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90 MAR 15 AM 11:30

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March 9, 1990

Mr. Larry Seto
Alameda County Department of Health - HAZMAT Section
470 27th Street, Room 324
Oakland, California 94612

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

Dear Mr. Seto,

Please find attached the technical report for the subsurface investigation completed at the subject site. This report indicated that the hydrocarbon plume has migrated off-site. We will therefore need to conduct an additional investigation down-gradient of our site along Foothill Blvd.

Chevron is proposing to design and install an interim remediation system while conducting an additional subsurface investigation along with putting our new groundwater monitoring wells on our quarterly schedule.

I declare under penalty of perjury that the information contained in the attached report is true and correct, and that any recommended actions are appropriate under the current circumstances, to the best of my knowledge.

If you have any questions regarding this report, please feel free to call Walt Posluszny at (415) 842 - 9040.

Very Truly Yours,

Don Moller

By: Walter F. Posluszny Jr.
Environmental Engineer
Chevron U.S.A.

cc: RWQCB, Ms. Dyan Whyte
City of San Leandro, Mr. Robert Nolan
File

SOIL AND GROUNDWATER INVESTIGATION

CHEVRON SERVICE STATION NO. 9-8139
16304 Foothill Boulevard
San Leandro, California

February 21, 1990

Prepared for:

Mr. Walt Posluszny
CHEVRON U.S.A., INC.
2410 Camino Ramon
San Ramon, California 94583

Prepared by:

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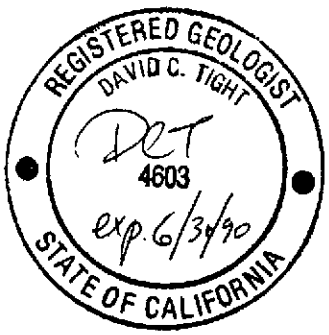
Craig C. Schwyn

Craig C. Schwyn
Project Hydrogeologist



David C. Tight

David C. Tight, R.G. No. 4603
Site Remediation Manager

Project 1158

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1.0 INTRODUCTION

This report presents the results of the soil and groundwater investigation conducted by Chemical Processors, Inc. (Chempro) at the Chevron Service Station No. 9-8139, located at 16304 Foothill Boulevard in San Leandro, California. EA Engineering, Science, and Technology, Inc. (EA) conducted a soil-vapor survey in June 1989, and reported to Chevron U.S.A. Inc., (Chevron) that detectable petroleum hydrocarbon vapors were present in the soil. Chevron requested that Chempro conduct an investigation at the site and evaluate the occurrence of petroleum hydrocarbons in the soil and groundwater beneath the site. On November 9, 1989, Chempro submitted a workplan to Chevron to perform the investigation. The following report presents the results of the investigation.

1.1 SCOPE OF WORK

The investigation consisted of the following tasks:

* A survey of active, inactive, and destroyed water-supply and monitor wells within a 1/2-mile radius of the site was conducted.
* Four soil borings were drilled, and soil samples were submitted and analyzed for petroleum hydrocarbons and selected metals.
* The four soil borings were converted to 2-inch monitor wells. The monitor wells were developed following well installation.
* Groundwater samples were collected from the four monitor wells. The samples were submitted and analyzed for petroleum hydrocarbons and selected metals.
* A water level survey was conducted in all existing site wells.

1.2 SITE DESCRIPTION AND HISTORY

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.

Chevron has reports of two petroleum leaks detected in the underground storage tanks and pipelines located on-site. 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 fuel leak. A badly corroded section in the regular gasoline vapor line was discovered and a temporary spot repair was performed on the line. Shortly thereafter, the 17-year-old tank and line system was replaced. In addition, two observation wells were installed in the tank excavation pit.

The two observation wells installed in the underground storage tank excavation, are constructed of 6-inch-diameter schedual 40 polyvinyl chloride (PVC) casing. Construction records are not available. The observation wells were apparently installed during the tank system replacement. The observation wells, designated W-1 and W-2 are shown on Figure 2. The internal casing depths of observation wells W-1 and W-2 have depths of 11.2 and 13.5 feet below ground level (BGL), respectively. The observation wells were dry during this investigation.

In December 1986 the station reported petroleum inventory losses. A full system tank test was conducted to confirm the existence of a leak. The Chevron spill/leak reporting form dated January 6, 1987 reports the discovery of a leak in the regular gasoline tank system. Observation wells W-1 and W-2 were to be monitored to determine the necessary action. The results of the monitoring program are uncertain.

On June 29, 1989 EA conducted a soil-vapor survey at the Chevron facility. Very low concentrations of light hydrocarbons were detected near the tank field and the west end of the south pump island (see Figure 2). Measurable concentrations of benzene (1 part per million [ppm]) were detected near the west corner of the tank field. EA noted that high vacuums and long release times were required to obtain vapor samples from most sampling locations. The EA report (1989) stated that the data obtained from the vapor analyses may have been lower than actual hydrocarbon concentrations.

In October 1989, Chevron requested that Chempro conduct a soil and groundwater investigation, and determine the extent of soil and groundwater

contamination. In November 1989 Chempro submitted a workplan to Chevron. The results of the Chempro investigation are presented in this report.

1.3 LIMITATIONS

Services provided hereunder were performed in accordance with current generally accepted environmental consulting principles and practices. No other warranty, expressed or implied, is made.

The opinions presented apply to site conditions existing at the time of performance of services and are based in part on interpretation of data from discrete sampling locations which may not represent conditions between sampling locations. Chempro is unable to report on or accurately predict events which may impact the site following performance of services, whether occurring naturally or caused by external forces. Chempro assumes no responsibility for conditions Chempro did not investigate, or conditions not generally recognized as environmentally unacceptable at the time services were performed.

2.0 INVESTIGATIVE METHODS

The site work was conducted from November 29 to December 5, 1989. Four soil borings were drilled and converted to 2-inch-diameter monitor wells. Selected soil and groundwater samples from each boring were collected and submitted for chemical analysis to Superior Analytical Laboratory, Inc., of San Francisco, California (Superior Laboratory). A water-level survey was conducted using all site wells. The well-heads were surveyed for location and elevation. A survey of the wells located within a 1/2-mile radius of the site was conducted.

The following sections describe the methods used in this site investigation.

2.1 DECONTAMINATION AND QUALITY ASSURANCE PROCEDURES

Two methods of decontamination were used at the service station during this investigation: steam cleaning and detergent washes were followed by tap water and distilled water rinses. All equipment that was placed in the borings or wells, or that came in contact with groundwater, was decontaminated by the guidelines established by the Environmental Protection Agency (EPA). The procedures used for decontamination are presented in Appendix A.

Soil and groundwater quality assurance sampling included the collection of a rinsate sample at the beginning of each day, or after 20 samples had been collected. The rinse samples were labeled, placed in coolers, noted on the sample log and Chain-Of-Custody forms, and handled as outlined in Appendix B. The procedure in which the quality assurance samples were collected is presented in Appendix A.

2.2 SOIL BORINGS

Four soil borings were drilled from November 29 to December 1, 1989, to determine the subsurface lithology, evaluate the presence of soil contamination, and provide for well installation. The borings were drilled by B & F Drilling Inc., of Rancho Cordova, California, with a Mobile B-57 drill rig. The borings are labeled MW-1, MW-2, MW-3, and MW-4. The boring locations are shown on Figure 2.

Before the borings could be drilled, drilling permits were obtained from the Alameda County Flood Control and Water Conservation District (ACFC & WCD) (see Appendix C), and the workplan was approved by the Alameda County Department of Health. In addition, the boring locations were cleared with West Coast Locators, of San Jose, California, Underground Service Alert, and the Chevron maintenance mechanic.

In each boring, the first four feet of soil were excavated with a hand auger to ensure that there was no subsurface obstructions. The borings were then advanced with hollow-stem auger drilling equipment. The borings were drilled using 8-inch outside-diameter hollow-stem augers. Soil samples were collected at changes in lithology, or at least 5-foot intervals. The soil was collected with a 2-inch-diameter modified California split-spoon sampler with brass liners. The sampler was driven into the soil ahead of the auger bit with a 145-pound drive hammer. The number of hammer blows required to drive the 18-inch-long split-spoon sampler into the soil was recorded in 6-inch increments and recorded on the boring logs. The lithology was logged in the field by a geologist using the Unified Soil Classification System. The logging was supervised by a California State-registered geologist. The boring logs are presented in Appendix C.

Borings MW-1, MW-2, MW-3, and MW-4 were drilled and sampled to depths of 41.5, 31.5, 30, and 26.5 feet BGL, respectively. Two-inch-diameter monitor wells were constructed in each boring (see Section 2.4). All soil cuttings generated during the drilling operation were drummed, labeled, and stored on-site pending chemical results. All drummed soil will be disposed of by Chempro in accordance with Chevron guidelines.

2.3 SOIL SAMPLING

Soil samples were chosen for chemical analysis using a portable photoionization detector (PID) (PhotoVac Micro Tip II) to determine the presence or absence of total volatile organic compounds in the samples. The PID values were recorded on the boring logs (see Appendix C). A minimum of one soil sample and a maximum of three soil samples, were collected for chemical analysis from each boring under strict Chain-Of-Custody procedures, and following the guidelines established by Chevron and the EPA.

The brass liners containing the soil samples were sealed with aluminum foil, polypropylene end caps, and tape. The sealed samples were then labeled, stored on ice, and transported to Superior Laboratory. The samples were accompanied by Chain-Of-Custody documentation which are presented in Appendix D.

Selected soil samples obtained from borings MW-1 through MW-4 were analyzed by Superior Laboratory for TPH (as gasoline), using modified EPA method 8015, and benzene, toluene, ethylbenzene, and xylenes (BTEX), by EPA method 8020. In addition MW-1 and MW-2 were analyzed for TPH (as diesel) by EPA method 8015, oil and grease by modified EPA method 503E, and total metals including lead (Pb), chromium (Cr), cadmium (Cd), and zinc (Zn), by atomic absorption. Rinse samples were taken daily from the split-spoon sampler and analyzed. Sample handling and quality assurance/quality control (QA/QC) procedures are detailed in Appendix B.

2.4 WELL INSTALLATION

Groundwater monitor wells were installed in borings MW-1 through MW-4. Monitor well MW-1 is located at the northern corner of the property, hydraulically upgradient of the on-site underground storage tanks (see Figure 2). Monitor well MW-2 is located adjacent to the waste oil tank. Monitor wells MW-3 and MW-4 are located hydraulically downgradient of the underground storage tank complex and the pump islands, respectively.

The monitor wells are constructed with 2-inch-diameter, schedule 40 PVC well casing. The monitor wells are screened with 0.020-inch machine-slotted well screen. The casing and screen assembly is terminated with a flush-threaded bottom cap.

During drilling, confined aquifer conditions were encountered (see Section 3.3.2). Because aquitards were logged above and below the confined water-bearing horizon, only the zones in each well containing the saturated lenses were screened. Five feet of screen was installed in MW-1 and MW-2, and 10 feet of screen was installed in MW-3 and MW-4. The monitor well construction details are presented in Table 1, and Appendix C.

The sand pack installed around the screened sections of each well consists of Number 3 Lone Star Sand. To prevent interconnection between hydraulically separate zones encountered during drilling, cement-bentonite grout bottom seals were tremmied into MW-1, MW-3, and MW-4 before the sand packs were installed (see Table 1). In each well, a 2-foot-thick bentonite seal was placed above the sand pack and the remaining annulus was grouted to surface with a cement-bentonite grout using a tremmie pipe for placement. A water-tight locking cap and a traffic-rated vault box were installed to provide access to the wellheads. Well construction details are presented in Appendix C.

The monitor wells were developed to remove fine-grained sediments from the sand pack in the vicinity of the well screen. The wells were developed by surging, swabbing and over-pumping. The pH, electrical conductivity, and temperature were monitored to determine when water-quality conditions were stable. During well development, approximately 9, 11, 16, and 11 gallons were removed from monitor wells MW-1, MW-2, MW-3, and MW-4, respectively. The water purged during well development was contained in 55-gallon drums and stored on-site for disposal by Chevron.

2.5 GROUNDWATER SAMPLING

Groundwater samples were collected from each monitor well for chemical analysis. The samples were collected on December 5, 1989, and sent to Superior Laboratory for analysis. Duplicate groundwater samples were collected from monitor well MW-3 for quality assurance.

Before purging and sampling the wells, a clear Lucite^{TM} bailer was used to determine if floating product was present on the groundwater surface. Floating product was not observed in any of the monitor wells. The wells were purged with a hand pump to evacuate standing casing water before sample collection. The pH, electrical conductivity, and temperature of the groundwater were monitored to determine when the water quality conditions were stable before sampling. Monitor wells MW-2, MW-3, and MW-4 were sampled after 3 well-casing volumes were purged. MW-1 was bailed dry after the evacuation of 2 casing volumes, and following recovery, the well was sampled. The water level in each well was allowed to recover to within 80 percent of the static level before samples were

collected. Groundwater samples were collected in clean Teflon bailers and decanted into the appropriate sample vials provided by Superior Laboratory. All purge water was contained on-site in 55-gallon drums for disposal by Chevron. All water samples were collected under strict Chain-Of-Custody procedures, and following the guidelines established by Chevron and the EPA. The Chain-of-Custody forms are included in Appendix D.

The groundwater samples collected from monitor wells MW-1, MW-2, MW-3, and MW-4 were analyzed by Superior laboratory for TPH (as gasoline) by EPA method 8015, BTEX by EPA method 8020, and ethylene dibromide by EPA method 504. In addition, monitor wells MW-1 and MW-2 were analyzed for TPH (as diesel) by EPA method 8015, total oil and grease by EPA method 503E, and total metals Pb, Cd, Cr, and Zn by atomic absorption. The MW-3 duplicate sample was analyzed by the above mentioned methods for TPH (as gasoline), BTEX, ethylene dibromide, total oil and grease, and the selected metals Pb, Cr, Cd, and Zn. A bailer rinse sample was collected after MW-2 was sampled, and before sampling MW-3. The rinse sample was analyzed for the same parameters as the groundwater samples.

2.6 WATER LEVEL SURVEY

On December 4, 1989 the water level in each well was obtained to determine the groundwater flow direction and gradient beneath the site. The wells were inspected for floating product before taking the water-level measurement (see Appendix B). Floating product was not detected in any of the wells. Depth-to-water (DTW) measurements were taken with an electric water level sounder using the top of casing as the reference elevation (see Appendix B). The DTW values were converted to groundwater elevations relative to mean sea level (MSL) by subtracting the DTW from the surveyed well-head elevation (see Section 2.7).

2.7 WELL-HEAD SURVEY

On November 16, 1989, Ruth and Going, Inc., professional land surveyors of San Jose, California, surveyed the locations and elevations of the monitor wells at the site. The top of casing on monitoring wells MW-1 through MW-4 were surveyed for location and elevation. The location was surveyed to the nearest 1-foot

northing and easting, and the elevation was surveyed to the closest 0.01-foot MSL. The well-head survey data are presented in Table 2.

2.8 WATER USE SURVEY

Information on all reported active, inactive, and decommissioned water-supply wells and groundwater monitor wells located within a one-half-mile radius of the site was collected from the ACFC & WCD.

3.0 RESULTS

3.1 WATER USE SURVEY

At the time of the survey, there were nine active and four inactive water-supply wells located within one-half mile of the site. No reported groundwater monitor wells are located in the region. The well data provided by the ACFC & WCD are presented in Table 3.

The locations of the water supply wells are shown on Figure 1. Most of the wells are located southwest of the site. The active wells are used for agricultural, municipal, domestic and industrial applications. Well depths range from 40 to 590 feet BGL.

3.2 GEOLOGY

3.2.1 Regional Geology

The study area is located on the east-central flanks of San Francisco Bay, within the gently bayward-sloping alluvial plain of Alameda County. Physiographically, the study area is located on the distal end of the San Leandro alluvial cone extending west of the Diablo Range. The study area is bounded on the north by the Oakland alluvial plain, on the east by the Diablo Range (East Bay Hills), on the south by the San Lorenzo alluvial cone, and on the west by the San Francisco Bay. The alluvial sediments were transported west from the East Bay Hills and deposited by braided stream channels which continually shifted across the alluvial cones. The alluvial sediments are largely Pliocene-Pleistocene to late Pleistocene in age, and consist of a mixture of gravels, sands, and clays. In general, the particle size and bed thickness of the alluvium decreases westward from the apexes of the alluvial cones where the watercourses exit the East Bay Hills. (Maslonkowski, 1984)

The geologic structure of the area is dominated by northwest-trending, steeply-dipping faults. The Hayward fault zone, located less than one mile east of the site has right-lateral strike-slip motion. The fault separates older, nonwater-bearing bedrocks in the hills east of the fault from younger Quaternary age alluvium on the west side. The strike-slip motion has displaced the San Lorenzo Creek on the

west side of the fault zone to the north, and has created a groundwater barrier along the foothills. (Maslonkowski, 1984)

3.2.2 Site Geology

Locally, the site is underlain by distal alluvial cone deposits of sandy clays, clayey sands, and gravelly sands. The subsurface geology, extending down to a depth of approximately 40 feet is dominated by a series of grey to yellowish brown, low plasticity clays. Dispersed within the clays are 2 to 3-inch-thick sand and coarse gravel lenses. The high percentage of fine-grained soils encountered in the borings are indicative of overbank or distal fan deposits. The interbedded gravelly sands and clayey sands may represent thin braided stream-channel deposits and act as conduits for groundwater flow. The lithology encountered during drilling is presented on the boring logs in Appendix C.

3.3 HYDROGEOLOGY

3.3.1 Regional Hydrogeology

Groundwater aquifers found within the alluvial cones of the study area are typically contained in discontinuous lenses of sand and gravel. These aquifers may extend to depths greater than 1000 feet BGL. Most of the aquifers in the study area are confined, but unconfined or perched conditions also exist. The confined aquifers occurring within the San Leandro and San Lorenzo cone subareas are considered to be separate hydraulic units, and do not extend beyond the boundaries of the individual cones. (Maslonkowski, 1984)

The shallow aquifers (within 50 feet of the land surface) in the study area are of limited areal extent and overlie the clay layer which confines the Newark aquifer. Most of the shallow aquifers exist under perched conditions, though some are confined by thin clay beds. The water-bearing materials in these minor aquifers are usually silty sand and silty gravel, and generally yield small quantities of water to wells. (Maslonkowski, 1984)

3.3.2 Local Hydrogeology

During drilling, saturated sand and gravel lenses were encountered between moist sandy clays. When the saturated soils were penetrated, the groundwater

rose rapidly up into the augers. The static water levels in the site wells were found to be as much as 16 feet higher than the first-encountered groundwater in the borings. These groundwater elevation differences indicate that the first-encountered aquifer beneath the site is under confined conditions. The lenses containing the groundwater were encountered at depths ranging from 19 to 30 feet BGL. The groundwater level rose after the aquifer was penetrated to within 12 to 17 feet BGL.

3.3.2.1 Groundwater Elevation, Gradient and Flow Direction

The results of the water-level survey conducted on December 4, 1989 are presented in Table 4. As shown in the table, the depth to groundwater beneath the site at the time of the survey ranged from 12.00 to 16.76 feet BGL. This equates to a groundwater elevation of 115.09 to 109.68 feet above MSL.

Based on the groundwater elevation data, the potentiometric surface beneath the site slopes to the southwest, suggesting the groundwater flow direction is to the southwest. The groundwater elevations and a contour map of the potentiometric surface are presented on Figure 3. The hydraulic gradient was calculated to be approximately 0.05 ft/ft.

3.4 GEOCHEMICAL RESULTS

3.4.1 Soil Geochemistry

Selected soil samples obtained from borings MW-1 through MW-4 were analyzed for TPH (as gasoline), and BTEX. In addition MW-1 and MW-2 were analyzed for TPH (as diesel), oil and grease, and total metals Pb, Cd, Cr, and Zn. The Certified Analytical Results (CARs) are presented in Appendix D, and a summary of the data are presented on Table 5.

The PID measurements taken during the drilling operation provided qualitative data on the occurrence of total volatile organics in the boring soils. Soil borings MW-1 and MW-2 had the lowest measured levels ranging from background to 58 ppm. Borings MW-3 and MW-4 had the highest levels ranging from 40 to 3,300 ppm. The PID readings in borings MW-3 and MW-4 increased with depth, with maximum concentrations encountered near the water-bearing horizon.

The chemical analyses of the soil samples confirm the qualitative PID readings. The highest concentrations of TPH (as gasoline) and BTEX were found in borings MW-3 and MW-4, in the samples collected from 15 feet BGL. In the MW-3 15-foot sample, TPH (as gasoline) was reported at 6 ppm and benzene was reported at 1.1 ppm. In the MW-4 15-foot sample, TPH (as gasoline) and benzene were reported at 24 ppm and 0.29 ppm, respectively. The 20-foot sample from MW-3 contained a reported benzene concentration of 0.14 ppm. The soil samples submitted for analysis from each boring, and the concentrations detected in each sample are presented on Table 5.

No petroleum hydrocarbon concentrations were detected in the samples analyzed from MW-2. The sample collected from the 25-foot horizon in MW-1 contained total oil and grease at the method detection limit (20 ppm). No other petroleum hydrocarbon detections were reported in MW-1. Concentrations of total metals Pb, Cr, Cd, and Zn, detected in borings MW-1 and MW-2 are presented on Table 5.

Three rinse quality assurance samples were collected during the drilling procedure, and analyzed for TPH (as gasoline) and BTEX. The first sample collected had no detections. The second and third rinse samples had reported detections of toluene and xylenes. The highest concentrations of toluene and xylene reported in the rinse samples had detections at 0.6 and 0.8 ppb, respectively. Following the rinse sample collection, the first soil samples analyzed did not contain detectable concentrations of toluene or xylene. Decontamination procedures are considered to be adequate. Sample concentrations are considered to be representative of site conditions.

3.4.2 Groundwater Geochemistry

Groundwater samples collected from monitor wells MW-1, MW-2, MW-3, and MW-4 were analyzed for TPH (as gasoline), BTEX, and ethylene dibromide. In addition, monitor wells MW-1 and MW-2 were analyzed for TPH (as diesel), total oil and grease, and total metals Pb, Cd, Cr, and Zn. The MW-3 duplicate sample was analyzed by the above mentioned methods for TPH (as gasoline), BTEX, ethylene dibromide, total oil and grease, and the selected metals Pb, Cr, Cd, and

Zn. A summary of the analytical results are presented on Table 6. The CARs are presented in Appendix D.

Groundwater analyses from monitor well MW-3, located hydraulically downgradient from the underground storage tank complex, had detections of TPH (as gasoline) at 24,000 ppb, benzene at 2,500 ppb, toluene at 1,900 ppb, ethylbenzene at 390 ppb, xylenes at 2600 ppb, and Zn at 40 ppb. Monitor well MW-4, located hydraulically downgradient from MW-3 and the pump islands, had similar detections, with reported concentrations of TPH (as gasoline) at 19,000 ppb, benzene at 390 ppb, toluene at 1,300 ppb, ethylbenzene at 460 ppb, and xylenes at 1800 ppb. Monitor well MW-1, located hydraulically upgradient of the site, had no detections of petroleum hydrocarbons, and detections of the metals Cd (20 ppb) and Zn (20 ppb). Monitor well MW-2, located hydraulically downgradient of the waste oil tank, had a 1 ppb concentration of xylenes and Zn reported at 10 ppb. The rinse sample had no detections of any of the analytical parameters. Decontamination procedures are considered to be adequate. Sample concentrations are considered to be representative of site conditions. The TPH (as gasoline) and benzene concentrations detected in each well are plotted on Figure 4

4.0 SUMMARY

This site investigation conducted at the Chevron Service Station No. 9-8139, in San Leandro, California, was conducted to characterize the soil and groundwater beneath the site. Four soil borings were drilled and completed as 2-inch diameter monitor wells. Selected soil samples from borings MW-1 through MW-4 were analyzed for petroleum hydrocarbons. In addition, the soil samples analyzed from borings MW-1 and MW-2, located in the vicinity of the waste oil tank were analyzed for the selected total metals Pb, Cr, Cd, and Zn. Groundwater samples collected from monitor wells MW-1 through MW-4 were analyzed for petroleum hydrocarbons and ethylene dibromide. In addition, groundwater samples from MW-1 through MW-3 were analyzed for the selected total metals Pb, Cr, Cd, and Zn. The groundwater elevation, flow direction, and gradient were determined for the confined aquifer underlying the site.

The geologic and hydrogeologic data generated in this investigation indicate that the site is underlain by low permeability sandy clays, with thin sand and gravel lenses dispersed in the clay. The first-encountered groundwater is contained in sand and gravel lenses under confined conditions. These water-bearing lenses were encountered from 18 to 30 feet BGL. The potentiometric surface stabilized between 12.00 to 15.54 feet BGL (115.09 to 109.68 feet MSL) The confined aquifer flows to the southwest with a hydraulic gradient of 0.05 ft/ft.

Petroleum hydrocarbons were detected in soil samples collected from borings MW-1, MW-3, and MW-4. The soil sample collected from boring MW-1 had a total oil and grease concentration of 20 ppm. Borings MW-3 and MW-4 had reported concentrations of TPH (as gasoline) and BTEX from the 15-foot BGL soil sample. The maximum concentration of TPH (as gasoline) was detected in MW-4 (24 ppm) and the maximum concentration of benzene was detected in MW-3 (1.1 ppm). Benzene was also detected in the 20-foot BGL soil sample from MW-3 (0.14 ppm). No detections of contaminants were reported in boring MW-2.

Groundwater samples collected from monitor wells MW-3 and MW-4 contained elevated concentrations of TPH (as gasoline) and BTEX. TPH (as gasoline) concentrations ranged from 19,000 ppb in MW-4, to 24,000 ppb in MW-3. Benzene concentrations ranged from 390 ppb in MW-4, to 2,500 ppb in MW-3.

Concentrations of xylenes at 1 ppb were reported in MW-2, and no organic compounds were detected in MW-1. Analysis for total metals in groundwater detected Zn in MW-1 (20 ppb), MW-2 (10 ppb), and MW-3 (40 ppb), and Cd in MW-1 (20 ppb). Etheylene dibromide was not detected in any of the groundwater samples collected.

5.0 REFERENCES

EA Engineering, Science, and Technology, Inc. 1989. Report of Investigation, Soil Vapor Contaminant Assessment, Chevron Service Station 9-8139. San Leandro, California. July 14, 1989.

Freeze, R. A., and J. A. Cherry. 1979. Groundwater. Prentice-Hall, Inc., Engelwood Cliffs, New Jersey.

Maslonkowski, Dennis P. 1984. Groundwater in the San Lorenzo Alluvial Cones of the East Bay Plain of Alameda County. Alameda County Flood Control and Water Conservation District, Hayward, California. June 1989.

Table 1
MONITOR WELL CONSTRUCTION
Chevron Service Station No. 9-8139

Well	Well-head Elevation (ft-MSL)	Boring Depth (ft-BGL)	Casing Depth (ft-BGL)	Surface-Seal Interval (ft-BGL)	Bottom-Seal Interval (ft-BGL)	Screen Interval (ft-BGL)	Casing Diameter I.D. (inch)	Screen Slot Size (inch)
MW-1	127.08	41.5	30.0	0-21.8	30.0-41.5	25-30	2	0.02
MW-2	125.98	31.5	30.0	0-23.0	NA	25-30	2	0.02
MW-3	126.84	30.0	25.5	0-12.5	25.5-30.0	15.5-25.5	2	0.02
MW-4	125.22	26.5	22.0	0-11.0	22.8-26.5	12-22	2	0.02

MSL = Mean Sea Level
BGL = Below Ground Level
NA = Not Applicable
I.D. = Inside Diameter

Table 2

WELL-HEAD SURVEY DATA

Chevron Service Station No. 9-8139

Well	Ground-Level Elevation (ft-MSL)	TOC Elevation (ft-MSL)	Northing (feet)	Easting (feet)
MW-1	127.28	127.09	5006.467	4968.842
MW-2	126.37	125.98	4989.081	5030.579
MW-3	127.04	127.84	4939.349	5102.679
MW-4	125.43	125.22	4898.244	5075.289

ft-MSL: Feet above mean sea level
TOC: Top of casing
Survey conducted by Ruth and Going, Inc. on December 11, 1989

Table 3
WATER SUPPLY WELLS
Chevron Service Station No. 9-8139

	OWNER	WELL LOCATION	WELL DESIGNATION			USE
1)	Hayward Municipal Water System	Julia Street, Castro Valley	3S/2W	5A	14	MUN
2)	UMEKI Nursery	16001 Foothill Blvd,San Leandro	3S/2W	5E	1	IRR
3)	U.S. Nursery	1767 162nd Ave., San Leandro	3S/2W	5E	2	ABN
4)	?	Foothill Blvd., San Leandro	3S/2W	5L	1	ABN
5)	Frank Martinez	1570 164th Ave., San Leandro	3S/2W	5L	2	ABN
6)	A.J. Pitcka	Gravel Rd., San Leandro	3S/2W	5L	3	IRR
7)	Woodward	1595 164th Ave., San Leandro	3S/2W	5L	4	IRR
8)	A. Quilici	1700 163rd Ave., San Leandro	3S/2W	5L	5	IRR
9)	Protez	1480 162nd Ave., San Leandro	3S/2W	5M	2	ABN
10)	Medina	?, San Leandro	3S/2W	5N	1	DOM
11)	Selin	1414 164th Ave., San Leandro	3S/2W	5N	2	IRR
12)	Namura Nursery	1501 163rd Ave., San Leandro	3S/2W	5N	3	IRR
13)	S. Nieda	1537 165th Ave., San Leandro	3S/2W	5P	1	IRR
14)	Nelson Nursery	1601 165th Ave., San Leandro	3S/2W	5P	2	ABN

*USE:
ABN - Abandoned Well
DOM - Domestic Well
IRR - Irrigation Well
MUN - Municipal Well

Table 4
WATER LEVEL ELEVATION DATA
Chevron Service Station No. 9-8139

Well	Total Depth (ft-BGL)	TOC Elevation (ft-MSL)	Depth to Water (ft-BTOC)	Water Elevation (ft-MSL)
MW-1	40	127.09	12.00	115.09
MW-2	31.5	125.98	11.60	114.38
MW-3	30	126.84	16.76	110.08
MW-4	26.5	125.22	15.54	109.68

BTOC: Below top of casing
BGL: Below ground level
TOC: Top of casing
MSL: Mean sea level
Water-level survey conducted on December 4, 1989

TABLE 5
SOIL ANALYSES AND ANALYTICAL TECHNIQUES
Chevron Service Station No. 9-8139

SOIL BORING	SAMPLE DEPTH	SAMPLE NO.	TPH Gasoline	TPH Diesel	TOTAL OIL & GREASE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	TOTAL METALS Pb	Cr	Cd	Zn
Detection Method			8015	8015	503E	8020	8020	8220	8020	7240	7190	7130	7950
Detection Limit (ppm)			1	10	20	0.05	0.05	0.05	0.05	10	0.20	0.20	0.20
MW-1	25	SS-5SL	ND	ND	20	ND	ND	ND	ND	20	50	1.30	31
MW-2	5	SS-9SL	ND	ND	ND	ND	ND	ND	ND	20	28	0.90	48
MW-2	25	SS-13SL	ND	ND	ND	ND	ND	ND	ND	20	33	1.10	32
MW-3	5	SS-20SL	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA
MW-3	15	SS-21SL	6	NA	NA	1.1	0.64	0.08	0.44	NA	NA	NA	NA
MW-3	20	SS-23SL	ND	NA	NA	0.14	ND	ND	ND	NA	NA	NA	NA
MW-4	10	SS-16SL	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA
MW-4	15	SS-17SL	24	NA	NA	0.29	3.1	3.3	16	NA	NA	NA	NA
MW-4	25	SS-19SL	ND	NA	NA	ND	ND	ND	ND	NA	NA	NA	NA

Soil chemistry values presented in parts per million (ppm)
NA = No Analysis
ND = Less than method detection limit

TABLE 6
GROUNDWATER ANALYSES AND ANALYTICAL TECHNIQUES
Chevron Service Station No. 9-8139

MONITOR WELL	SAMPLE NO.	TPH Gasoline	TPH Diesel	TOTAL OIL & GREASE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENES	TOTAL METALS Pb	Cr	Cd	Zn	ETHYLENE DIBROMIDE
Detection Method		8015	8015	413.2	602	602	602	602	239.2	7190	7130	7950	504
Detection Limit (ppb)		500	1000	5000	0.5	0.5	0.5	0.5	0.005	100	10	10	0.05
MW-1	WS-1SL	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	20	ND
MW-2	WS-2SL	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	10	ND
MW-3	WS-3SL	24000		NA	2400	1800	360	2600	NA	NA	NA	NA	ND
MW-3 DUP.	WS-5SL	24000		ND	2500	1900	390	2600	ND	ND	ND	40	ND
MW-4	WS-4SL	19000		NA	390	1300	460	1800	NA	NA	NA	NA	ND
RINSATE	RS-4SL	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Groundwater chemistry values presented in parts per billion (ppb)
ND = Less than method detection li
NA = No Analysis
Samples collected on December 5, 1989

EXPLANATION

2 ◉ Water-producing well location and designation (see Table 2)
(Estimated locations of wells 1, 4,6,10 are shown)

SCALE

0 1000 2000 3000 4000 FEET

N

Note: Map adapted from Hayward 7.5' Quadrangle

January 1990

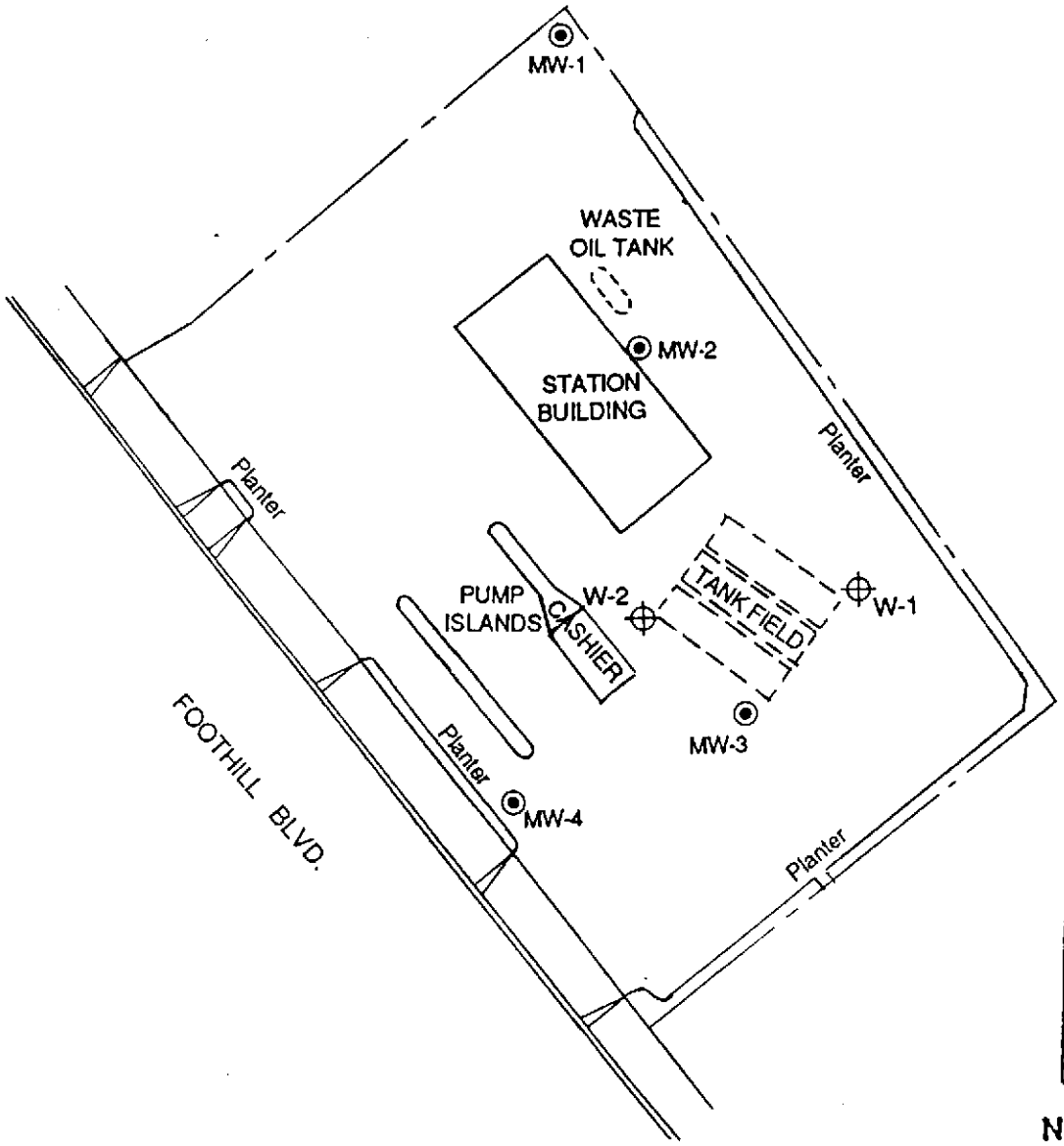
CHEMPRO
A Burlington Environmental Inc. Company

CHEMICAL PROCESSORS, INC.
950 "B" Gilman Street
Berkeley, CA 94710

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

Figure

Job No. 987158



EXPLANATION

6" Well

Groundwater Monitor Well

0 20 40 Feet

January 1990

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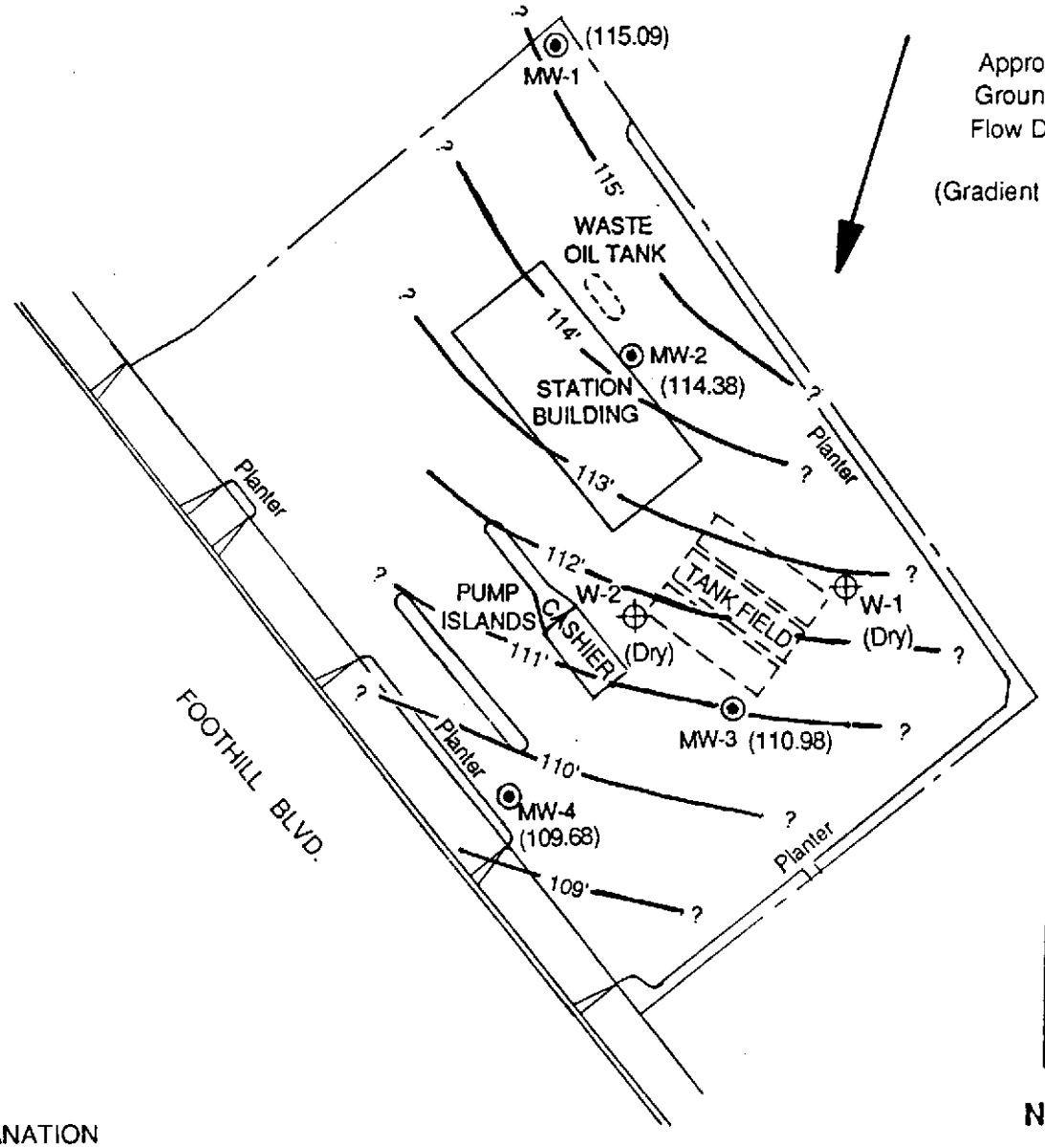
Berkeley, CA 94710

SITE PLAN
Chevron SS 9-8139
16304 Foothill Boulevard
San Leandro, California

Figure 2

Job No. 987158



EXPLANATION

⊕	6" Well
◉	Groundwater Monitor Well
(115.09)	Groundwater Elevation (Ft-MSL): measured 12 / 4 / 1989
— 115' —	Groundwater Elevation Contour (Contour Interval = 1 foot)

January 1990

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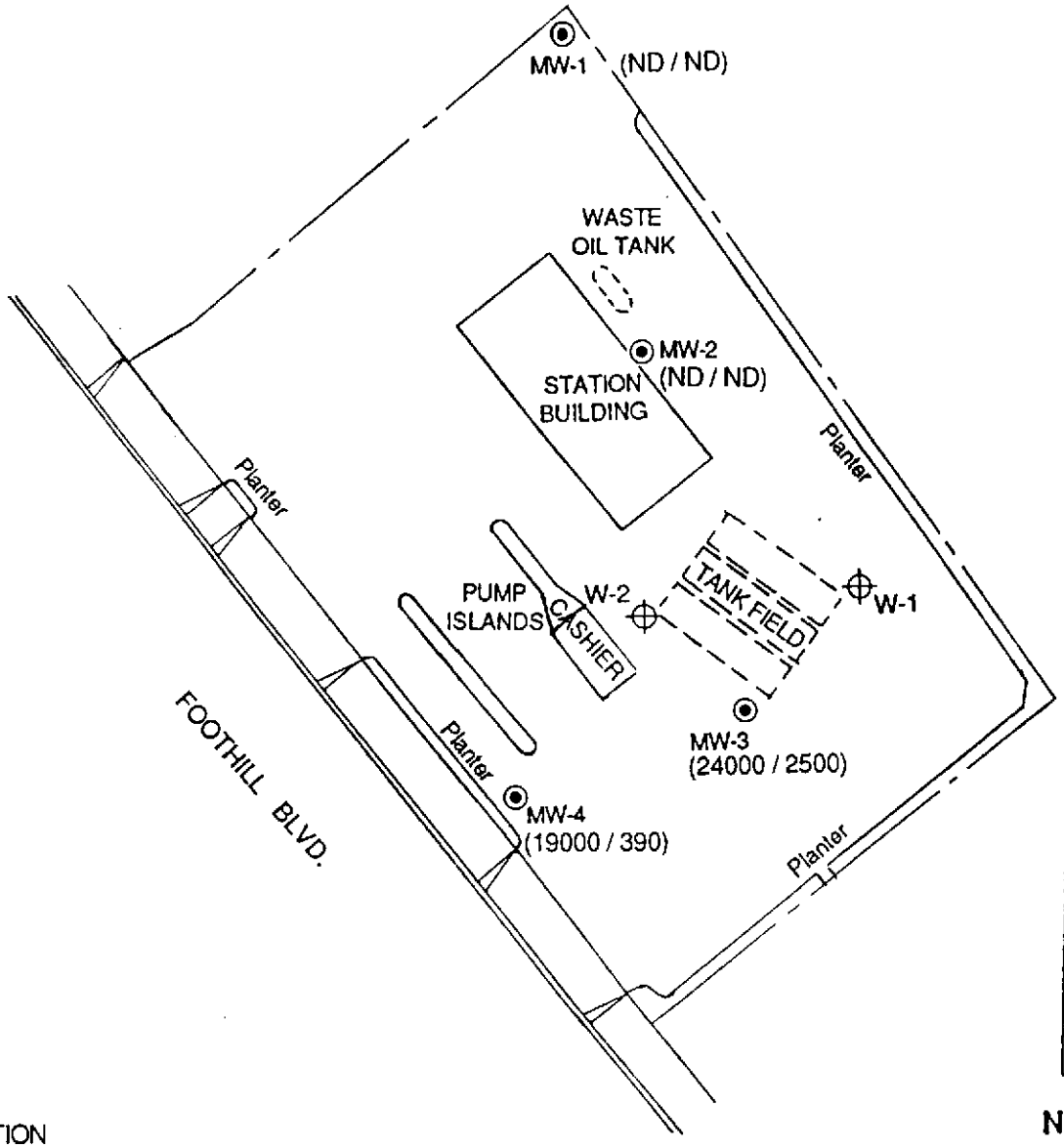
GROUNDWATER ELEVATION CONTOUR MAP
Chevron SS 9-8139
16304 Foothill Boulevard
San Leandro, California

Figure 3

Job No. 987158



EXPLANATION

⊕	6" Well
⊙	Groundwater Monitor Well
19000 / 390	TPH (Total Petroleum Hydrocarbons) / Benzene concentrations in groundwater. Samples collected December 5,1989. All measurements in parts per billion (ppb).
N D	Non-detectable concentration

0 20 40 Feet

January 1990

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TPH/BENZENE CONCENTRATIONS IN GROUNDWATER
Chevron SS 9-8139
16304 Foothill Boulevard
San Leandro, California

Figure 4

Job No. 987158

Appendix A

DECONTAMINATION PROCEDURES
and
QUALITY ASSURANCE SAMPLING

Appendix A

DECONTAMINATION PROCEDURES
and
QUALITY ASSURANCE SAMPLING

DECONTAMINATION PROCEDURES

Proper decontamination and cleansing of all equipment was performed to prevent cross-contamination between wells and sampling locations. The two methods of decontamination used at the service station were steam cleaning and detergent washing followed by tap water and distilled water rinses. During field work, all equipment that was placed in the borings or wells, or that came in contact with groundwater was decontaminated as follows:

Equipment	Decontamination procedures
Drill Rig	Steam cleaned prior to arriving on-site
Augers	Steam cleaned prior to drilling each boring
Drill Tools	Steam cleaned prior to drilling each boring
Split-Spoon Sampler	Steam cleaned between each boring, then Alconox™ (Alconox) washed, and tap water and distilled water rinsed between each sampling interval
PVC Casing	Steam cleaned before installing in well
Well Development Equipment	Alconox washed, and steam cleaned
Water Level Sensor	Alconox washed, tap water and distilled water rinsed between each use
Purge Pump	Steam cleaned between each use
Bailers	Steam cleaned between each use
Teflon™ Sampling Bailer	Alconox washed, then steam cleaned and rinsed with distilled water prior to sampling each well

The water used for steam cleaning was obtained from the service station tap. Arrowhead™ distilled water was used for rinses. The water generated during

decontamination procedures was stored in 55-gallon drums on-site and was disposed of by Chevron.

Quality Assurance Sampling

One rinsate sample was collected at the beginning of each day or after 20 samples had been collected to determine if the sampling equipment was adequately decontaminated. After decontamination by the methods outlined in Appendix A, rinse samples were collected from the equipment used for sampling (split-spoon sampler or Teflon™ ["Teflon"] bailer). The rinse samples were taken by: 1) trickling or rinsing distilled water through the split-spoon sampler and across the brass liners which the soils contacted, or through the inside of the Teflon bailer, and 2) filling the appropriate sample vial for analysis. The rinse samples were labeled, placed in coolers, noted on the sample log and Chain-Of-Custody forms, and handled as outlined in Appendix B. The samples were sent to Superior Laboratory and analyzed for the same parameters as the soil or groundwater samples collected after the rinse samples were taken.

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 are used, proper analytical methods are applied, analytical results are accurate, precise, and complete, and the overall objectives of the monitoring program are achieved.

SAMPLE COLLECTION

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

Equipment Cleaning

Sample bottles, caps, and septa were precleaned and provided by Superior Laboratory. All sampling containers were used only once and discarded after analysis is complete.

Before starting the sampling event, all equipment to be placed in the well or come in contact with groundwater was disassembled and cleaned thoroughly with detergent water, then steam cleaned with service station tap water, and rinsed with Arrowhead™ distilled water. Any parts that may absorb contaminants, such as plastic pump valves or bladders, were cleaned as described above or replaced.

During the sampling event the equipment used in the well was washed with detergent, steam-cleaned, and rinsed with distilled water before purging or sampling the next well. The water level sounder was washed with detergent and

rinsed with distilled water before use in the each well. The rinse water is stored in 55-gallon drums on-site and will be disposed of by Chevron.

Quality Assurance Samples

To determine if the Teflon bailer used for sampling had been sufficiently decontaminated, rinse samples were taken. One rinsate sample was collected before sampling monitor well MW-3 by filling the Teflon sampling bailer with distilled water and then decanting that water into the sample vails. The rinsate samples were analyzed for the same parameters that the well was sampled for (see Table 6). The samples were sent to Superior Laboratory for analysis.

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

Before purging and sampling, the depth to water, floating hydrocarbon thickness, and the well total depth were measured using an electric sounder, and a bottom-filling clear Lucite™ bailer. 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 engineers rule was used to measure the depths to the closest 0.01 foot. The water level was measured by lowering the sensor into the monitor 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 when water has been contacted. A sensitivity control compensates for very saline or conductive water. After the water level had been determined the bailer was lowered to a point just below the liquid level, retrieved, and inspected for floating hydrocarbons.

Floating hydrocarbon was not encountered in any of the wells located on site. If floating product greater than 1/32-inch in thickness had been detected, a sample would not have been collected from that well.

All liquid measurements were recorded to the nearest 0.01 foot in the field logbook. The groundwater elevation at each monitor well was calculated by subtracting the measured depth to water from the surveyed well-casing elevation.

Well total depth was then measured by lowering the sensor to the bottom of the well. Well total depth, used to calculate purge volumes and to determine whether the well screen is partially obstructed by silt, was recorded to the nearest 0.5 foot in the field logbook.

Well Purging

Before sampling, standing water in the casing was purged from the monitor wells using a piston pump. Samples were collected from MW-1, MW-3, and MW-4 after a minimum of three casing volumes had been evacuated and the pH, electrical conductivity, and temperature had stabilized. MW-2 was bailed dry after the evacuation of two casing volumes. This well was allowed to recover to within 80% of its static water level and sampled.

The pH, electrical conductivity, and temperature meter were calibrated each day before beginning field activities. The calibration was checked once each day to verify meter performance. All field meter calibrations were recorded in the field log book.

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

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

The Chevron representative was notified that the water is ready for removal, and Chempro will transport the drums off-site when the water has been removed.

Well Sampling

A Teflon bailer was used for well sampling. Glass bottles of at least 40 milliliters volume and fitted with Teflon-lined septa were used in sampling for volatile organics. These bottles were filled completely to prevent air from remaining in the bottle. A positive meniscus forms when the bottle is completely full. A convex Teflon septum is placed over the meniscus to eliminate air. After capping, the bottle was inverted and tapped to verify that it did not contain air bubbles. The sample containers for other parameters were filled, and capped. Duplicate sample analysis was performed on groundwater samples taken from monitor well MW-3 and were analyzed for the same chemical analyses.

SAMPLE HANDLING AND DOCUMENTATION

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

Sample Handling

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

Sample Documentation

The following procedures were used during sampling and analysis to provide Chain-Of-Custody control during sample handling from collection through storage. Sample documentation included the use of the following:

* 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 recorded 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 (eg., casing diameter, depth to water, well depth)
* Calculated and actual purge volumes
* Purging equipment used
* Sampling equipment used
* Appearance of each sample (eg., color, turbidity, sediment)
* Results of field analyses (temperature, pH, electrical conductivity)
* General comments

The field logbooks were signed by the sampler.

Labels

Sample labels contained the following information:

* Project number
* Sample number (ie., 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 number, sample type, analytical request, date of sampling, and the name of the sampler. The record sheet was signed, timed, and dated by the sampler when transferring the samples. The number of custodians in the chain of possessions were kept to a minimum. A copy of the Sampling and Analysis Chain-of-Custody record is included in Appendix D.

Appendix C

BORING LOGS, WELL CONSTRUCTION DETAILS, AND WELL INSTALLATION PERMIT

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-1

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 1 OF 3

BY K. Elliot DATE 11/29/89 SURFACE ELEV. 127.28 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT AND GRAVEL FILL	
							SANDY CLAY (CL), very dark gray (5YR, 3/1); 70-80% low plasticity fines; 15-25% coarse sand; trace fine to coarse gravel; occasional roots; stiff; damp.	
9.1	18/18	5 7 14		5				
8.2	18/18	4 8 15	12/4/89 ▼	10			@ 10': dark grayish brown (10YR, 4/3); trace fine sand.	
9.1	18/18	5 11 18		15			@ 15': dark yellowish brown (10 YR, 4/4); 5-10% fine sand; very stiff.	
			11/29/89 ▽	20				

REMARKS

Boring drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with neat-cement grout from 30 to 41.5 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

David C. Boyd RG#4603

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-1

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 2 OF 3

BY K. Elliot DATE 11/29/89 SURFACE ELEV. 127.28 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
7.3	18/18	4 8 13					**SANDY CLAY (CL)**, dark yellowish brown (10 YR, 4/4); 70-80% medium plasticity fines; 20-30% fine sand; stiff; damp.	
3.5	17/18	6 10 25		25			@ 25-32': 1/2" to 3/4" diameter caliche clasts.	
							@ 29-30': water-bearing zone.	
5.2	17/18	6 9 15		30				
6.0	16/18	6 11 23		35			@ 35-36': yellowish brown (10 YR, 5/4); 80-90% low plasticity fines; 10-20% fine sand; very stiff; damp.	
				40				

REMARKS

Boring drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with neat-cement grout from 30 to 41.5 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-1

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 3 OF 3

BY K. Elliot DATE 11/29/89 SURFACE ELEV. 127.28 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
4.6	16/18	5 6 11					SANDY CLAY (CL) (continued). BORING TERMINATED AT 41.5 FEET.	

45

50

55

60

REMARKS

Boring drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with neat-cement grout from 30 to 41.5 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

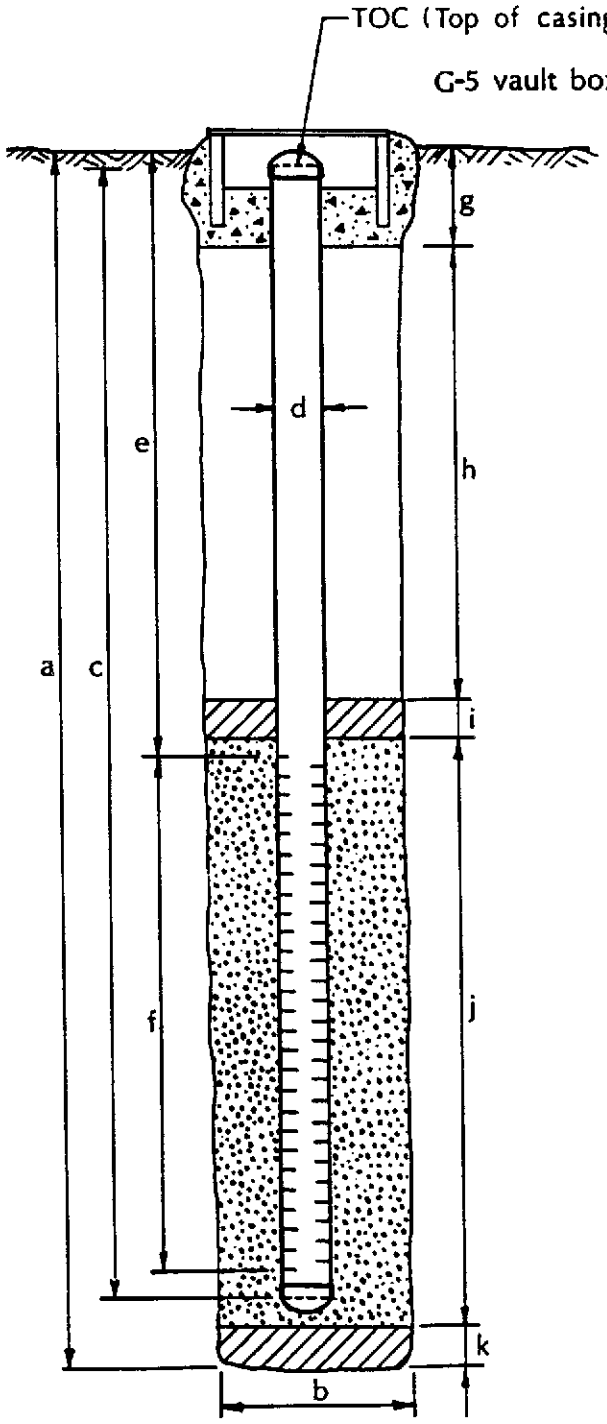
WELL DETAILS

CHEMPRO
A Burlington Environmental Inc Company

CHEMICAL PROCESSORS, INC.
950 "B" Gilman Street
Berkeley, CA 94710

PROJECT NUMBER 987158
PROJECT NAME SS No. 9-8139
LOCATION 16304 Foothill Blvd.
WELL PERMIT NO. 89676

BORING / WELL NO. MW-1
TOP OF CASING ELEV. 127.09'
GROUND SURFACE ELEV. 127.28'
DATUM MSL
INSTALLATION DATE 12/1/89



EXPLORATORY BORING

a. Total depth 41.5 ft.
b. Diameter 8 in.
Drilling method Hollow-stem Auger

WELL CONSTRUCTION

c. Total casing length 30 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 25 ft.
f. Perforated length 5 ft.
Perforated interval from 25 to 30 ft.
Perforation type Machine Slot
Perforation size 0.020"
g. Surface seal 1 ft.
Seal material Concrete
h. Backfill 19.3 ft.
Backfill material Neat Cement
i. Seal 1.5 ft.
Seal material Bentonite
j. Gravel pack 8.2 ft.
Pack material #3 Sand
k. Bottom seal 11.5 ft.
Seal material Neat Cement

Form prepared by _____

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-2

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 1 OF 2

BY K. Elliot DATE 11/29/89 SURFACE ELEV. 126.37 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT AND DEBRIS FILL	
							SANDY CLAY (CL), brown (10YR, 4/3); 75-85% low plasticity fines; 10-20% fine to coarse sand; trace fine gravel; angular, light colored clasts; stiff; damp.	
58.3	18/18	5 10 12		5				
							@ 9': clay pipe fragments.	
34.1	18/18	4 8 11	12/4/89 ▼	10			**CLAYEY SAND (SC)**, yellowish brown (10YR, 5/4); 15-25% low plasticity fines; 70-80% fine to medium sand; trace fine gravel; stiff; damp.	
20.5	18/18	5 10 15		15			**SANDY CLAY (CL)**, yellowish brown (10YR, 5/4); 75-85% low plasticity fines; 15-25% fine to medium sand; stiff; damp.	
				20				

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was converted to a two-inch-diameter monitor well. See attached Well Detail.

David C Tyler RG#4603

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-2

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 2 OF 2

BY K. Elliot DATE 11/29/89 SURFACE ELEV. 126.37 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
19.2	18/18	5 9 14					SANDY CLAY (CL) (continued). @ 20': 3/4" diameter caliche clasts.	
19.0	18/18	5 10 22	11/29/89 ▽	25				
24.5	16/18	4 18 29		30			BORING TERMINATED AT 31.5 FEET.	
				35				
				40				

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was converted to a two-inch-diameter monitor well. See attached Well Detail.

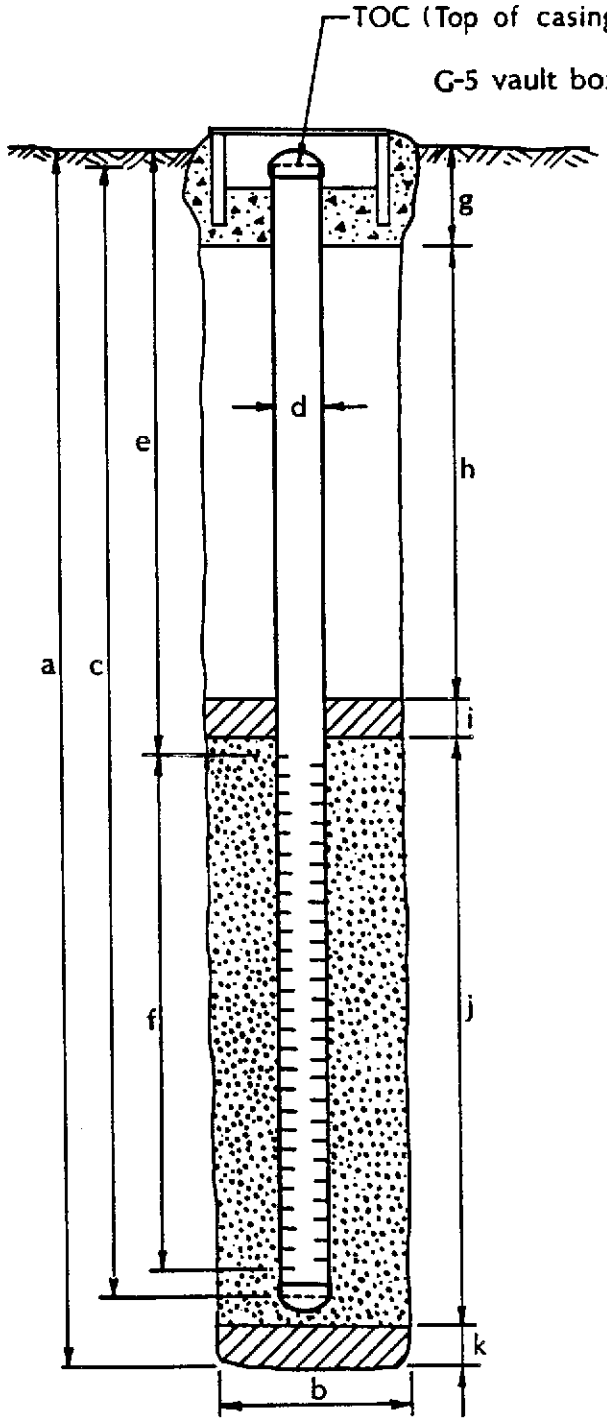
WELL DETAILS

CHEMPRO
A Bunnington Environmental Inc Company

CHEMICAL PROCESSORS INC
950 "B" Gilman Street
Berkeley, CA 94710

PROJECT NUMBER 987158
PROJECT NAME SS No. 9-8139
LOCATION 16304 Foothill Blvd.
WELL PERMIT NO. 89676

BORING / WELL NO. MW-2
TOP OF CASING ELEV. 125.98'
GROUND SURFACE ELEV. 126.37'
DATUM MSL
INSTALLATION DATE 11/30/89



EXPLORATORY BORING

a. Total depth 31.5 ft.
b. Diameter 8 in.
Drilling method Hollow-stem Auger

WELL CONSTRUCTION

c. Total casing length 30 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 25 ft.
f. Perforated length 5 ft.
Perforated interval from 25 to 30 ft.
Perforation type Machine Slot
Perforation size 0.020"
g. Surface seal 1.5 ft.
Seal material Concrete
h. Backfill 20 ft.
Backfill material Neat Cement
i. Seal 1.5 ft.
Seal material Bentonite
j. Gravel pack 8.5 ft.
Pack material #3 Sand
k. Bottom seal N/A ft.
Seal material N/A

Form prepared by _____

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-3

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 1 OF 2

BY K. Elliot DATE 12/1/89 SURFACE ELEV. 127.04 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT AND FILL	
							SANDY CLAY (CL), yellowish brown (10YR, 5/4); 60-75% low plasticity fines; 20-30% fine sand; 5-10% coarse sand; very stiff; damp.	
68.4	17/18	9 12 19		5				
193	12/18	11 11 15		10			**CLAYEY SAND (SC)**, olive brown (2.5Y, 4/4); 15-35% low plasticity fines; 60-75% fine to coarse sand; 5-10% fine gravel: angular clasts, dark iron-oxide staining; very stiff; damp.	
229	18/18	8 16 25	12/4/89 ▼	15			**GRAVELLY SAND (SW)**, light olive brown (2.5Y, 5/6); 15-25% low plasticity fines; 40-50% fine to coarse sand; 25-35% fine to coarse gravel, 2-3"-thick lenses of coarse gravel; hard; damp; slight hydrocarbon odor.	
	12/12	27 refusal						
	18/18	11 25 30						
3340	18/18	6 7		20			@ 19': moderate hydrocarbon odor.	

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with bentonite from 25.5 to 30 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

David C. Wright RG#4603

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-3

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 2 OF 2

BY K. Elliot DATE 12/1/89 SURFACE ELEV. 127.04 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
		17					**SANDY CLAY (CL)**, light olive brown (2.5Y, 5/6); 55-65% low plasticity fines; 25-35% fine to medium sand; trace coarse sand; trace coarse gravel; green mottling; very stiff; damp.	
117	18/18	5						
		13						
		18						
			12/1/89 ▽				@ 24': auger chatter.	
				25			**GRAVELLY CLAY (CL)**, dark yellowish brown (10YR, 4/4); 65-80% nonplastic fines; 10-15% coarse sand; 10-20% fine to coarse gravel; damp.	
37.8	18/18	5					**SANDY CLAY (CL)**, yellowish brown (10YR, 5/4); 65-80% medium plasticity fines; 15-25% fine to coarse sand; 5-10% fine gravel; stiff; damp.	
		5						
		9						
71.8	17/18	7					@ 28.5-30': 70-80% medium plasticity fines; 20-30% fine to coarse sand.	
		12						
		22		30			**BORING TERMINATED AT 30 FEET.**	
				35				
				40				

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with bentonite from 25.5 to 30 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

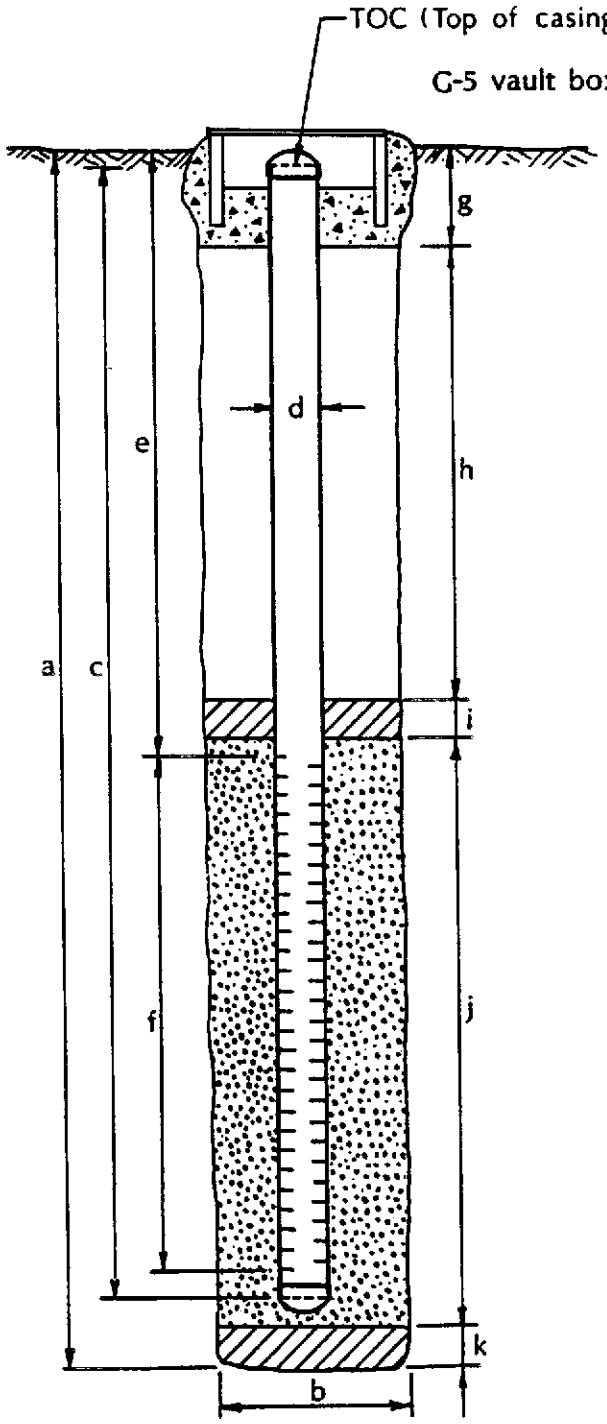
WELL DETAILS

CHEMPRO
A Burlington Environmental Inc Company

CHEMICAL PROCESSORS, INC
950 "B" Gilman Street
Berkeley, CA 94710

PROJECT NUMBER 987158
PROJECT NAME SS #9-8139
LOCATION 16304 Foothill Blvd.
WELL PERMIT NO. 89676

BORING / WELL NO. MW-3
TOP OF CASING ELEV. 126.84'
GROUND SURFACE ELEV. 127.04'
DATUM MSL
INSTALLATION DATE 12/1/89



EXPLORATORY BORING

a. Total depth 30 ft.
b. Diameter 8 in.
Drilling method Hollow-stem Auger

WELL CONSTRUCTION

c. Total casing length 25.5 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 15.5 ft.
f. Perforated length 10 ft.
Perforated interval from 15.5 to 25.5 ft.
Perforation type Machine Slot
Perforation size 0.020"
g. Surface seal 1 ft.
Seal material Concrete
h. Backfill 9.5 ft.
Backfill material Neat Cement
i. Seal 2 ft.
Seal material Bentonite
j. Gravel pack 13 ft.
Pack material #3 Sand
k. Bottom seal 4.5 ft.
Seal material Bentonite

Form prepared by _____

PLATE

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-4

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 1 OF 2

BY K. Elliot DATE 11/30/89 SURFACE ELEV. 125.43 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
							ASPHALT AND FILL	
							SANDY CLAY (CL), very dark grayish brown (10YR, 3/2); 75-85% low plasticity fines; 10-20% coarse sand; trace fine gravel; angular clasts; very stiff; damp.	
43.8	16/18	7 13 20		5			@ 5.5': dark yellowish brown (10 YR, 4/6); 60-70% low plasticity fines; 20-30% fine sand; trace coarse sand; trace angular gravel; very stiff; damp.	
51.8	18/18	4 5 9		10			@ 10': decreasing sand content.	
1600	18/18	6 8 17	12/4/89 ▼	15			@ 15': green mottling; moderate hydrocarbon odor.	
			11/30/89 ▽	20				

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with neat cement grout from 22.75 to 26.5 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

David C Tight RG#4603

LOG OF EXPLORATORY BORING

PROJECT NUMBER 987158 BORING NO. MW-4

PROJECT NAME CHEVRON SERVICE STATION NO. 9-8139 PAGE 2 OF 2

BY K. Elliot DATE 11/30/89 SURFACE ELEV. 125.43 ft.

PID (ppm)	RECOVERY (in/in)	BLOW CT. (blws/6")	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION	WELL DETAIL
74.9	14/18	5 5 11					SANDY CLAY (CL) (continued). @ 20': damp; no hydrocarbon odor.	
103	12/18	4 5 8		25			@ 25': 40-50% fine to medium sand; trace angular gravel. **BOTTOM OF BORING AT 26.5 FEET.**	
				30				
				35				
				40				

REMARKS

Boring was drilled using eight-inch-diameter hollow-stem augers. Soil samples were collected using a two-inch-diameter modified California split-spoon sampler. The boring was sealed with neat cement grout from 22.75 to 26.5 feet, and converted to a two-inch-diameter monitor well. See attached Well Detail.

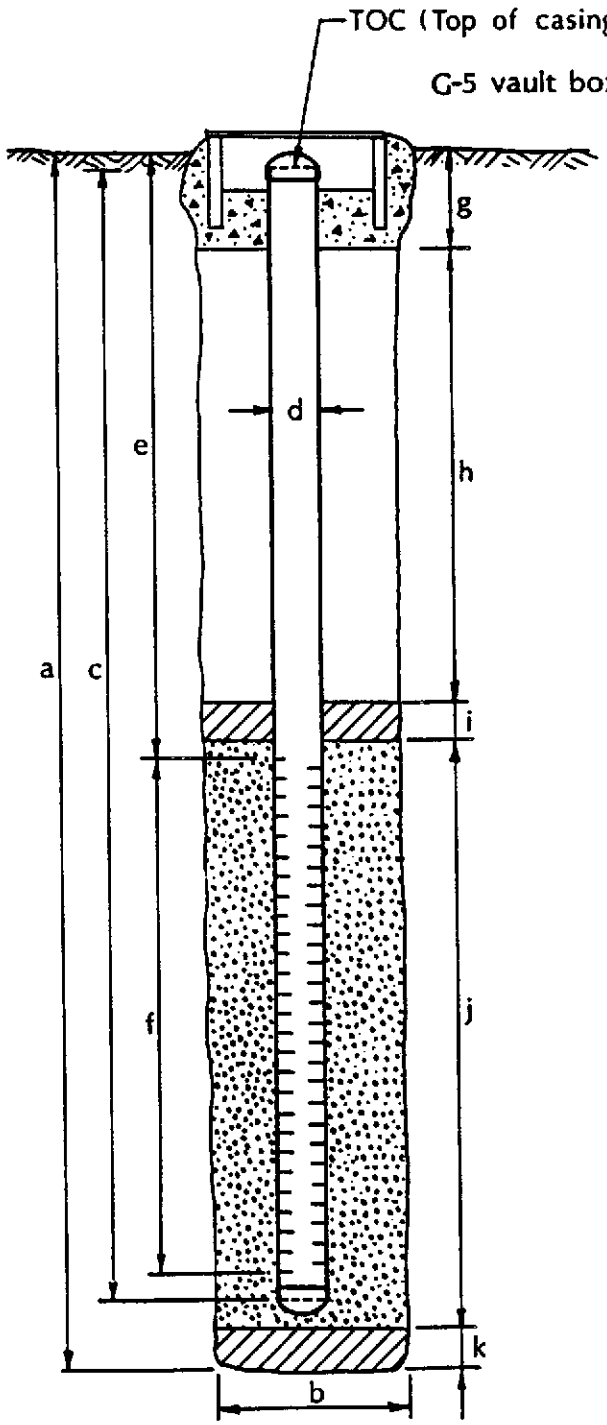
WELL DETAILS

CHEMPRO
A Burlington Environmental Inc Company

CHEMICAL PROCESSORS, INC
950 "B" Gilman Street
Berkeley, CA 94710

PROJECT NUMBER 987158
PROJECT NAME SS #9-8139
LOCATION 16304 Foothill Blvd.
WELL PERMIT NO. 89676

BORING / WELL NO. MW-4
TOP OF CASING ELEV. 125.22'
GROUND SURFACE ELEV. 125.43'
DATUM MSL
INSTALLATION DATE 12/1/89



EXPLORATORY BORING

a. Total depth 26.5 ft.
b. Diameter 8 in.
Drilling method Hollow-stem Auger

WELL CONSTRUCTION

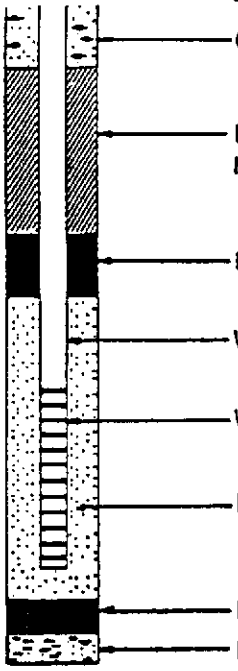
c. Total casing length 22 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 12 ft.
f. Perforated length 10 ft.
Perforated interval from 12 to 22 ft.
Perforation type Machine Slot
Perforation size 0.020"
g. Surface seal 1 ft.
Seal material Concrete
h. Backfill 9 ft.
Backfill material Neat Cement
i. Seal 1 ft.
Seal material Bentonite
j. Gravel pack 11.75 ft.
Pack material #3 Sand
k. Bottom seal 3.75 ft.
Seal material Neat Cement

Form prepared by _____

PLATE

EXPLANATION OF SYMBOLS ON EXPLORATORY BORING LOGS

Well Details Column



Sample Column

BAG/BULK SAMPLES

FIVE-FOOT SPLIT BARREL SAMPLER (CONTINUOUS SAMPLER)

MODIFIED CALIFORNIA SPLIT SPOON

OTHER SAMPLERS (SEE REMARKS FOR TYPE AND SIZE)

PITCHER BARREL

ROCK CORE (SEE REMARKS FOR TYPE AND SIZE)

SHELBY TUBE SAMPLER

STANDARD PENETRATION TEST SPLIT SPOON SAMPLER (2" OD)

EXPLANATION OF SYMBOLS ON
EXPLORATORY BORING LOGS
(CONTINUED)

Ground-Water Level Column

DEPTH TO FIRST OBSERVED GROUND WATER

DEPTH TO STABILIZED GROUND WATER

Miscellaneous

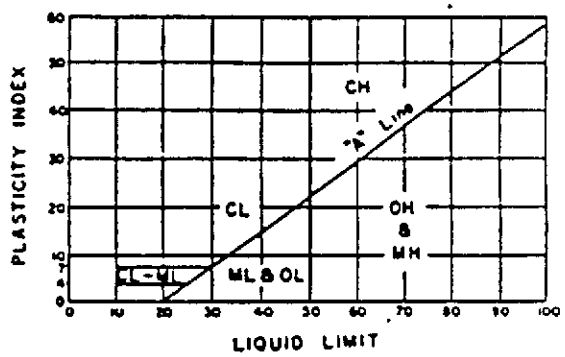
2.5 YR 6/2	Color as field checked to Munsell Soil Color Chart (1975 Edition)
PENETRATION	Blows required to drive sampler 1 foot into soil. Standard drive hammer weight: 140 pounds. Standard drop: 30 inches

MAJOR DIVISIONS		SYMBOLS	TYPICAL SOIL DESCRIPTIONS
COARSE GRAINED SOILS (More than 1/2 of soil) no 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction) no. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction (no. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil (no. 200 sieve size)	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

CLASSIFICATION CHART
(Unified Soil Classification System)

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

GRAIN SIZE CHART



PLASTICITY CHART

METHOD OF SOIL CLASSIFICATION

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

CONFIDENTIAL

STATE OF CALIFORNIA DWR
WELL COMPLETION REPORT
(WELL LOGS)

REMOVED

RECEI[illegible]

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 16304 Foothill Blvd.
San Leandro, California

CLIENT
Name Chevron U.S.A.
Address P.O. Box 5004 Phone 415 842 9500
City San Ramon Zip 94583

APPLICANT
Name Chemical Processors Inc.
(Craig Schwyn)
Address 950 B Gilman St. Phone 415 524 9372
City Berkeley Zip 94710

DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General ___
Well Destruction ___ Contamination X

PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. 519428

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 55 ft.
Surface Seal Depth 20 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings ___ Maximum
Hole Diameter ___ in. Depth ___ ft.

ESTIMATED STARTING DATE Nov. 27, 1989
ESTIMATED COMPLETION DATE Dec 4, 1989

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

For Chemical Processors Inc.
APPLICANT'S SIGNATURE Craig C. Schwyn Date 11-14-89
Craig C. Schwyn

FOR OFFICE USE

PERMIT NUMBER 89676
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 20 Nov 89
Wyman Hong

21985

Appendix D

CERTIFIED ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS

SOIL AND GROUNDWATER DATA

SUPERIOR ANALYTICAL LABORATORY INC.
825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
80309- 1	RS-1SL	11/29/89	12/05/89
80309- 2	SS-5SL	11/29/89	12/06/89
80309- 3	SS-13SL	11/29/89	12/06/89
80309- 4	SS-9SL	11/29/89	12/06/89
80309- 5	SS-1SL	11/29/89	/ /
80309- 6	SS-2SL	11/29/89	/ /
80309- 7	SS-3SL	11/29/89	/ /
80309- 8	SS-4SL	11/29/89	/ /
80309- 9	SS-6SL	11/29/89	/ /
80309-10	SS-7SL	11/29/89	/ /

Laboratory Number:	80309 1	80309 2	80309 3	80309 4	80309 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg) (ug/L)*				
OIL AND GREASE:	NA	20	ND<20	ND<20	NA
TPH/GASOLINE RANGE:	ND<500*	ND<1	ND<1	ND<1	NA
TPH/DIESEL RANGE:	NA	ND<10	ND<10	ND<10	NA
BENZENE:	ND<0.5*	ND<0.05	ND<0.05	ND<0.05	NA
TOLUENE:	ND<0.5*	ND<0.05	ND<0.05	ND<0.05	NA
ETHYL BENZENE:	ND<0.5*	ND<0.05	ND<0.05	ND<0.05	NA
XYLENES:	ND<0.5*	ND<0.05	ND<0.05	ND<0.05	NA

Laboratory Number:	80309 6	80309 7	80309 8	80309 9	80309 10
ANALYTE LIST	Amounts/Quantitation Limits (NA)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	NA	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	NA	NA	NA	NA
TOLUENE:	NA	NA	NA	NA	NA
ETHYL BENZENE:	NA	NA	NA	NA	NA
XYLENES:	NA	NA	NA	NA	NA

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10329
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10329-11	SS-23SL	12/01/89	12/12/89
10329-12	SS-24SL	12/01/89	/ /
10329-13	SS-25SL	12/01/89	/ /
10329-14	TRIP BLANK	12/01/89	/ /
10329-15	RS-4SL	12/05/89	12/11/89
10329-16	WS-1SL	12/05/89	12/11/89
10329-17	WS-2SL	12/05/89	12/12/89
10329-18	WS-3SL	12/05/89	12/13/89
10329-19	WS-4SL	12/05/89	12/13/89
10329-20	WS-5SL	12/05/89	12/13/89

Laboratory Number:	10329 11	10329 12	10329 13	10329 14	10329 15
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				(ug/l)
OIL AND GREASE:	NA	NA	NA	NA	ND<5000
TPH/GASOLINE RANGE:	ND<1	NA	NA	NA	ND<500
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	0.14	NA	NA	NA	ND<0.5
TOLUENE:	ND<0.05	NA	NA	NA	ND<0.5
ETHYL BENZENE:	ND<0.05	NA	NA	NA	ND<0.5
XYLENES:	ND<0.05	NA	NA	NA	ND<0.5

Laboratory Number:	10329 16	10329 17	10329 18	10329 19	10329 20
ANALYTE LIST	Amounts/Quantitation Limits (ug/l)				
OIL AND GREASE:	ND<5000	ND<5000	NA	NA	ND<5000
TPH/GASOLINE RANGE:	ND<500	ND<500	24000	19000	24000
TPH/DIESEL RANGE:	ND<1000	ND<1000	NA	NA	NA
BENZENE:	ND<0.5	ND<0.5	2400	390	2500
TOLUENE:	ND<0.5	ND<0.5	1800	1300	1900
ETHYL BENZENE:	ND<0.5	ND<0.5	360	460	390
XYLENES:	ND<0.5	0.9	2600	1800	2600

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA MEthod 8015/5030
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 80309

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

mg/kg = parts per million (ppm)
ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD 0
Minimum Detection Limit in Water: 5000ug/L

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 1000ug/L
Daily Standard run at 200mg/L; RPD Diesel = <7
MS/MSD Average Recovery = 99%: Duplicate RPD = <4

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 500ug/L
Daily Standard run at 2mg/L; RPD Gasoline = 2
MS/MSD Average Recovery = 114%: Duplicate RPD = 0.5

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; RPD = <15
MS/MSD Average Recovery = 95%: Duplicate RPD = <9

Richard Srna, Ph.D.
Laboratory Manager

80309

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 9-8139
Consultant Release Number 2490850
Consultant Project Number 987158
Consultant Name Chemical Processors Inc.
Address 915 B Gilman St., Berkeley CA 94710
Fax Number 415-524-7439
Project Contact (Name) Craig Schuyn
(Phone) 415-524-9372

Chevron Contact (Name) Mr. Mike Brown
(Phone)
Laboratory Name Superior Analytical Labs
Contract Number 2492270
Samples Collected by (Name) Kevin Elliott
Collection Date 11/29/89
Signature Kevin Elliott

	Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	HOLD	CD, CR, Zn, Pb		Remarks
1	RS-1SL	80309-1	2	W		9:00	HCL	✓		X	X	X							1 Broke
2	SS-5SL	2	1	S		10:33		✓		X	X	X					X		↓ Did not Received containers for this
3	SS-13SL	3	1	S		15:00		✓		X	X	X					X		
4	SS-9SL	4	1	S		14:10		✓		X	X	X					X		
5	SS-1SL	5	1	S		9:20		✓								X			
6	SS-2SL	6	1	S		9:45		✓								X			
7	SS-3SL	7	1	S		10:05		✓								X			
8	SS-4SL	8	1	S		10:15		✓								X			
9	SS-6SL	9	1	S		11:00		✓								X			
10	SS-7SL	10	1	S		11:25		✓								X			
11	SS-8SL	11	1	S		12:00		✓								X			
12	SS-10SL	12	1	S		19:35		✓								X			
13	SS-11SL	13	1	S		14:32		✓								X			
14	SS-12SL	14	1	S		14:42		✓								X			
15	SS-14SL	15	1	S		15:30		✓								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Kevin Elliott	Chempro	11/29/89 18:00				24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
						(5 Days)
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
					12/30 10 20	

80307

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 9-6215
Consultant Release Number 2491060
Consultant Project Number 987156
Consultant Name Chemical Processors Inc.
Address 915 B Gilman St., Berkeley CA
Fax Number 415-524-7439
Project Contact (Name) Craig Schwyn
(Phone) 415-524-9372

Chevron Contact (Name) Mr. Mike Brown
(Phone)
Laboratory Name Superior Analytical Lab
Contract Number 2492320
Samples Collected by (Name) Kevin Elliott
Collection Date 11/28/89
Signature Kevin Elliott

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	HOLD			Remarks
2S-1B		2	W		11:00	HCL	✓	X			X							2 Broke in Shipment
SS-1B	80309-16	1	S		11:20		✓								X			
SS-2B	↓ -17	1	S		11:40		✓	X			X							
SS-4B	80309-18	1	S		12:00		✓								X			
SS-5B	↓ -19	1	S		12:15		✓								X			
SS-6B	↓ -20	1	S		12:30		✓								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Kevin Elliott	Chempro	11/28/89 18:00				24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
						5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE D • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

LABORATORY NO.: 10329
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10329- 1	RS-2SL	11/35/89	12/11/89
10329- 2	SS-15SL	11/35/89	/ /
10329- 3	SS-16SL	11/35/89	12/12/89
10329- 4	SS-17SL	11/35/89	12/13/89
10329- 5	SS-18SL	11/35/89	/ /
10329- 6	SS-19SL	11/35/89	12/12/89
10329- 7	RS-3SL	12/01/89	12/11/89
10329- 8	SS-20SL	12/01/89	12/12/89
10329- 9	SS-21SL	12/01/89	/ /
10329-10	SS-22SL	12/01/89	12/12/89

Laboratory Number:	10329 1	10329 2	10329 3	10329 4	10329 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg) (ug/l)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<500	NA	ND<1	24	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.5	NA	ND<0.05	0.29	NA
TOLUENE:	0.6	NA	ND<0.05	3.1	NA
ETHYL BENZENE:	ND<0.5	NA	ND<0.05	3.3	NA
XYLENES:	0.8	NA	ND<0.05	16.0	NA

Laboratory Number:	10329 6	10329 7	10329 8	10329 9	10329 10
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg) (ug/l)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	ND<500	ND<1	NA	6
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	ND<0.5	ND<0.05	NA	1.1
TOLUENE:	ND<0.05	0.5	ND<0.05	NA	0.64
ETHYL BENZENE:	ND<0.05	ND<0.5	ND<0.05	NA	0.08
XYLENES:	ND<0.05	0.5	ND<0.05	NA	0.44

SUPERIOR ANALYTICAL LABORATORY INC.
825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
80309-11	SS-8SL	11/29/89	/ /
80309-12	SS-10SL	11/29/89	/ /
80309-13	SS-11SL	11/29/89	/ /
80309-14	SS-12SL	11/29/89	/ /
80309-15	SS-14SL	11/29/89	/ /
80309-16	SS-1B	11/29/89	/ /
80309-17	SS-2B	11/29/89	12/06/89
80309-18	SS-4B	11/29/89	/ /
80309-19	SS-5B	11/29/89	/ /
80309-20	SS-6B	11/29/89	/ /

Laboratory Number:	80309 11	80309 12	80309 13	80309 14	80309 15
ANALYTE LIST	Amounts/Quantitation Limits (NA)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	NA	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	NA	NA	NA	NA
TOLUENE:	NA	NA	NA	NA	NA
ETHYL BENZENE:	NA	NA	NA	NA	NA
XYLENES:	NA	NA	NA	NA	NA

Laboratory Number:	80309 16	80309 17	80309 18	80309 19	80309 20
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	ND<1	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	ND<0.05	NA	NA	NA
TOLUENE:	NA	ND<0.05	NA	NA	NA
ETHYL BENZENE:	NA	ND<0.05	NA	NA	NA
XYLENES:	NA	ND<0.05	NA	NA	NA

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
Diesel by Modified EPA SW-846 Method 8015
Gasoline by Purge and Trap: EPA MEthod 8015/5030
ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

QA/QC INFORMATION
SET: 10329

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT

ug/L = part per billion (ppb) in water
mg/kg = parts per million (ppm) in soil

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD NA
Minimum Detection Limit in Water: 5000ug/L

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 1000ug/L
Daily Standard run at 200mg/L; RPD Diesel =<15%
MS/MSD Average Recovery = 99%: Duplicate RPD = 3%

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 500ug/L
Daily Standard run at 2mg/L; RPD Gasoline = <15%
MS/MSD Average Recovery = 99%: Duplicate RPD = 3%

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; RPD = <15%
MS/MSD Average Recovery = 92%: Duplicate RPD = 4%

Richard Srna, Ph.D.
Laboratory Director

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 9-8139
Consultant Release Number 2490850
Consultant Project Number 987158
Consultant Name Chemical Processors Inc.
Address 915 B Gilman St., Berkeley CA
Fax Number 415-524-7439
Project Contact (Name) Craig Schwyn
(Phone) 415-524-9372

Chevron Contact (Name) Mr. Mike Brown
(Phone)
Laboratory Name Superior Analytical Lab
Contract Number 2492270
Samples Collected by (Name) Kevin Elliott
Collection Date 11/30/89 - 12/1/89
Signature Kevin Elliott

	Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	HOLD			Remarks
1	RS-2SL		2	W		12:40	11/30/89 (HCl)	✓	X			X							
2	SS-15SL		1	S		13:18	"	✓								X			
3	SS-16SL		1	S		13:26	"	✓	X			X							
4	SS-17SL		1	S		13:37	"	✓	X			X							
5	SS-18SL		1	S		14:00	"	✓								X			
6	SS-19SL		1	S		14:10	"	✓	X			X							
7	RS-3SL		2	W		13:20	12/1/89 (HCl)	✓	X			X							
8	SS-20SL		1	S		13:30	"	✓	X			X							
9	SS-21SL		1	S		13:48	"	✓								X			
10	SS-22SL		1	S		13:55		✓	X			X							
11	SS-23SL		1	S		14:37		✓	X			X							
12	SS-24SL		1	S		15:00		✓								X			
13	SS-25SL		1	S		15:25		✓								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Kevin Elliott	Chempro	12/5/89	Scott B Amo	Express-57	12/5 8:15
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
See page 1			Doug A Nhogu	Superior Lab	12/5
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time

Turn Around Time (Circle Choice)
24 Hrs
48 Hrs
5 Days
10 Days

GROUNDWATER DATA

SUPERIOR ANALYTICAL LABORATORY, INC.
1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10329
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10329-11	SS-23SL	12/01/89	12/12/89
10329-12	SS-24SL	12/01/89	/ /
10329-13	SS-25SL	12/01/89	/ /
10329-14	TRIP BLANK	12/01/89	/ /
10329-15	RS-4SL	12/05/89	12/11/89
10329-16	WS-1SL	12/05/89	12/11/89
10329-17	WS-2SL	12/05/89	12/12/89
10329-18	WS-3SL	12/05/89	12/13/89
10329-19	WS-4SL	12/05/89	12/13/89
10329-20	WS-5SL	12/05/89	12/13/89

Laboratory Number:	10329 11	10329 12	10329 13	10329 14	10329 15
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				(ug/l)
OIL AND GREASE:	NA	NA	NA	NA	ND<5000
TPH/GASOLINE RANGE:	ND<1	NA	NA	NA	ND<500
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	0.14	NA	NA	NA	ND<0.5
TOLUENE:	ND<0.05	NA	NA	NA	ND<0.5
ETHYL BENZENE:	ND<0.05	NA	NA	NA	ND<0.5
XYLENES:	ND<0.05	NA	NA	NA	ND<0.5

Laboratory Number:	10329 16	10329 17	10329 18	10329 19	10329 20
ANALYTE LIST	Amounts/Quantitation Limits (ug/l)				
OIL AND GREASE:	ND<5000	ND<5000	NA	NA	ND<5000
TPH/GASOLINE RANGE:	ND<500	ND<500	24000	19000	24000
TPH/DIESEL RANGE:	ND<1000	ND<1000	NA	NA	NA
BENZENE:	ND<0.5	ND<0.5	2400	390	2500
TOLUENE:	ND<0.5	ND<0.5	1800	1300	1900
ETHYL BENZENE:	ND<0.5	ND<0.5	360	460	390
XYLENES:	ND<0.5	0.9	2600	1800	2600

SUPERIOR ANALYTICAL LABORATORY, INC.

1385 FAIRFAX ST., STE. D. • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 10329
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/14/89

ANALYSIS FOR ETHYLENE DIBROMIDE
by EPA Method 504

LAB #	Sample Identification		Concentration (ug/l)
15	RS-4SL	ANALYSED 12/07/89	ND<0.05
16	WS-1SL	" 12/13/89	ND<0.05
17	WS-2SL	" "	ND<0.05
18	WS-3SL	" "	ND<0.05
19	WS-4SL	" "	ND<0.05
20	WS-5SL	" "	ND<0.05

ug/L - parts per billion (ppb)

Minimum Detection Limit for EDB in water = 0.05 ug/l

QAQC Summary: 12/07/89: 5-PT Calibration < 15% RSD
MS/MSD Average recovery =>96 %
RPD = <3 %
12/13/89: 5-PT Calibration < 15 % RSD
MS/MSD Average recovery =>97 %
RPD = <1 %

Richard Srna, Ph.D.
Laboratory Director

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80333
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

ANALYSIS FOR TOTAL CHROMIUM
by SW-846 Method 7190

LAB #	Sample Identification	Concentration (ug/L) Total Chromium
1	RS-4SL	ND<100
2	WS-1SL	ND<100
3	WS-2SL	ND<100
4	WS-5SL	ND<100

ug/L - parts per billion (ppb)

Method Detection Limit for Chromium in Soil: 2 mg/kg
Method Detection Limit for Chromium in Water: 100 ug/L

QAQC Summary: MS/MSD Average Recovery : 102%
Duplicate RPD : 8%

Edward R. Morales
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80333
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

ANALYSIS FOR TOTAL CADMIUM
by SW-846 Method 7130

LAB #	Sample Identification	Concentration (ug/L) Total Cadmium
1	RS-4SL	ND<10
2	WS-1SL	20
3	WS-2SL	ND<10
4	WS-5SL	ND<10

ug/L - parts per billion (ppb)

Method Detection Limit for Cadmium in Soil: 0.2 mg/kg
Method Detection Limit for Cadmium in Water: 10 ug/L

QAQC Summary: MS/MSD Average Recovery : 112%
Duplicate RPD : 3%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80333
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

ANALYSIS FOR TOTAL LEAD
by SW-846 Method 7420

LAB #	Sample Identification	Concentration (ug/L) Total Lead
1	RS-4SL	ND<500
2	WS-1SL	ND<500
3	WS-2SL	ND<500
4	WS-5SL	ND<500

ug/L - parts per billion (ppb)

Method Detection Limit for Lead in Soil: 10 mg/kg
Method Detection Limit for Lead in Water: 500ug/L

QAQC Summary: MS/MSD Average Recovery : 100%
Duplicate RPD : 6%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.
825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80333
CLIENT: Chempro
CLIENT JOB NO.: 987158

DATE RECEIVED: 12/06/89
DATE REPORTED: 12/13/89

ANALYSIS FOR TOTAL ZINC
by SW-846 Method 7950

LAB #	Sample Identification	Concentration (ug/L) Total Zinc
1	RS-4SL	ND<10
2	WS-1SL	20
3	WS-2SL	10
4	WS-5SL	40

ug/L - parts per billion (ppb)

Method Detection Limit for Zinc in Soil: 0.2 mg/kg
Method Detection Limit for Zinc in Water: 10 ug/L

QAQC Summary: MS/MSD Average Recovery : 121%
Duplicate RPD : 6%

Edward R. Morales
Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

ANALYSIS FOR TOTAL CADMIUM
by SW-846 Method 7130

LAB #	Sample Identification	Concentration (mg/kg) Total Cadmium
2	SS-5SL	1.3
3	SS-13SL	1.1
4	SS-9SL	0.9

mg/kg - parts per million (ppm)

Method Detection Limit for Cadmium in Soil: 0.2 mg/kg
Method Detection Limit for Cadmium in Water: 0.01 mg/L

QAQC Summary: MS/MSD Average Recovery : 97%
Duplicate RPD : 12%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

ANALYSIS FOR TOTAL CHROMIUM
by SW-846 Method 7190

LAB #	Sample Identification	Concentration (mg/kg) Total Chromium
2	SS-5SL	50
3	SS-13SL	33
4	SS-9SL	28

mg/kg - parts per million (ppm)

Method Detection Limit for Chromium in Soil: 2 mg/kg
Method Detection Limit for Chromium in Water: 0.1 mg/L

QAQC Summary: MS/MSD Average Recovery : 72%
Duplicate RPD : 17%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

ANALYSIS FOR TOTAL ZINC
by SW-846 Method 7950

LAB #	Sample Identification	Concentration (mg/kg) Total Zinc
2	SS-5SL	31
3	SS-13SL	32
4	SS-9SL	48

mg/kg - parts per million (ppm)

Method Detection Limit for Zinc in Soil: 0.2 mg/kg
Method Detection Limit for Zinc in Water: 0.01 mg/L

QAQC Summary: MS/MSD Average Recovery : 124%
Duplicate RPD : 12%

Edward R. Morales

Laboratory Manager

SUPERIOR ANALYTICAL LABORATORY INC.

825 ARNOLD, STE. 2 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 80309
CLIENT: Chemical Processors Inc.
CLIENT JOB NO.: 987158

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/07/89

ANALYSIS FOR TOTAL LEAD
by SW-846 Method 7420

LAB #	Sample Identification	Concentration (mg/kg) Total Lead
2	SS-5SL	20
3	SS-13SL	20
4	SS-9SL	20

mg/kg - parts per million (ppm)

Method Detection Limit for Lead in Soil: 10 mg/kg
Method Detection Limit for Lead in Water: 0.5 mg/L

QAQC Summary: MS/MSD Average Recovery : 80%
Duplicate RPD : 4%

Edward R. Morales

Laboratory Manager

80333

10329

Chain-of-Custody Record

Chevron U.S.A. Inc.
P.O. Box 5004
San Ramon, CA 94583
FAX (415) 842-9591

Chevron Facility Number 9-8139
Consultant Release Number 2490850
Consultant Project Number 987158
Consultant Name Chemical Processors Inc.
Address 915 B Gilman St., Berkeley CA
Fax Number 415-524-7439
Project Contact (Name) Craig Schwyn
(Phone) 415-524-9372

Chevron Contact (Name) Mr. Mike Brown
(Phone)
Laboratory Name Superior Analytical Lab
Contract Number 2492270
Samples Collected by (Name) Kevin Elliott
Collection Date 12/05/89
Signature Kevin Elliott

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	METALS Cr, Cd, Zn, Pb			Remarks
Trip Blank		1	W			HCL	✓											
RS-4SL		6	W		9:47	HCL	✓	X		X	X			X	X			
US-1SL		8	W		9:51	HCL	✓	X	X	X	X			X	X			
US-2SL		8	W		10:06	HCL	✓	X	X	X	X			X	X			
US-3SL		4	W		10:25	HCL	✓	X			X			X				
US-4SL		4	W		10:46	HCL	✓	X			X			X				
US-5SL		6	W		10:30	HCL	✓	X		X	X			X	X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Kevin Elliott	Chempro	12/5/89	Frank [illegible]	Express II	12/6 13:25	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
Mike McGee	Express-IT		Onyx A Nwogu	Superior Lab	12/5	5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	