRONMENTAL INC.
CHEMPRO Division

January 20, 1992
CHV 149/342

Mr. Kenneth Kan
Environmental Engineer
Chevron U.S.A.
2410 Camino Ramon
San Ramon, California 94583

Re: **WORKPLAN FOR ADDITIONAL SOIL AND GROUNDWATER INVESTIGATION:**
Chevron Service Station No. 9-8139
16304 Foothill Boulevard, San Leandro, California

Dear Mr. Kan:

Burlington Environmental (Burlington) is pleased to submit this workplan to perform an additional soil and groundwater investigation at Chevron U.S.A., Inc. (Chevron) Service Station No. 9-8139, located at 16304 Foothill Boulevard in San Leandro, California (see Figure 1). The purpose of this investigation is to install additional groundwater monitoring wells to determine the crossgradient and downgradient extents of groundwater contamination, as requested by Mr. Scott Seery of Alameda County Department of Environmental Health in a letter to Mr. Walt Posluszny, dated December 13, 1991.

The proposed field work includes installing two additional offsite groundwater monitoring wells, and developing and sampling the wells. Upon completion of the investigation, a report will be prepared presenting the findings.

BACKGROUND

Site Description

The site is occupied by an operating service station located on Foothill Boulevard in southern San Leandro, California (see Figure 1). The service station is located approximately 250 feet east of Highway 580, and 6,000 feet south of Lake Chabot. Properties surrounding the site are occupied primarily by residential housing and small commercial businesses (see Figure 2).

Reported Leaks

Chevron has reports of two petroleum leaks detected from the underground storage tanks and pipelines located onsite. The leaks were detected in April 1982 and December 1986.

In April 1982 all tanks and lines were tested to confirm the existence of a reported fuel leak. A corroded section in the regular gasoline vapor line was discovered and

950 'B' Gilman Street
Berkeley, CA 94710
(415) 524-9372 • FAX: (415) 524-7439

SCOPE OF WORK:

The following scope of work has been prepared to further characterize the soil and groundwater crossgradient and downgradient of the site. The scope of work includes the drilling, installation, development, and sampling of two offsite groundwater monitoring wells. The results of the investigation will be presented in a report which will be signed and stamped by a registered California geologist.

A detailed description of these tasks follows.

1.1 Prefield Activities

To prepare for field activities, Contractor will obtain drilling and county property encroachment permits, arrange for field materials and equipment, and contract an underground utility locating service to clear the boring locations.

1.2 Well Installation and Sampling

Two groundwater monitoring wells, MW-10 and MW-11, will be drilled and installed to better define the groundwater contaminant plume. The well locations are shown on Figure 2.

To monitor the extent of groundwater contamination hydraulically downgradient from MW-9, MW-10 will be drilled and installed in the public right-of-way along the southern side of Foothill Boulevard. The well will be located approximately 60 feet southeast of MW-9 (see Figure 2). To determine the crossgradient extent of the dissolved hydrocarbon plume, groundwater monitoring well MW-11 will be installed approximately 75 feet south of the southern edge of the site along the northern edge of Foothill Boulevard (see Figure 2).

Monitoring wells MW-10 and MW-11 will be drilled with 8-inch outside-diameter (OD) hollow-stem augers (HSA). Soil samples will be collected for soil classification and chemical analysis at 5-foot intervals using a modified-California split-spoon sampler. Soil sample collection and chemical analyses will be conducted under strict chain-of-custody procedures and will follow the guidelines established by Chevron and the EPA. Soil sampling procedures are presented in Appendix A. Samples will be chosen for analysis using a portable photoionization detector (PID) to determine the presence or absence of total volatile organic compounds in the soil samples.

The total depths of MW-10 and MW-11 will be determined by the depths of the saturated lenses encountered during drilling. The borings will be drilled to a maximum depth of 45 feet if the water-bearing zone is not encountered. If the water-bearing zone is encountered, the boring will be drilled through the saturated interval and terminated. The screened interval will extend 5 to 10 feet above the water-bearing zone, depending on the thickness of the saturated interval, or less if the water-bearing zone encountered is under confined conditions.

Wells MW-10 and MW-11 will be constructed with 2-inch-diameter, schedule 40 polyvinyl chloride (PVC), and 0.010-inch machine-slotted well screen, according to the procedures described in Appendix A. The sandpack will consist of No. 2/12 rounded sand packed around the casing to a minimum of 2 feet above the screened

section. The sandpack will be capped with a bentonite and cement seal and the wellhead will be protected with a locking vault box, as described in Appendix A. If more than one aquifer zone is encountered, the well design will be modified to prevent cross-communication between separate hydraulic zones.

The soil samples collected from the borings will be analyzed for total petroleum hydrocarbons (as gasoline) (TPH) using modified EPA Method 8015, and benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020. One soil sample will be analyzed for total lead for soil disposal purposes using EPA method 7420. If the soil sample analyzed indicates the presence of lead the sample will be analyzed for lead using the CAM WET technique. In addition, one soil sample will be analyzed for reactivity, corrosivity, and ignitability for soil disposal purposes. Soil sample analyses will be performed by Superior Precision Analytical Laboratory (Superior Laboratory) of San Francisco, California.

The groundwater monitoring wells will be developed to remove trapped sediments from within the gravel pack prior to sampling (see Appendix A). The wells will be sampled within 24 hours of development. Groundwater sampling procedures are presented in Appendix B. The groundwater samples will be analyzed for TPH using modified EPA method 8015 and BTEX using EPA method 602.

1.3 Report Preparation

Following completion of the offsite investigation, a Soil and Groundwater Investigation Report will be prepared and submitted to Chevron. The report will be reviewed, signed, and stamped by a California registered geologist.

DRUM REMOVAL

During the drilling operations, soil cuttings will be produced. All soil cuttings will be drummed during the site investigation. Soil samples will be analyzed by Superior Laboratory to assist in the determination of the appropriate disposal facility. Contractor will haul and dispose of the soil for Chevron, to the landfill of Chevron's choice. The drums will be manifested, if necessary, and transported by Contractor to the drum recycling center of Chevron's choice.

Water collected during the steam cleaning, well development, and groundwater sampling operations will be stored onsite and pumped through the groundwater treatment system located onsite. Once empty, the drums will be manifested by Chevron and hauled by Contractor to the drum recycling center of Chevron's choice.

If you have any questions regarding this workplan, please do not hesitate to call.

Very truly yours,
BURLINGTON ENVIRONMENTAL

Kyle S. Flory
Project Geologist

David C. Tight, R.G. No. 4603
Investigation/Remediation Manager

Enclosures

Figure 1 - Site Location
Figure 2 - Site Plan
Appendix A - Exploratory Boring, Soil Sampling, And Well Installation Procedures
Appendix B - Groundwater Sampling And Analysis Procedures

Hayward, California [NE/4 Hayward 15' Quadrangle]
N3737.5-W12200/7.5

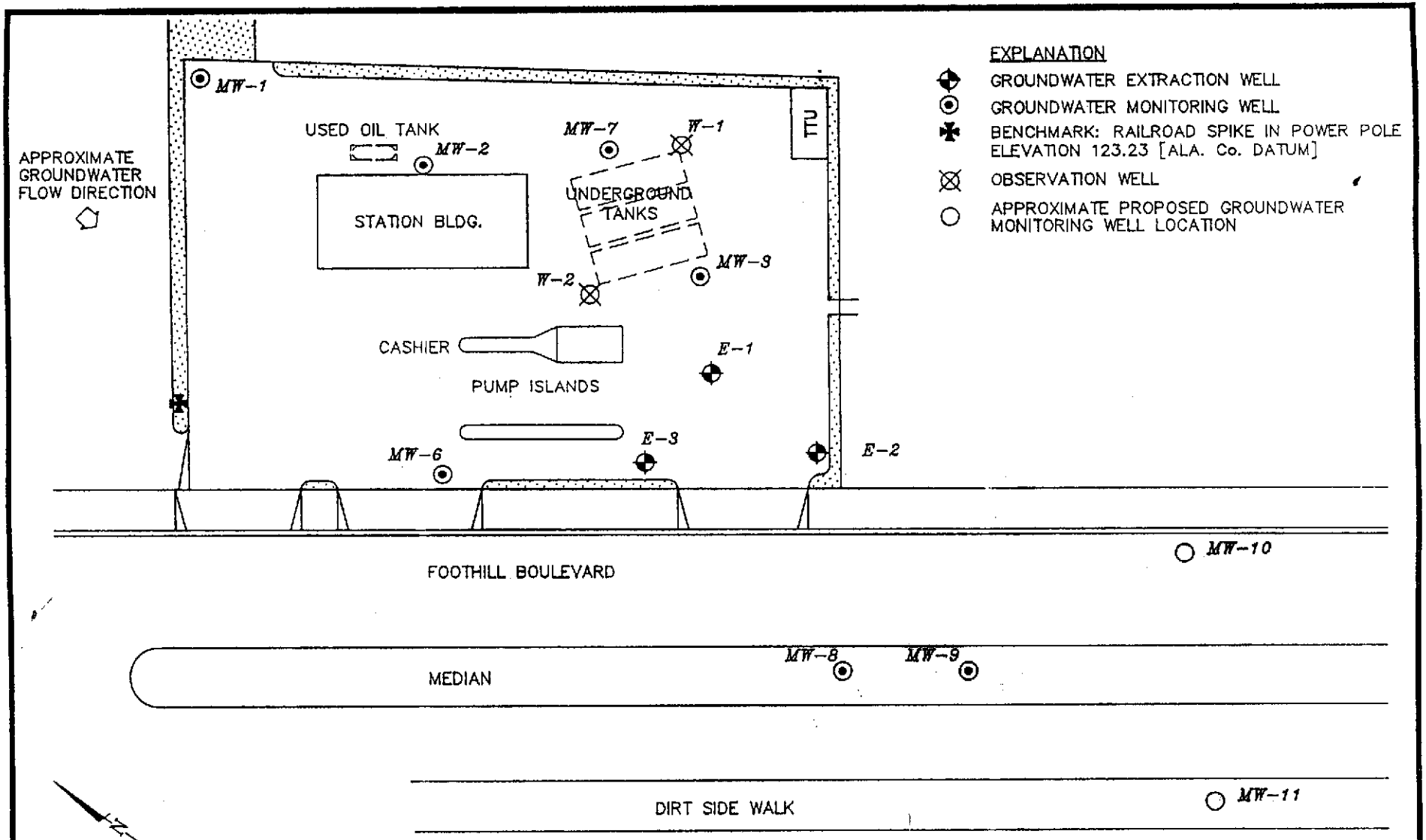
BURLINGTON ENVIRONMENTAL INC.
CHEMPRO Division

SITE LOCATION MAP
Chevron Service Station No. 9-8139
16304 Foothill Boulevard
San Leandro, California

Reviewed By : R. Flory
Date : 1/20/92

Figure 1

Project No.	CHV149
Drawn By PPK	Date 6/28/91
Drawing No.	A0629701



BURLINGTON ENVIRONMENTAL INC.
CHEMPRO Division

SITE VICINITY MAP
Chevron Service Station No. 9-8139
16304 Foothill Boulevard
San Leandro, California

Reviewed By : K. Hung Date : 1/20/92

Figure 2

Project No. CHV-149

Drawn By PPK | Date 1/14/92

Drawing No. A0629703

Appendix A

EXPLORATORY BORING,
SOIL SAMPLING,
AND
WELL INSTALLATION PROCEDURES

Appendix A

Exploratory Boring, Soil Sampling, and Well Installation Procedures

EXPLORATORY BORING

Before the exploratory borings are drilled at Chevron Service Station No. 9-8139, a number of actions will be taken: drilling permits will be obtained from the Alameda County Flood Control and Water District, encroachment permits will be obtained from the county prior to drilling in Foothill Boulevard, and an underground utility-locating service will be hired to clear the proposed drilling sites for subsurface utilities. In addition, Underground Service Alert (USA) will be contacted to schedule visits to the site by public and private utility companies. Each company will locate its utilities with the aid of maps, and the locating service will verify and mark these locations. All utility clearances will be coordinated with the station manager before drilling begins.

Field personnel will begin drilling by excavating the first four feet of soil with a hand auger to ensure that there are no subsurface obstructions. Exploratory borings will be drilled with a CME-55, or equivalent, drill rig. The Exploratory borings to be completed as 2-inch-diameter monitoring wells will be drilled with 8-inch outer-diameter (OD) hollow-stem augers (HSA). The augers will be steam cleaned before each boring is drilled.

SOIL SAMPLING

Soil samples will be collected while drilling to evaluate the geochemistry and stratigraphy of the soil beneath the boring location. The soil will be sampled by driving an 18-inch-long modified-California split-spoon sampler fitted with 2-inch-diameter brass liners beyond the tip of the auger into undisturbed soil. The split-spoon sampler will be driven into the soil with a 140-pound hammer. As the sampler is driven into the soil, blow counts will be recorded for each 6-inches of penetration. The blows will be recorded on the boring logs. Samples will be collected every 5 feet or less, depending on the lithology encountered. Soil

samples will be classified and logged according to the Unified Soil Classification System. The work shall be supervised by a California State registered geologist to ensure that it meets regulatory standards.

Soil samples will be selected for chemical analysis using a photoionization detector (PID). The PID determines the relative concentration of total volatile organic compounds. The soil samples will be selected for analysis where 1) the PID reading first detects a reading above the background level, 2) at the point above this interval where the PID reading is negligible, 3) at the first point below the contaminated interval where the PID reading is negligible, and 4) at the water table. If no contaminants are detected with the PID, the sample collected 5 feet above the water table will be submitted for analysis

Each soil sample will be sealed inside the brass liners with aluminium foil and polypropylene end caps, and wrapped with tape. The soil samples will be labeled, and stored for shipment to the Chevron-approved laboratory. At the time of sampling, each sample will be logged on a Chain-of-Custody record which accompanies the sample to the laboratory. Soil samples selected for analysis will have the request for analysis noted on the Chain-of-Custody. The remaining soil samples will be sent to the laboratory on a hold for analysis basis.

Soil sampling equipment will be steam cleaned between each boring and washed in an Alconox solution and rinsed in distilled water between each sampling point. The 2-inch-diameter brass liners which are placed in the split-spoon sampler for soil sample collection have previously been steam-cleaned.

Drill cuttings will be drummed and temporarily stored on site. Each drum will be labeled with the soil boring number and depth from which the soils were extracted. Drill cuttings will be disposed of using the appropriate method based on the analyses of the soil samples collected during drilling.

WELL INSTALLATION

Two soil borings will be converted to monitoring wells by installing 2-inch-diameter, flush-threaded, PVC casing inside the borings. No solvent cements will be used on the casing. The screened casing will be machine-slotted with 0.010-

inch slots. Screened sections of casing will extend across the saturated interval to 5 to 10 feet across the aquifer, unless confined conditions are encountered, in which case the well design will be modified to monitor only the saturated interval. A threaded bottom cap will be attached to the bottom of the casing. The annular space surrounding the casing will be at least 2 inches thick, and packed with No. 2/12 sand to approximately 2 feet above the top of the screened interval. A minimum of 1 foot of bentonite seal will be set above the sandpack and neat cement will be tremie-grouted to the surface.

A traffic-rated vault box with a locking device will be set in concrete to protect the wells. Well tags will be affixed to the casing for identification. Well locations will be surveyed to the closest 1-foot Northing and Easting and top-of-casing elevations will be measured to the nearest 0.01 foot. Detailed well completion diagrams will then be prepared.

Well Development

Monitoring and extraction wells will be developed by surging, swabbing, and bailing, until a non-turbid discharge is obtained. All development equipment will be steam cleaned between wells. Development and steam-cleaning water will be contained in 55-gallon drums until Chevron requests that Contractor pump the water through the onsite groundwater treatment system.

Appendix B

GROUNDWATER SAMPLING AND ANALYSIS PROCEDURES

Appendix B

Groundwater Sampling and Analysis Procedures

INTRODUCTION

The sampling and analysis procedures for water-quality monitoring programs are contained in this Appendix. These procedures will ensure that consistent and reproducible sampling methods will be used, proper analytical methods will be applied, analytical results will be accurate, precise, and complete, and the overall objectives of the monitoring program will be achieved.

SAMPLE COLLECTION

Sample collection procedures include: equipment cleaning, water-level and total well-depth measurements, and well purging and sampling.

Equipment Cleaning

Pre-cleaned sample bottles, caps, and septa will be provided by a Chevron-approved laboratory. All sampling containers will be used only once and discarded after analyses are completed.

Before starting the sampling event and between each event, all equipment to be placed in the well or come in contact with groundwater will be disassembled and cleaned thoroughly with detergent water, steam cleaned with tap water, and rinsed with Arrowhead™ distilled water. Any parts that may absorb contaminants, such as plastic pump valves or bladders, will be cleaned as described above or replaced. The water-level sounder will be washed with detergent and rinsed with distilled water before use in the each well. The rinse water will be stored in 55-gallon drums onsite and will be disposed of by Chevron.

Quality Control Samples

To determine if the Teflon™ (Teflon) bailer used for sampling is sufficiently decontaminated, rinse samples will be taken. One rinse sample will be collected

at the beginning of each day and additional rinse samples will collected every 20 samples. The samples will be collected by filling the Teflon sampling bailer with distilled water and then decanting that water into the sample vails. The rinse samples will be analyzed for the same parameters as the groundwater.

Water-Level, Floating-Hydrocarbon, and Total Well-Depth Measurements

Before purging and sampling, the depth to water, floating hydrocarbon thickness, and the total well depth will be measured using an electric sounder, a bottom-filling clear Lucite™ bailer, and/or an oil/water interface probe. The electric sounder, manufactured by Slope-Indicator, Inc., is a transistorized instrument that uses a reel-mounted, two conductor, coaxial cable that connects the control panel to the sensor. Cable markings are stamped at 1-foot intervals. An engineer's rule will be used to measure the depths to the nearest 0.01 foot. The water level will be measured by lowering the sensor into the monitoring well. A low current circuit is completed when the sensor contacts the water, which serves as an electrolyte. The current is amplified and fed across an indicator light and audible buzzer, signaling contact with water. A sensitivity control compensates for very saline or conductive water. After the water level is determined, the bailer will be lowered to a point just below the liquid level, retrieved, and inspected for floating hydrocarbons.

If floating product is encountered, its thickness will be measured with an oil/water interface probe. This instrument's dual-sensing probe utilizes an optical liquid sensor and electrical conductivity probe. The instrument emits a solid tone when immersed in oil, and an oscillating tone when immersed in water. If floating product greater than 1/32-inch in thickness is detected, a sample will not be collected from that well.

All liquid measurements will be recorded to the nearest 0.01 foot in the field logbook. The groundwater elevation at each monitoring well will be calculated by subtracting the measured depth to water from the surveyed well-casing elevation. Total well depth will be measured by lowering the sensor to the bottom of the well. Total well depth, used to calculate purge volumes and to determine whether the well screen is partially obstructed by silt, will be recorded to the nearest 0.5 foot in the field logbook.

Well Purging

Before sampling, standing water in the casing will be purged from the monitoring well using a piston pump. Samples will be collected after three well casing volumes have been purged, and the pH, specific conductance, and temperature have stabilized, or 5 well volumes have been evacuated. Some low yield monitoring wells are expected to be evacuated to dryness after the removal of less than three casing volumes. Such low yield monitoring wells will be allowed to recover for a minimum of two hours. If the well has recovered to 80% of its original water level after two hours, a sample will be collected. Otherwise, the well will be allowed to recover up to 24 hours prior to sampling. If insufficient water has recharged after 24 hours, the monitoring well will be recorded as dry for the sampling event.

All field measurements will be recorded in a waterproof field logbook. Water sample field data sheets will be prepared to record the field data. These data sheets will be reviewed by the sampling coordinator when the sampling event is completed.

The pH, specific conductance, and temperature meter will be calibrated each day before beginning field activities. The calibration will be checked once each day to verify meter performance. All field meter calibrations will be recorded in the field logbook.

Groundwater generated from well-purging operations will be contained for temporary storage in 55-gallon drums. All drums will be labeled and stored onsite in a location designated by the station manager. The sampler will record the following information on the drum label for each drum generated:

* Drum content (groundwater)
* Source (well designation)
* Date generated
* Client contact
* Project number
* Name of sampler

The groundwater will be stored onsite for a maximum of 90 days. We will notify the Chevron representative that the water is ready for removal and transport the drums off-site when the water has been removed.

Well Sampling

A Teflon bailer will be used for well sampling. Glass bottles of at least 40 milliliters volume and fitted with Teflon-lined septa will be used in sampling for volatile organics. These bottles will be filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottles are completely full. A convex Teflon septum will be placed over the meniscus to eliminate air. After capping, the bottles will be inverted and tapped to verify that they do not contain air bubbles. The sample containers for other parameters will be filled, and capped. Duplicate sample analyses will be performed on five percent of the groundwater samples collected.

SAMPLE HANDLING AND DOCUMENTATION

The following section specifies the procedures and documentation used during sample handling.

Sample Handling

All sample containers will be labeled immediately following sample collection. Samples will be kept cool with cold packs until received by the laboratory. Cold packs will be replaced each day to maintain refrigeration. At the time of sampling, each sample will be logged on a Chain-of-Custody record which accompanies the sample to the Chevron approved laboratory.

Sample Documentation

The following procedures will be used during sampling and analysis to provide Chain-Of-Custody control:

* Field logbooks to document sampling activities in the field
* Labels to identify individual samples

* Chain-of-custody record sheets for documenting possession and transfer of samples

Field Logbook

In the field, the sampler will record the following information on the Water Sample Field Data Sheet for each sample collected:

* Project number
* Client name
* Location
* Name of sampler
* Date and time
* Pertinent well data (e.g., casing diameter, depth to water, total well depth)
* Calculated and actual purge volumes
* Purging equipment used
* Sampling equipment used
* Appearance of each sample (e.g., color, turbidity, sediment)
* Results of field analyses (i.e., temperature, pH, specific conductance)
* General comments

The field logbooks will be signed by the sampler.

Labels

Sample labels will contain the following information:

* Project number
* Sample number (i.e., well designation)
* Sampler's initials
* Date and time of collection
* Type of preservative used (if any)

Sampling and Analysis Chain-of-Custody Record

The Sampling and Analysis Chain-of-Custody record, initiated at the time of sampling, contains, but is not limited to, the well designation, sample type, analytical request, date of sampling, and the name of the sampler. The record sheet will be signed, and dated by the sampler when transferring the samples. The number of custodians in the chain of possession will be kept to a minimum.