



Environmental
Science &
Engineering, Inc.

ENVIRONMENTAL
PROTECTION
96 SEP 11 PM 3:39

September 5, 1996

Mr. Ondrej Kojnok
Tri Star Partnership
2 North Second Street, #1390
San Jose, CA 95113

**SUBJECT: ADDITIONAL SOIL AND GROUND WATER INVESTIGATION AND
SECOND QUARTER 1996 GROUND WATER MONITORING REPORT
AUTOPRO FACILITY
5200 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
ESE PROJECT NO. 65-95-219**

Dear Mr. Kojnok:

Environmental Science & Engineering, Inc. (ESE) is pleased to present this "Report of Findings: Additional Soil and Ground Water Investigation and Second Quarter 1996 Ground Water Monitoring Report, Autopro Facility, 5200 Telegraph Avenue, Oakland, California."

Based on the results of this investigation, ESE feels that the estimated extent of contamination in ground water has been adequately defined to proceed with remedial activities. The Alameda Health Care Services Agency (ACHCSA) has previously stated that additional ground water monitoring wells may need to be installed. It is ESE's opinion that no additional ground water monitoring wells will need to be installed since the data obtained from the former Chevron site ground water monitoring wells provide adequate definition of the ground water contamination plume and ground water flow direction. If these wells were to be abandoned in the future, then additional ground water monitoring wells may need to be installed downgradient of the site.

ESE recommends that additional ground water samples be collected from the onsite ground water monitoring wells and analyzed for Ammonia Nitrogen, Nitrate Nitrogen, Ortho-Phosphate, pH, and Bacterial Plate Enumerations. These samples would enable ESE to determine the amount of biological activity occurring naturally and the necessary nutrients needed to increase the rate and efficiency of biological activity already taking place in the subsurface.

In addition, ESE recommends that a network of Regenesis Oxygen Release Compound (ORC) points be installed immediately downgradient of the most heavily impacted area of the plume, in the area of remaining source material on-site, and along the borders of the site. The concept behind the ORC network is to introduce oxygen into the ground water which stimulates biological activity and the degradation of contaminants in the ground water. The other benefit of the ORC is that it acts as a migration barrier for petroleum hydrocarbons.

Mr. Ondroj Kojnok/Tri Star Partnership
September 5, 1996
Page 2

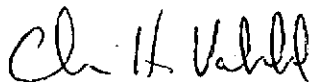
Using this remedial alternative should appeal to Tri Star Partnership because of the cost effectiveness of the method and minimal impact to site activities. In addition, it is an insitu method that requires no additional yearly permitting and minimal additional monitoring.

Included with this recommendation, ESE would recommend that a subsequent risk-based assessment be completed for the site and presented to the ACHCSA in support of site closure.

ESE appreciates the opportunity to provide Tri Star Partnership with environmental consulting services and can provide a cost estimate for the recommended activities described above. If you should have any questions or wish to discuss the recommendations provided, please contact Chris Valcheff at (510) 685-4053.

Sincerely:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC.



Christopher H. Valcheff
Senior Staff Geologist
Project Manager



George O. Reid
Senior Geologist
California R.G. No. 3608

Enclosure



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Engineering, Inc.

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96 SEP 11 AM 8:53

TO: Autopro
5200 Telegraph Avenue
Oakland, CA 94609

DATE: September 5, 1996

ATTN: Mr. George Tuma

JOB NUMBER: 65-95-219

SUBJECT: Autopro Facility Report of Findings

WE ARE TRANSMITTING THE FOLLOWING:

"Report of Findings: Additional Soil and Ground Water Investigation and Second Quarter 1996 Ground Water Monitoring Report, Autopro Facility, 5200 Telegraph Avenue, Oakland, California."

If you should have any questions concerning this report, please contact Chris Valcheff at (510) 685-4053.

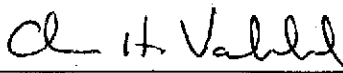
CC: Mr. Ondrej Kojnok - Tri Star Partnership
Ms. Susan Hugo - ACHCSA
Mr. Kevin Graves - RWQCB

DIST: ENVIRONMENTAL SCIENCE & ENGINEERING, INC.

LB

File

Originator

BY: 

Christopher H. Valcheff
Senior Staff Geologist

TRI STAR PARTNERSHIP
2 North 2nd Street, Suite 1390
San Jose, CA 95113

September 4, 1996

Ms. Susan Hugo
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

SUBJECT: AUTOPRO FACILITY
5200 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA 94609

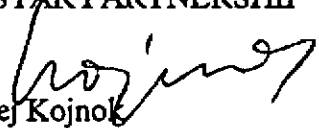
Dear Ms. Hugo:

Enclosed is a "Report of Findings: Additional Soil and Ground Water Investigation and Second Quarter 1996 Ground Water Monitoring Report" for the Autopro Facility located at 5200 Telegraph Avenue in Oakland, California. The report is submitted in compliance with the Alameda County Health Care Services Agency (ACHCSA) letter dated September 13, 1995. The enclosed report includes ground water monitoring data as well as results of an additional soil and ground water investigation.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions regarding this report, please call Christopher H. Valcheff of Environmental Science & Engineering, Inc. (ESE) at (510) 685-4053, or me.

Sincerely,
TRI STAR PARTNERSHIP


Ondrej Kojnok
General Partner

Enclosure

ENVIRONMENTAL
PROTECTION
96 SEP 11 AM 8:53

**Report of Findings: Additional Soil
and Ground Water Investigation
and Second Quarter 1996 Ground
Water Monitoring**

**Autopro Facility
5200 Telegraph Avenue,
Oakland, California**

Prepared for:
Tri-Star Partnership
c/o Mr. Ondrej Kojnok, Attorney at Law
2 North Second Street, #1390
San Jose, CA 95113

Prepared by:
Environmental Science & Engineering, Inc.
4090 Nelson Avenue, Suite J
Concord, CA 94520

September 5, 1996

ESE Project No. 65-95-219

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This report has been prepared by Environmental Science & Engineering, Inc. for the exclusive use of Mr. Ondrej M. Kojnok, Attorney at Law, and Mr. George Tuma of Autopro, as it pertains to their site located at 5200 Telegraph Avenue in Oakland, California. Our professional services have been performed using that degree of care and skill ordinarily exercised under similar circumstances by other geologists and engineers practicing in this field. No other warranty, expressed or implied, is made as to professional advice in this report.

REPORT PREPARED BY:

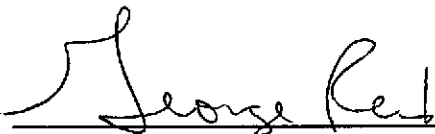


Mr. Christopher H. Valcheff
Senior Staff Geologist



Date

UNDER THE PROFESSIONAL REVIEW AND SUPERVISION OF:



Mr. George O. Reid, R.G. No. 3608
Senior Geologist



Date

1.0 Introduction

This report describes the events, and presents the findings of an Additional Soil and Ground Water Investigation and Second Quarter 1996 Ground Water Monitoring activities conducted by Environmental Science & Engineering, Inc. (ESE) at the Autopro facility (site) located at 5200 Telegraph Avenue in Oakland, California (Figure 1 - Location Map). This investigation was conducted to comply with the terms of a September 13, 1995 compliance letter and subsequent letter dated February 5, 1996, prepared by the Alameda County Health Care Services Agency, Department of Environmental Health [(ACHCSA), ACHCSA, 1995 and ACHCSA, 1996a]. Activities herein were consistent with ESE's April 17, 1996 "Workplan for Soil and Ground Water Investigation" (ESE, 1996). This report also presents the results of the second quarter 1996 ground water monitoring activities, as required by the ACHCSA.

1.1 Objectives

The objectives of this investigation were to:

- Delineate the vertical and lateral extent of petroleum hydrocarbon impact to the soils and ground water in the vicinity of the site;
- Verify the direction and magnitude of ground water flow beneath the site; and,
- Re-establish a program of quarterly ground water monitoring and reporting for the site.

1.2 Scope of Work

To achieve the objectives of this investigation, ESE performed the following tasks:

- Drilled seven Geoprobe soil borings and collected soil and grab ground water samples from each boring at locations estimated to be the furthest extent of petroleum hydrocarbon impact. Soil boring locations are presented in Figure 2 - Site Map;

- Analyzed select soil and ground water samples collected from each boring for Total Petroleum Hydrocarbons (TPH) as gasoline (TPH-G), diesel (TPH-D), and motor oil (TPH-MO); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl tertiary butyl ether (MTBE) by Environmental Protection Agency (EPA) Methods 8015, 8015M, 8015M, 8020, and 8020, respectively;
- Collected ground water level data and ground water samples from four existing on-site ground water monitoring wells (MW-1 through MW-4);
- Coordinated with consultant for off-site (downgradient) quarterly ground water monitoring data; and,
- Reviewed all field and analytical data and prepared this Report of Findings.

The following report presents the procedures and methods used during this investigation, the results of this investigation, and the conclusions obtained from those results.

2.0 Background

2.1 Site Setting

The site is located at the northwest corner of the intersection of Telegraph and Claremont Avenues in Oakland, California (Figure 2). The site is located in a mixed commercial and residential area within the northern portion of the City of Oakland.

The site is at an approximate elevation of 120 feet above mean sea level (U.S.G.S., 1959). Regional topography slopes southwest toward the San Francisco Bay.

2.2 Site History

ESE's report titled *Report of Findings: Preliminary Site Assessment* for the site, dated May 24, 1994 (ESE, 1994a), summarized the site investigation background, presented the results of a preliminary site assessment, and presented the results of the first quarterly ground water monitoring event (First Quarter 1994). Five underground storage tanks (USTs) were removed from three separate excavations at the site in December 1990, prior to ESE's involvement. The USTs had previously contained gasoline, diesel, and waste oil. Soil and ground water samples collected from the UST excavations during the UST removal program reported detectable concentrations of total petroleum hydrocarbons as gasoline (TPH-G) and total petroleum hydrocarbons as diesel (TPH-D). These samples also reported detectable concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX), and total lead. Soil samples collected and analyzed from the waste oil UST excavation also reported detectable concentrations of petroleum oil and grease (O&G).

Some overexcavation of soils containing petroleum hydrocarbons was apparently conducted in July 1991, prior to ESE's involvement.

In April 1993, ESE performed a limited soil and ground water investigation at the site. The investigation included drilling one soil boring through the backfill material of each of the former UST excavations on site, into the native material beneath, and collecting ground water samples using a temporary sampling probe. The conclusions of the limited investigation were that the soil and ground water samples collected at those locations

contained total semi-volatile petroleum hydrocarbons (TSVPH), and that these hydrocarbons did not appear to consist of diesel fuel or gasoline components (ESE, 1993).

In April 1994, ESE conducted a preliminary site assessment (PSA) at the site. The investigation consisted of drilling four soil borings and installing four ground water monitoring wells in the borings (MW-1 through MW-4; Figure 2), and collecting soil and ground water samples from the four borings/monitoring wells. The PSA concluded that native soils beneath the site consist of silty clay from beneath the asphalt surface subgrade to approximately 10 to 13 feet below ground surface (bgs). The silty clay is generally underlain by saturated sandy gravel. The static ground water level in the monitoring wells installed at the site in April 1994 was found to range from approximately 8.90 to 10.14 feet bgs, with an apparent ground water flow direction to the southwest. Soil and ground water samples collected and analyzed during the PSA reported detectable concentrations of petroleum hydrocarbons. The lateral extent of petroleum hydrocarbons in ground water off site to the southwest was not delineated during the PSA.

Quarterly ground water monitoring activities were conducted at the site from the second quarter 1994 through the first quarter 1995. In September 1995, the ACHCSA issued a letter stating additional investigation was needed to determine the lateral extent of contamination (ACHCSA, 1995).

ESE was retained in March 1996 to perform the additional investigation and perform quarterly ground water monitoring activities at the site. ESE's scope of work was approved by the ACHCSA in a letter dated March 19, 1996 (ACHCSA, 1996b).

3.0 Investigation Methodologies

3.1 Pre-field Activities

ESE revised and updated the existing Health and Safety Plan (HASP), as developed by ESE during prior site investigations, to include the scope of work presented in the workplan. The HASP contained emergency contingency plans.

ESE obtained a drilling permit from the Alameda County Zone 7 Water Agency, contacted Underground Service Alert (USA) for underground utility clearance, and notified the ACHCSA of the work schedule, prior to beginning work at the site. In addition, ESE contacted the City of Oakland Office of Planning & Building and the Office of Traffic Engineering to inquire about the procedures for drilling in the public right-of-way. ESE was told that an encroachment permit was not necessary unless a "permanent" object was to be installed in the public right-of-way, and since the boring locations were not going to interfere with traffic flow, traffic control plans were not required to be submitted to the Office of Traffic Engineering. ESE directed the drilling subcontractor, Gregg Drilling and Testing, Inc. (Gregg), to secure an excavation permit from the City of Oakland, as directed by the Office of Planning & Building. Since three of the soil borings were to impact an AC Transit bus stop, ESE notified AC Transit of the scheduled drilling dates and hours that the bus stop would be impacted. No other permits were necessary to complete this scope of work.

3.2 Soil Investigation

On July 2, 1996, ESE supervised Gregg in the completion of seven Geoprobe soil borings (AP-1 through AP-7, Figure 2 - Site Map). Gregg used a direct-push technology (DPT) known as Geoprobe to complete the soil borings. This methodology consists of pushing a 2.25-inch outside diameter stainless steel tube into the subsurface. Just above the desired sample depth, an inner acetate sample liner is engaged and the tube is pushed through the sample interval. The acetate liner, now filled with soil, is extracted from the subsurface. Once retrieved, the ends of the acetate liner were covered with teflon tape, capped with plastic end caps, sealed with duct tape, and properly labeled prior to placing the sample in a cooler on ice under proper chain-of-custody documentation for transport to a State-certified analytical laboratory. The retrieved sample was classified by an ESE

representative according to the Unified Soils Classification System (USCS) and recorded. In addition, the samples were field screened with a photoionization detector (PID) to confirm the presence or absence of volatile organic compounds. Appendix A - Geologic Boring Logs presents the findings of the soil borings.

Soil samples were collected from each boring at five-foot intervals. Two soil samples per boring were submitted to McCampbell Analytical, Inc. (McCampbell) of Pacheco, California, a State-certified analytical laboratory, for analysis of TPH-G, TPH-D, TPH-MO, BTEX, and MTBE, by the previously defined EPA methodologies. Appendix B - Laboratory Reports and Chain-of-Custody Documentation: Soil Samples presents the analytical results of the soil samples. Temporary well screen polyvinyl chloride (PVC) piping was inserted into each boring for sampling of ground water (see Section 3.3).

The Geoprobe and sampling equipment was cleaned between boring locations and sample collection points. The equipment rinseate was contained on-site in properly labeled Department of Transportation (DOT)-rated 55-gallon drums pending analysis and proper disposal/recycling.

3.3 Ground Water Investigation

In addition to collecting soil samples from the Geoprobe borings, Gregg installed temporary PVC well-screen casing in each boring to collect a grab ground water sample. Seven grab ground water samples were collected. Grab ground water samples were collected by lowering a clean stainless steel bailer through the PVC casing, using new nylon cord, into the ground water table.

On July 2, 1996, grab ground water samples (AP-1 through AP-7) were collected in the stainless steel bailer and decanted into laboratory-supplied glassware, properly labeled, and placed on ice in a cooler for transport to McCampbell. The samples were submitted under proper chain-of-custody documentation for analysis of TPH-G, TPH-D, TPH-MO, BTEX, and MTBE. Appendix C - Laboratory Reports and Chain-of-Custody Documentation: Grab Ground Water Samples presents the analytical results for the grab ground water samples collected from the Geoprobe borings.

The ground water sampling equipment was cleaned between uses with an Alconox and water solution and rinsed with potable water. The cleaning solution and rinseate was contained in properly labeled DOT 55-gallon drums pending proper disposal/recycling. New temporary PVC well-screen casing was used for each boring.

Once sampling was completed, the PVC casing was used as tremie pipe for backfilling of the boring. Each boring was backfilled with neat cement grout through the tremie pipe.

3.4 Quarterly Ground Water Monitoring Activities

On June 26, 1996, ESE performed ground water monitoring and sampling activities of all four wells (MW-1 through MW-4). These activities consisted of measuring depth to ground water in each well, calculating ground water elevations and gradients, purging each well of a minimum of three well casing volumes of ground water, and collecting a ground water sample from each of the four wells.

Well purging was completed by lowering a new polyethylene disposable bailer into the well using new nylon cord. Ground water was removed from the well and pH, electrical conductivity, and temperature of the purged ground water was monitored during the purging process. Appendix D - Ground Water Sample Collection Logs is a record of the parameters measured during the well purging process and sample collection information. Once a minimum of three well casing volumes of ground water was removed and the pH, electrical conductivity, and temperature of the purge water had stabilized, a ground water sample was collected using the disposable bailer and decanting the ground water into laboratory-supplied glassware. The bottles were labeled and placed on ice in a cooler under proper chain-of-custody documentation for transport to McCampbell. The ground water samples were analyzed for TPH-G, TPH-D, TPH-MO, BTEX, and MTBE by McCampbell. Appendix E - Laboratory Reports and Chain-of-Custody Documentation: Ground Water Samples presents the analytical results for the ground water samples collected from the ground water monitoring wells.

ESE also obtained quarterly ground water monitoring activity information from Blaine Tech Services, Inc. (Blaine) who performs the quarterly monitoring of the former Chevron Service Station, located in a downgradient direction from the site. As per an agreement with Chevron, the current Property owners of the former Chevron site, ESE,

and Tri Star Partnership, all quarterly ground water monitoring activity information will be shared between consultants and incorporated into the quarterly reporting. ESE and Blaine co-ordinate quarterly activities so that they occur on the same date. Blaine provided tables with ground water elevations and ground water analytical data for the wells located on the former Chevron site. This information is included on Figures 3, 4, 6, and 7.

3.5 Quality Assurance/Quality Control (QA/QC)

ESE collected one ground water duplicate sample from well MW-3 and submitted it to McCampbell for analysis of TPH-G, TPH-D, TPH-MO, BTEX, and MTBE. This duplicate sample provides a check on laboratory sample preparation and analytical procedures. In addition, ESE transported one laboratory-supplied trip blank with the collected ground water samples. This provides a check on ESE sample handling procedures.

4.0 Findings

4.1 Soil Investigation

4.1.1 Subsurface Lithology

Based on the Geoprobe borings (AP-1 through AP-7) the subsurface lithology consisted of sandy clay, clayey sand, and sand. Sandy clay tended to grade into clayey sands or sands from just below surface to approximately 13 feet below ground surface (bgs). Ground water was encountered in each boring at approximately 12 to 13 feet bgs. Each boring was completed to a total depth of 16 feet bgs. Appendix B presents a detailed description of each borehole lithology and a graphical presentation of the gradation.

Initially, eight Geoprobe borings were to be completed, however, the area where the boring upgradient of ground water monitoring well MW-1 was to be located, was inaccessible to the Geoprobe unit. Therefore only seven of the original eight borings were completed.

4.1.2 Analytical Results

Soil samples were collected at five-foot intervals from each boring. Two soil samples were submitted from each boring to McCampbell. These samples were collected from depths of five and 10 feet bgs in borings AP-1 through AP-7. Each sample was analyzed for TPH-G, TPH-D, TPH-MO, BTEX, and MTBE. Table 1 - Analytical Results for Soil Samples is a tabular representation of analytical results for the soil samples.

A total of fourteen soil samples were submitted for analyses. Only one sample, AP-2-10, reported a detectable concentration of the analytes. TPH-G was detected in sample AP-2-10 at a concentration of 1.5 milligrams per kilogram (mg/kg) or parts per million (ppm). This sample was quantified by McCampbell as having significant gasoline range compounds present in the chromatogram. None of the other samples reported detectable concentrations of the analytes requested.

A copy of the laboratory reports and chain-of-custody documentation is included in Appendix B.

4.2 Ground Water Investigation

4.2.1 Analytical Results of Geoprobe Grab Ground Water Samples

Seven grab ground water samples were submitted to McCampbell for analyses of TPH-G, TPH-D, TPH-MO, BTEX, and MTBE. McCampbell reported concentrations of TPH-D in samples AP-1, AP-2, AP-3, and AP-6 at concentrations of 190 micrograms per liter ($\mu\text{g/L}$) or parts per billion (ppb), 74,000 $\mu\text{g/L}$, 47,000 $\mu\text{g/L}$, and 410 $\mu\text{g/L}$, respectively. McCampbell quantified samples AP-1, AP-2, and AP-3 as having significant gasoline-range compounds with broad chromatographic peaks which could be indicative of biologically altered gasoline. Samples AP-2 and AP-3 were reported as having a lighter than water immiscible sheen present. Sample AP-6 was quantified as having significant strongly aged or diesel-range compounds present in the chromatogram. Each of the samples with detectable concentrations of TPH-D were reported as having a greater than ~ 5 volume % sediment present.

TPH-G was reported in samples AP-1, AP-2, and AP-3 at concentrations of 1,400 $\mu\text{g/L}$, 7,900 $\mu\text{g/L}$, and 14,000 $\mu\text{g/L}$, respectively. Sample AP-1 was quantified as having a chromatogram pattern with significant heavier gasoline-range compounds which could indicate aged gasoline; no recognizable chromatogram pattern; and a greater than ~ 5 volume % sediment content. Sample AP-2 was quantified as having a chromatogram pattern with significant heavier gasoline-range compounds and broad chromatographic peaks which may be indicative of aged and biologically altered gasoline; a lighter than water immiscible sheen being present; and a sediment content greater than ~ 5 volume %. Sample AP-3 was quantified as having a chromatogram pattern with significant heavier gasoline-range compounds and broad chromatographic peaks which may be indicative of aged and biologically altered gasoline; and a lighter than water immiscible sheen present.

TPH-MO was reported in sample AP-6 at a concentration of 1,900 $\mu\text{g/L}$. No other samples had detectable amounts of TPH-MO present.

Benzene was detected in samples AP-2 and AP-3 at concentrations of 69 $\mu\text{g/L}$ and 130 $\mu\text{g/L}$, respectively. Toluene was reported in sample AP-1 at a concentration of 2.9 $\mu\text{g/L}$, sample AP-2 at a concentration of 12 $\mu\text{g/L}$, and sample AP-3 at a concentration of 16 $\mu\text{g/L}$. Ethylbenzene was reported in sample AP-2 and AP-3 at concentrations of 20 $\mu\text{g/L}$ and 45 $\mu\text{g/L}$, respectively. Total xylenes were reported in samples AP-1, AP-2, and AP-

3 at concentrations of 3.1 $\mu\text{g/L}$, 43 $\mu\text{g/L}$, and 44 $\mu\text{g/L}$, respectively. No other samples reported detectable concentrations of BTEX.

MTBE was reported in samples AP-2 and AP-3 at concentrations of 60 $\mu\text{g/L}$ and 100 $\mu\text{g/L}$, respectively. No other detectable amounts of MTBE was reported in any of the samples. Table 2 - Analytical Results for Grab Ground Water Samples presents the analytical data in a tabular format. A copy of the laboratory reports and chain-of-custody documentation is presented in Appendix C.

4.2.2 Ground Water Elevations

On June 26, 1996, ESE measured depth to ground water in each of the on-site ground water monitoring wells MW-1 through MW-4. From this, ground water elevations were calculated along with ground water gradient. For this event, depth to ground water ranged from 10.77 feet below top of casing to 11.90 feet below top of casing. Ground water was found to flow toward the southwest at a gradient of approximately 0.008 feet per foot (42.2 feet/mile).

On June 26, 1996, Blaine performed quarterly monitoring activities at the former Chevron service station. Depths to ground water ranged from 10.18 feet below top of casing to 15.80 feet below top of casing. Using this data and the ground water elevations calculated by Blaine, ESE contoured the elevations and found ground water to flow to the southwest at a gradient of approximately 0.023 feet per foot (122.8 feet/mile).

Table 3 - Historical Ground Water Elevation Data presents a tabular form of historical ground water elevations and depth to ground water measurements for the Autopro site only. Figure 3 - Ground Water Elevation Contour Map, June 26, 1996 is a graphical presentation of ground water elevations and the estimated direction of ground water flow for the Autopro and former Chevron station site.

4.2.3 Quarterly Monitoring Analytical Results

On June 26, 1996, ESE sampled wells MW-1 through MW-4. The samples were submitted to McCampbell for analysis of TPH-D, TPH-G, TPH-MO, BTEX, and MTBE. TPH-G was reported in samples MW-1, MW-3 and MW-4 at concentrations of 180 $\mu\text{g/L}$, 6,600 $\mu\text{g/L}$, and 4,700 $\mu\text{g/L}$, respectively. Chromatogram patterns for samples MW-1

and MW-3 were quantified as being unmodified or weakly modified. Sample MW-4 was quantified as having heavier gasoline-range compounds and gasoline-range compounds with broad chromatographic peaks present which may be indicative of aged and biologically altered gasoline. Figure 4 - Estimated Extent of TPH-G in Ground Water is a graphical representation of TPH-G in ground water associated with the Autopro facility.

TPH-D was reported in the samples collected from wells MW-1, MW-3, and MW-4 at concentrations of 56 $\mu\text{g/L}$, 2,800 $\mu\text{g/L}$, and 2,500 $\mu\text{g/L}$, respectively. Samples MW-1, MW-3 and MW-4 were quantified as having significant gasoline-range compounds having broad chromatographic peaks which may be indicative of biologically altered gasoline. Samples MW-3 and MW-4 were also quantified as having one to few isolated peaks present on the chromatogram. Sample MW-1 was quantified as having heavier gasoline-range compounds present which could be an indication of aged gasoline. Figure 5 - Estimated Extent of TPH-D in Ground Water is a graphical representation of TPH-D in ground water associated with the Autopro facility.

TPH-MO was not detected in any of the samples collected from the ground water monitoring wells.

Sample MW-3 reported a benzene concentration of 15 $\mu\text{g/L}$; toluene at a concentration of 17 $\mu\text{g/L}$; ethylbenzene at a concentration of 23 $\mu\text{g/L}$; and total xylenes at a concentration of 40 $\mu\text{g/L}$. Sample MW-4 reported toluene, ethylbenzene, and total xylenes at concentrations of 4.8 $\mu\text{g/L}$, 11 $\mu\text{g/L}$, and 19 $\mu\text{g/L}$, respectively. No other samples reported detectable concentrations of BTEX. Figure 6 - Estimated Extent of Benzene in Ground Water is a graphical representation of benzene in ground water.

MTBE was detected in samples MW-3 and MW-4 at concentrations of 53 $\mu\text{g/L}$ and 30 $\mu\text{g/L}$, respectively. None of the other samples reported detectable concentrations of MTBE. Figure 7 - Estimated Extent of MTBE in Ground Water is a graphical presentation of MTBE in ground water.

On June 26, 1996, concurrent with the ESE ground water sampling of the Autopro site, Blaine collected ground water samples from the nine ground water monitoring wells and had the samples analyzed for TPH-G, BTEX, and MTBE. TPH-G was detected in five of the nine wells at concentrations ranging from 290 $\mu\text{g/L}$ to 7,900 $\mu\text{g/L}$. Benzene was

detected in three of the nine wells at concentrations ranging from 3.6 $\mu\text{g/L}$ to 180 $\mu\text{g/L}$. Toluene was detected in one well at a concentration of 0.73 $\mu\text{g/L}$. Ethylbenzene was detected in three wells at concentrations ranging from 1.0 $\mu\text{g/L}$ to 35 $\mu\text{g/L}$. Xylenes were detected in three wells at concentrations ranging from 1.1 $\mu\text{g/L}$ to 28 $\mu\text{g/L}$. MTBE was detected in two of the nine wells at concentrations of 9.9 $\mu\text{g/L}$ and 240 $\mu\text{g/L}$.

Table 4 - Historical Ground Water Analytical Data presents historical ground water analytical data, for the Autopro site, in a tabular form. A copy of the laboratory report and chain-of-custody documentation for the ground water monitoring samples from the Autopro site is included in Appendix E.

4.3 Quality Assurance/Quality Control Analytical Results

The duplicate sample (DUP) collected from well MW-3 reported detectable concentrations of TPH-D, TPH-G, BTEX, and MTBE. The results of the duplicate sample were within an acceptable range of variance as compared to the initial sample collected from well MW-3.

The trip blank reported non-detectable concentrations of TPH-G, BTEX, and MTBE. These results indicate proper sample handling, preparation, and analytical methodologies.

5.0 Summary and Conclusions

Based on the findings of the additional investigation performed at the subject site, ESE concludes the following:

Soil

- Soils found in shallow borings indicate that the offsite area is characterized by sandy clays, clayey sands, and sands to depths investigated (approximately 16 feet bgs). The clayey sands and sands found during this investigation were coincidental with the ground water table and may provide a potential migration pathway for petroleum hydrocarbons.
- The soil sample collected from boring AP-2 at a depth of 10 feet bgs (AP-2-10) reported a TPH-G concentration of 1.5 mg/kg. No other analytes were detected in the soil samples collected.
- Soil does not seem to be impacted offsite between the Autopro and former Chevron site based upon the lack of significant detectable concentrations (except for the 1.5 mg/kg of TPH-G in sample AP-2-10) of petroleum hydrocarbons in the soil samples submitted.

Ground Water

- Geoprobe grab ground water samples AP-1, AP-2, AP-3, and AP-6 reported TPH-D concentrations of 190 $\mu\text{g/L}$, 74,000 $\mu\text{g/L}$, 47,000 $\mu\text{g/L}$, and 410 $\mu\text{g/L}$, respectively. Grab ground water samples AP-1, AP-2, and AP-3 reported TPH-G concentrations of 1,400 $\mu\text{g/L}$, 7,900 $\mu\text{g/L}$, and 14,000 $\mu\text{g/L}$, respectively. TPH-MO was detected in grab ground water sample AP-6 at a concentration of 1,900 $\mu\text{g/L}$. Benzene was detected at concentrations of 69 $\mu\text{g/L}$ and 130 $\mu\text{g/L}$ in grab ground water samples AP-2 and AP-3, respectively. Grab ground water samples AP-2 and AP-3 reported concentrations of MTBE of 60 $\mu\text{g/L}$ and 100 $\mu\text{g/L}$, respectively.

- Geoprobe grab ground water samples AP-1, AP-2, and AP-3 are located immediately downgradient from the former diesel and gasoline excavations (see Figure 2 - Site Map). Geoprobe grab ground water sample AP-6 is located downgradient of the former waste oil excavation (Figure 2).
- Analytical results reported for Geoprobe grab ground water samples AP-2 and AP-3 exceeded the California Department of Health Services (DHS) maximum contaminant limit (MCL) of 1.0 $\mu\text{g/L}$ for benzene and exceeded the DHS action level concentration of 35 $\mu\text{g/L}$ for MTBE.
- Ground water elevations determined from depth to water measurements measured on June 26, 1996 indicate that ground water at the site flows toward the southwest at an approximate gradient of 0.008 foot per foot (42.2 feet/mile) (see Figure 3 - Ground Water Elevation Contour Map, June 26, 1996). This indicates that petroleum hydrocarbons would migrate toward the southwest.
- Based on the data (see Figure 3) provided by Blaine for the former Chevron service station located downgradient of the Autopro site, ground water was determined to flow toward the southwest at an approximate gradient of 0.023 foot/foot (122.8 feet/mile). An anomaly occurs in the wells located on the southwest side of the site which causes an abnormal depression in the ground water contours. This depression could be caused by field error (not allowing the wells to equilibrate before measuring depth to ground water) or may be a natural or man-made lithologic anomaly.
- Ground water samples collected on June 26, 1996 from ground water monitoring wells MW-1, MW-3 and MW-4 reported TPH-D concentrations of 56 $\mu\text{g/L}$, 2,800 $\mu\text{g/L}$, and 2,500 $\mu\text{g/L}$, respectively. TPH-G was reported in samples MW-1, MW-3, and MW-4 at concentrations of 180 $\mu\text{g/L}$, 6,600 $\mu\text{g/L}$, and 4,700 $\mu\text{g/L}$, respectively. Benzene was detected in the sample collected from well MW-3 at a concentration of 15 $\mu\text{g/L}$. MTBE was detected in samples MW-3 and MW-4 at concentrations of 53 $\mu\text{g/L}$ and 30 $\mu\text{g/L}$, respectively.

- Analytical data provided by Blaine for the offsite monitoring wells reported TPH-G in five wells; benzene, ethylbenzene, and xylene in three wells; toluene in one well; and MTBE in two wells.
- The benzene concentration reported in sample MW-3 (15 $\mu\text{g/L}$) exceeded the DHS MCL of 1.0 $\mu\text{g/L}$ for benzene. The MTBE concentration of 53 $\mu\text{g/L}$ detected in sample MW-3 exceeded the DHS action level concentration of 35 $\mu\text{g/L}$ for MTBE.
- Well MW-3 is located downgradient of former diesel and gasoline excavations (see Figure 2 - Site Map) and wells MW-1 and MW-4 are located downgradient of the former waste oil excavation. In addition, well MW-4 is located in the immediate vicinity of the former dispenser island (see Figure 2).
- Analytical results for ground water indicate that TPH-G, TPH-D, benzene, and MTBE-impacted ground water has migrated offsite in the downgradient direction. Estimated extents of TPH-G, TPH-D, benzene, and MTBE concentrations in ground water are presented in Figures 4, 5, 6, and 7, respectively.
- Analytical data reported by Blaine indicates that impacted ground water associated with the Autopro facility appears to have migrated downgradient to the former Chevron site ground water monitoring wells.
- The footnoted laboratory reports suggest that the petroleum hydrocarbons detected in samples may be attenuating through natural, insitu biodegradation.

6.0 References

Alameda County Health Care Services Agency (ACHCSA), 1995, letter to Mr. George Tuma (Autopro) and Mr. Ondrej Kojnok (Tri-Star Partnership) from Ms. Susan Hugo (ACHCSA), dated September 13, 1995.

-----, 1996a, letter to Mr. George Tuma (Autopro) and Mr. Ondrej Kojnok (Tri-Star Partnership) from Ms. Susan Hugo (ACHCSA), dated February 5, 1996.

-----, 1996b, letter to Mr. George Tuma (Autopro) and Mr. Ondrej Kojnok (Tri-Star Partnership) from Ms. Susan Hugo, dated March 19, 1996.

Environmental Science & Engineering, Inc. (ESE), 1993, Autopro, 5200 Telegraph Avenue, Oakland, California, Letter to Mr. Jeff Widman, dated April 19, 1993.

-----, 1994, Report of Findings: Preliminary Site Assessment, Autopro, 5200 Telegraph Avenue, Oakland, California, dated May 24, 1994.

-----, 1996, Workplan for Soil and Ground Water Investigation, Autopro Facility, 5200 Telegraph Avenue, Oakland, California, dated April 17, 1996.

United States Geological Survey (U.S.G.S.), 1959, Oakland East and Oakland West 7.5-Minute Topographic Quadrangles, Photorevised 1980.

TABLE 1

ANALYTICAL RESULTS FOR SOIL SAMPLES

Tri-Star Partnership
Autopro Facility
5200 Telegraph Avenue
Oakland, California

Sample I.D.	Depth Sampled (ft bgs)	Date Sampled	TPH-D (mg/kg)	TPH-G (mg/kg)	TPH-MO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)
AP-1-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-1-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-2-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-2-10	10	07/02/96	<1.0	1.5 ^d	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-3-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-3-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-4-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-4-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-5-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-5-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-6-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-6-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-7-5	5	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05
AP-7-10	10	07/02/96	<1.0	<1.0	<5.0	<0.005	<0.005	<0.005	<0.005	<0.05

NOTES:

ft bgs = feet below ground surface.

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

TPH-MO = Total Petroleum Hydrocarbons as Motor Oil.

MTBE = methyl tertiary butyl ether.

mg/kg = milligrams per kilogram or parts per million (ppm).

< = less than listed detection limit.

^d = gasoline-range compounds are significant.

TABLE 2

ANALYTICAL RESULTS FOR GRAB GROUND WATER SAMPLES

Tri-Star Partnership
Autopro Facility
5200 Telegraph Avenue
Oakland, California

Sample I.D.	Date Sampled	TPH-D (µg/L)	TPH-G (µg/L)	TPH-MO (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)
AP-1	07/02/96	190 ^{d,i}	1,400 ^{b,d,j}	<250	<0.5	2.9	<0.5	3.1	<5.0
AP-2	07/02/96	74,000 ^{d,h,i}	7,900 ^{b,d,h,i}	<250	69	12	20	43	60
AP-3	07/02/96	47,000 ^{d,h,i}	14,000 ^{b,d,h,i}	<250	130	16	45	44	100
AP-4	07/02/96	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<5.0
AP-5	07/02/96	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<5.0
AP-6	07/02/96	410 ^{g,j}	<50	1,900	<0.5	<0.5	<0.5	<0.5	<5.0
AP-7	07/02/96	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	<5.0
MCL	--	--	--	--	1.0	150	700	1,750	35*

Notes:

TPH-D = Total Petroleum Hydrocarbons as Diesel.

TPH-G = Total Petroleum Hydrocarbons as Gasoline.

TPH-MO = Total Petroleum Hydrocarbons as Motor Oil.

MTBE = methyl tertiary butyl ether.

µg/L = micrograms per liter or parts per billion (ppb).

< = less than listed detection limit.

-- = not applicable.

* = DHS Action Level.

MCL = primary Maximum Contaminant Limit as defined by the California Department of Health Services (DHS) Drinking Water Standards.

^b = heavier gasoline-range compounds are significant (aged gasoline?).^d = gasoline-range compounds having broad chromatographic peaks are significant; biologically altered gasoline?^g = strongly aged gasoline or diesel-range compounds are significant.^h = lighter than water immiscible sheen is present.ⁱ = liquid sample that contains greater than ~ 5 vol. % sediment.^j = no recognizable pattern.

TABLE 3

HISTORICAL GROUND WATER ELEVATION DATA

Tri-Star Partnership
 Autopro Facility
 5200 Telegraph Avenue
 Oakland, California

Well I.D.	Date	Datum	Depth to Water (feet)	Ground Water Elevation (ft MSL)
MW-1	04/26/94	115.44	12.69	102.75
	07/20/94		12.39	103.05
	10/21/94		13.06	102.38
	01/18/95		10.14	105.30
	06/26/96		11.90	103.54
MW-2	04/26/94	114.62	11.15	103.47
	07/20/94		11.44	103.18
	10/21/94		12.30	102.32
	01/18/95		9.21	105.41
	06/26/96		11.16	103.46
MW-3	04/26/94	113.90	10.97	102.93
	07/20/94		11.21	102.69
	10/21/94		11.92	101.98
	01/18/95		8.90	105.00
	06/26/96		10.88	103.02
MW-4	04/26/94	114.25	10.97	103.28
	07/20/94		11.16	103.09
	10/21/94		11.68	102.57
	01/18/95		9.02	105.23
	06/26/96		10.77	103.48

Note:

ft MSL = feet above mean sea level.

TABLE 4

HISTORICAL GROUND WATER ANALYTICAL DATA

Tri-Star Partnership
Autopro Facility
5200 Telegraph Avenue
Oakland, California

Well I.D.	Date Sampled	TPH-D (µg/L)	TPH-MO (µg/L)	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	VOCs (µg/L)	Metals (mg/L)				
											cadmium	chromium	lead	nickel	zinc
MW-1	04/26/94	<50	--	1,400	<0.50	<0.50	4.5	2.1	--	<0.50	0.001	<0.05	<0.005	0.120	<0.10
	07/20/94	100	--	1,200	19	2.5	2.4	1.6	--	--	<0.010	0.220	0.044	0.360	0.350
	10/21/94	130	--	560	8.4	1.1	0.90	1.8	--	--	<0.010	<0.010	<0.020	0.041	0.077
	01/18/95	240	--	620	8.5	2.1	1.3	2.3	--	--	<0.010	0.026	<0.020	0.024	0.067
	06/26/96	56 ^{b,d}	<250	180 ^a	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	--	--	--	--	--
MW-2	04/26/94	<50	--	<50	<0.50	<0.50	<0.50	<0.50	--	<0.50	<0.001	<0.05	<0.005	0.060	<0.10
	07/20/94	<50	--	<50	<0.50	<0.50	<0.50	<0.50	--	--	<0.010	0.022	<0.020	0.045	0.068
	10/21/94	<50	--	<50	<0.50	<0.50	<0.50	<0.50	--	--	<0.010	0.031	<0.020	0.027	0.044
	01/18/95	<50	--	<50	<0.50	<0.50	<0.50	<0.50	--	--	<0.010	0.014	<0.020	0.023	0.045
	06/26/96	<50	<250	<50	<0.50	<0.50	<0.50	<0.50	<5.0	--	--	--	--	--	--
MW-3	04/26/94	<3,000	--	10,000	70	40	40	50	--	<30	<0.001	<0.05	0.043	0.100	0.100
	07/20/94	1,400	--	7,500	120	38	36	39	--	--	<0.010	0.099	0.140	0.120	0.250
	10/21/94	1,200	--	6,300	69	37	29	38	--	--	<0.010	<0.010	<0.020	0.036	0.140
	01/18/95	1,600	--	8,000	84	16	48	49	--	--	<0.010	0.046	0.049	0.040	0.110
	06/26/96	2,800 ^{d,f}	<250	6,600 ^a	15	17	23	40	53	--	--	--	--	--	--
(Dup)	06/26/96	2,700 ^{d,f}	<250	6,600 ^a	14	16	21	37	49	--	--	--	--	--	

TABLE 4

HISTORICAL GROUND WATER ANALYTICAL DATA

Tri-Star Partnership
Autopro Facility
5200 Telegraph Avenue
Oakland, California

Well ID	Date Sampled	TPH-D (µg/L)	TPH-MO (µg/L)	TPH-G (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	VOCs (µg/L)	Metals (mg/L)				
											cadmium	chromium	lead	nickel	zinc
MW-4	04/26/94	<300	--	6,800	<3.0	<3.0	3.0	4.0	--	<3.0	<0.001	<0.05	0.007	0.060	<0.10
	07/20/94	1,500	--	5,600	35	11	12	17	--	--	<0.010	0.023	<0.020	0.048	0.060
	10/21/94	870	--	4,300	26	19	12	20	--	--	<0.010	0.013	<0.020	<0.020	0.092
	01/18/95	1,300	--	5,700	19	15	13	16	--	--	<0.010	0.020	<0.020	0.021	0.036
	06/26/96	2,500 ^{d,f}	<250	4,700 ^{b,d}	<0.25	4.8	11	19	30	--	--	--	--	--	--
TRIP	06/26/96	--	--	<50	<0.50	<0.50	<0.50	<0.50	<5.0	--	--	--	--	--	--
MCL	--	--	--	--	1.0	150	700	1,750	35*	--	0.005	0.05	0**	0.1	5***

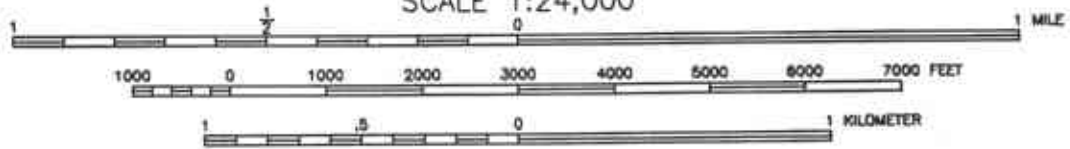
Notes:

TPH-D = Total Petroleum Hydrocarbons as Diesel.
 TPH-MO = Total Petroleum Hydrocarbons as Motor Oil.
 TPH-G = Total Petroleum Hydrocarbons as Gasoline.
 MTBE = methyl tertiary butyl ether.
 VOCs = Volatile Organic Compounds.
 µg/L = micrograms per liter or parts per billion (ppb).
 mg/L = milligrams per liter or parts per million (ppm).
 < = less than listed detection limit.
 -- = not applicable.


^a = unmodified or weakly modified is significant.
^b = heavier gasoline-range compounds are significant (aged gasoline?).
^d = gasoline-range compounds having broad chromatographic peaks are significant; biologically altered gasoline?
^f = one to a few isolated peaks present.
 MCL = primary Maximum Contaminant Limit as defined by the California Department of Health Services (DHS) Drinking Water Standards.
 * = DHS Action Level.
 ** = regulated by the Federal Lead and Copper Rule.
 *** = secondary MCL.

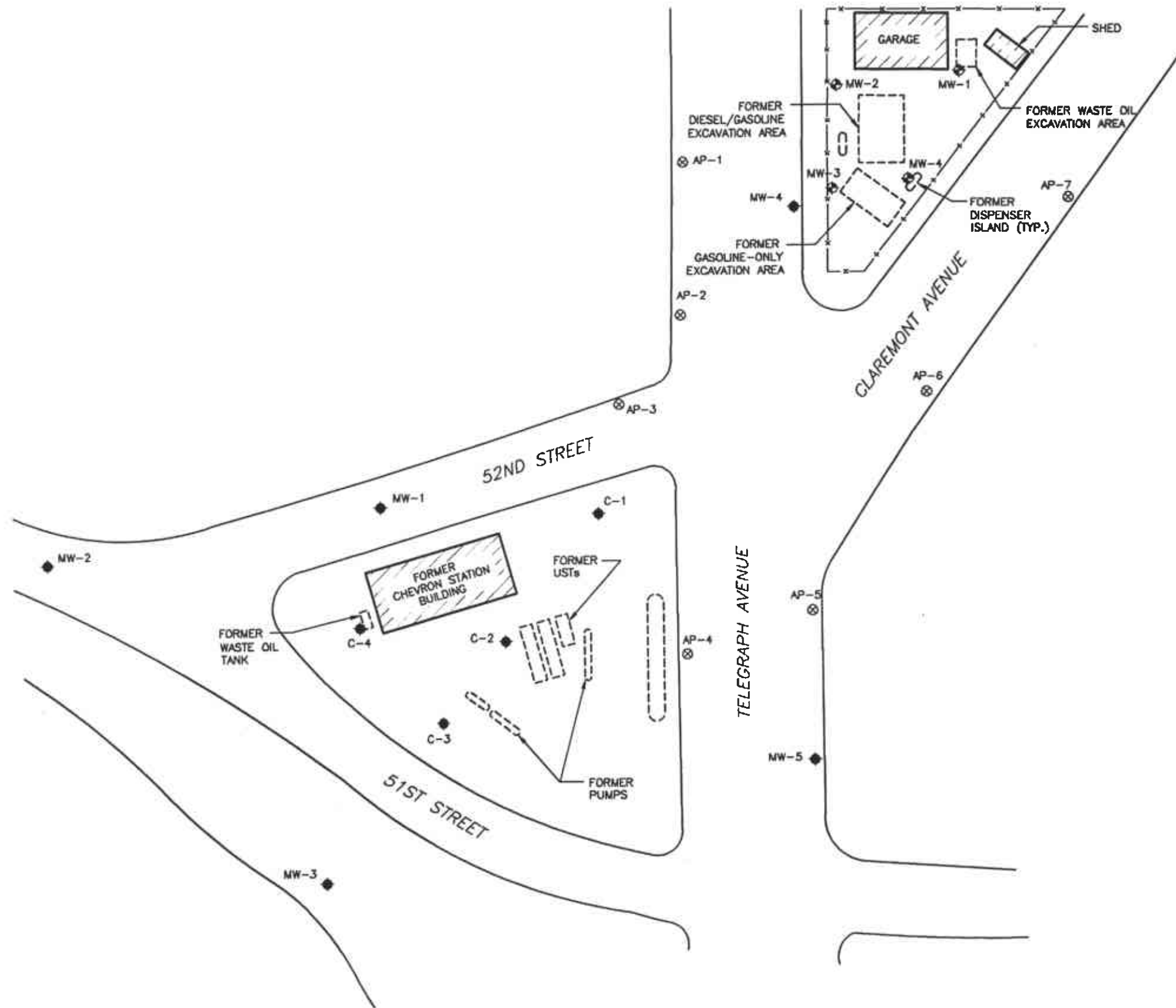


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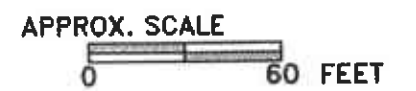
ADAPTED FROM U.S.G.S. OAKLAND EAST AND OAKLAND WEST 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS, 1959, PHOTOREVISED 1980.

 <p>Environmental Science & Engineering, Inc.</p>	DATE	<p>LOCATION MAP</p>	FIGURE NO.
	3/94		<p>AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA</p>
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	REVISED	<p>PROJ. NO. 6-94-5219</p>	
	2/6/95		
	CAD FILE		
	52191001		



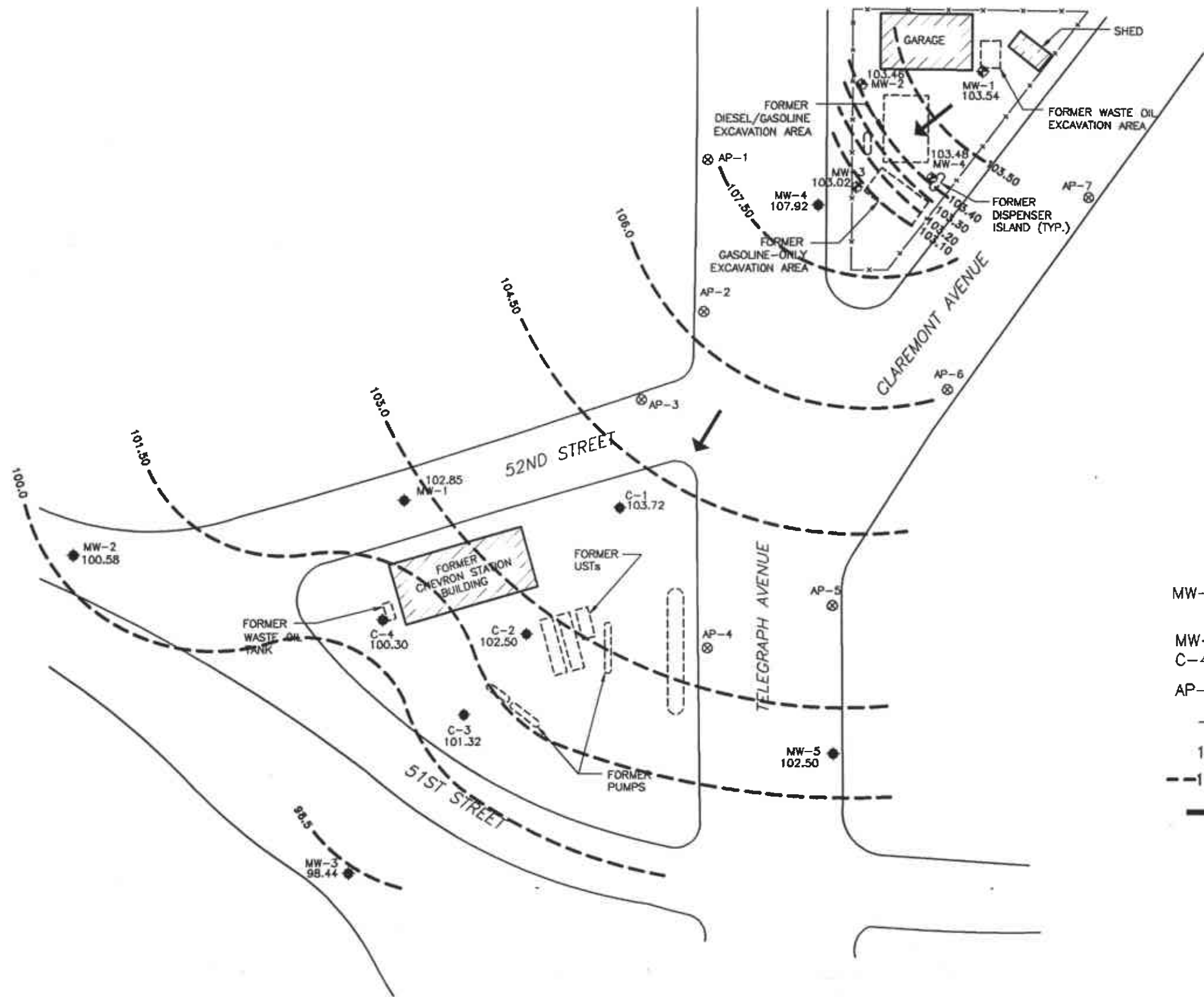
LEGEND

- MW-3 ⊕ GROUND WATER MONITORING WELLS INSTALLED BY ESE
- MW-5 ● GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- C-4 ●
- AP-7 ⊗ SOIL BORING
- x- FENCE



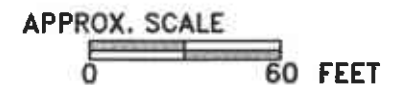
CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.

Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 2/12/96	SITE MAP	FIGURE NO. 2
	REVISED 8/29/96		AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA
	CAD FILE 65521902		



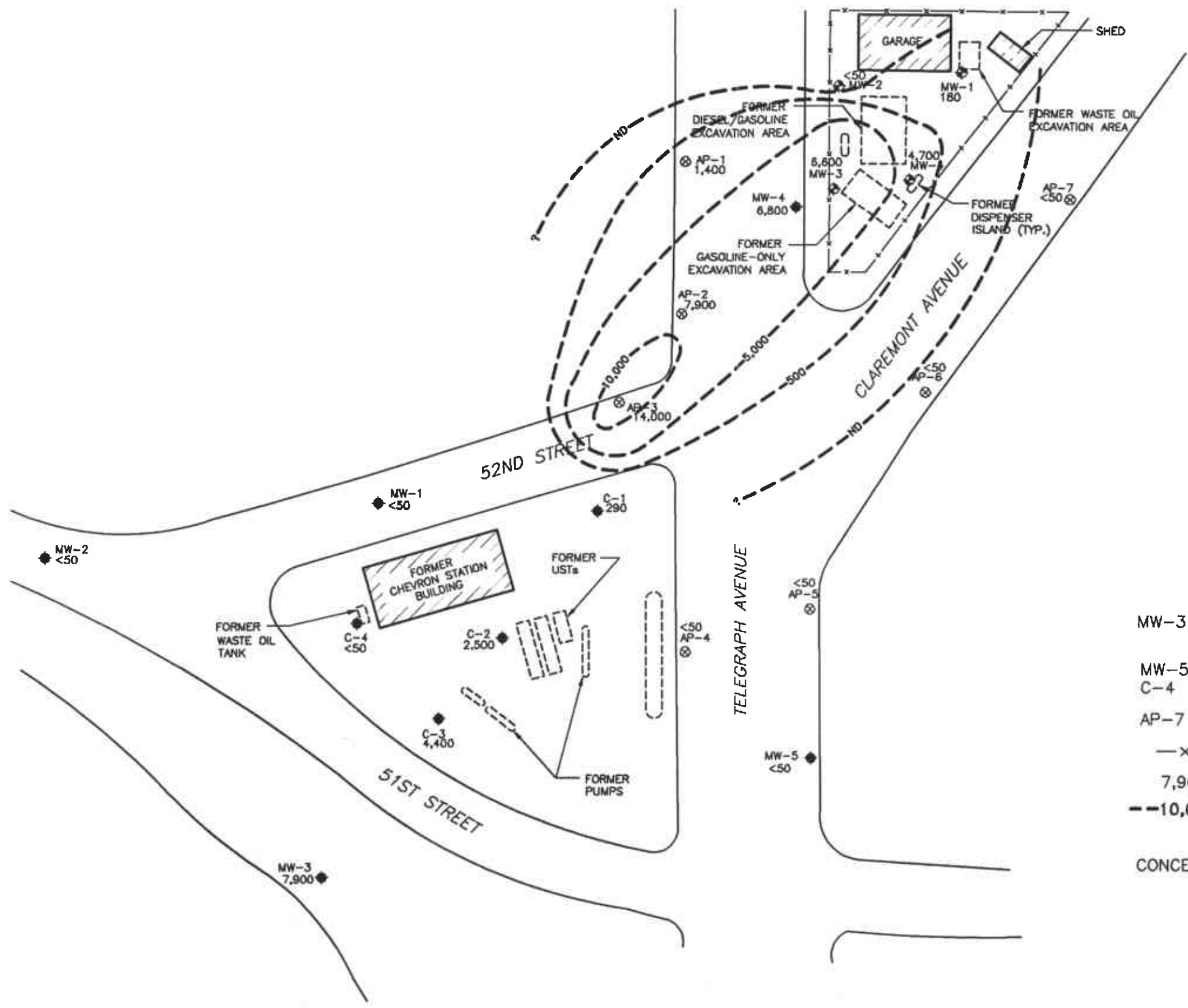
LEGEND

- MW-3 GROUND WATER MONITORING WELLS INSTALLED BY ESE
- MW-5 GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- C-4 GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- AP-7 SOIL BORING
- x- FENCE
- 103.02 GROUND WATER ELEVATION
- - 103.30 - - GROUND WATER ELEVATION CONTOUR
- ESTIMATED GROUND WATER FLOW DIRECTION



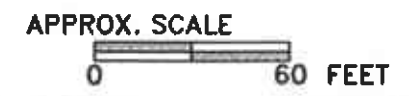
CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.
 CHEVRON SITE GROUND WATER ELEVATIONS FROM BLAINE TECH SERVICES, INC.
 GROUND WATER ELEVATIONS FOR AUTOPRO SITE ARE DERIVED FROM AN ASSUMED DATUM.

Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 8/8/96	GROUND WATER ELEVATION CONTOUR MAP JUNE 26, 1996 AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA	FIGURE NO. 3
	REVISED 8/29/96		PROJ. NO. 65-95-219
	CAD FILE 65521903		



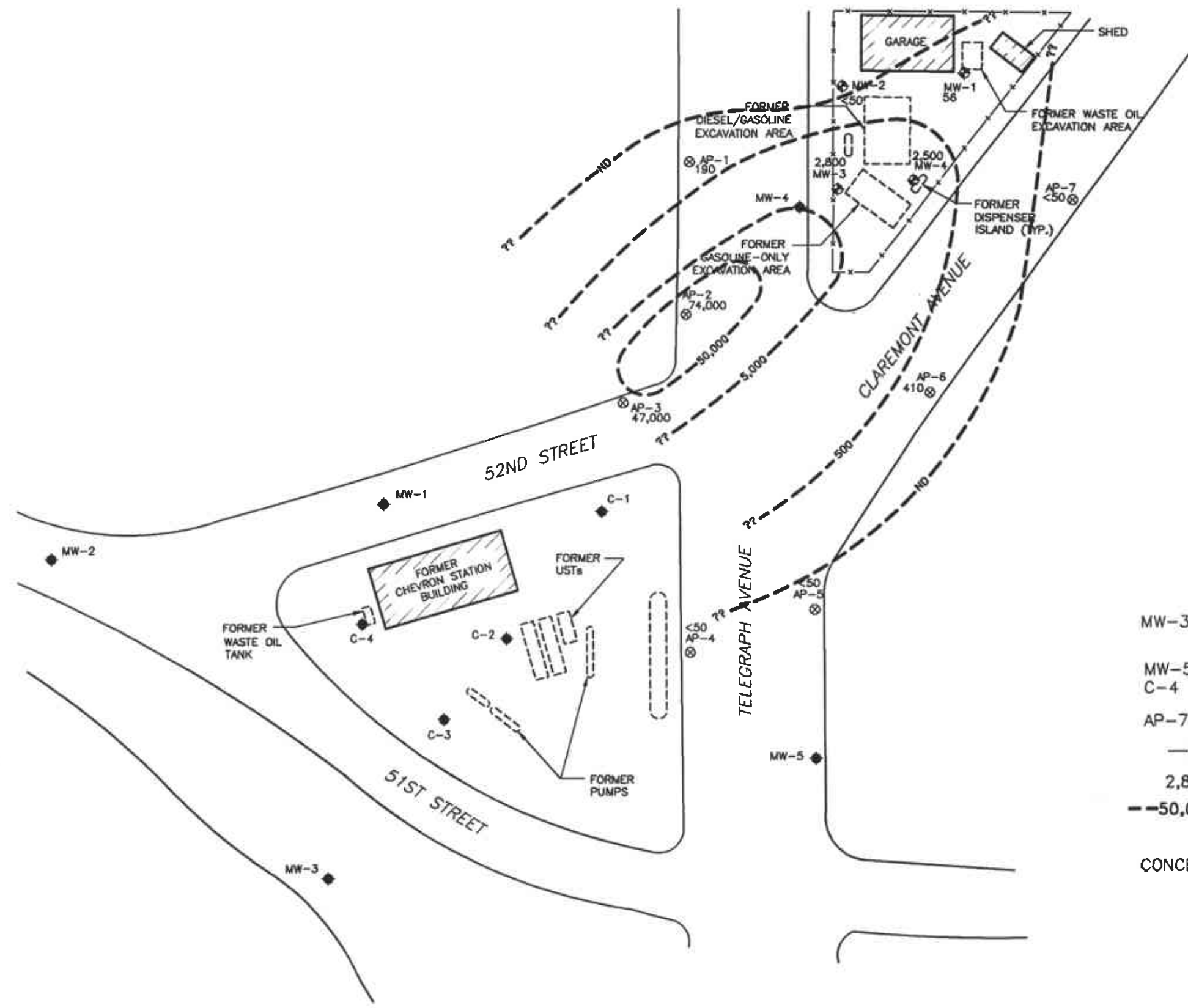
LEGEND

- MW-3 ● GROUND WATER MONITORING WELLS INSTALLED BY ESE
 - MW-5 ● GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
 - C-4 ●
 - AP-7 ⊗ SOIL BORING WITH GRAB GROUND WATER SAMPLE
 - x- FENCE
 - 7,900 CONCENTRATION OF TPH-G IN GROUND WATER
 - 10,000-- CONCENTRATION ISOPLETH
- CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) or PARTS PER BILLION (ppb).



CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.
 CHEVRON WELLS ANALYTICAL DATA FROM BLAINE TECH SERVICES, INC.

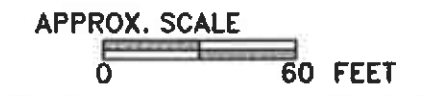
Environmental Science & Engineering, Inc. 4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	DATE 8/8/96	ESTIMATED EXTENT OF TPH-G IN GROUND WATER	FIGURE NO. 4
	REVISED 8/29/96		PROJ. NO. 65-95-219
	CAD FILE 65521904	AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA	




LEGEND

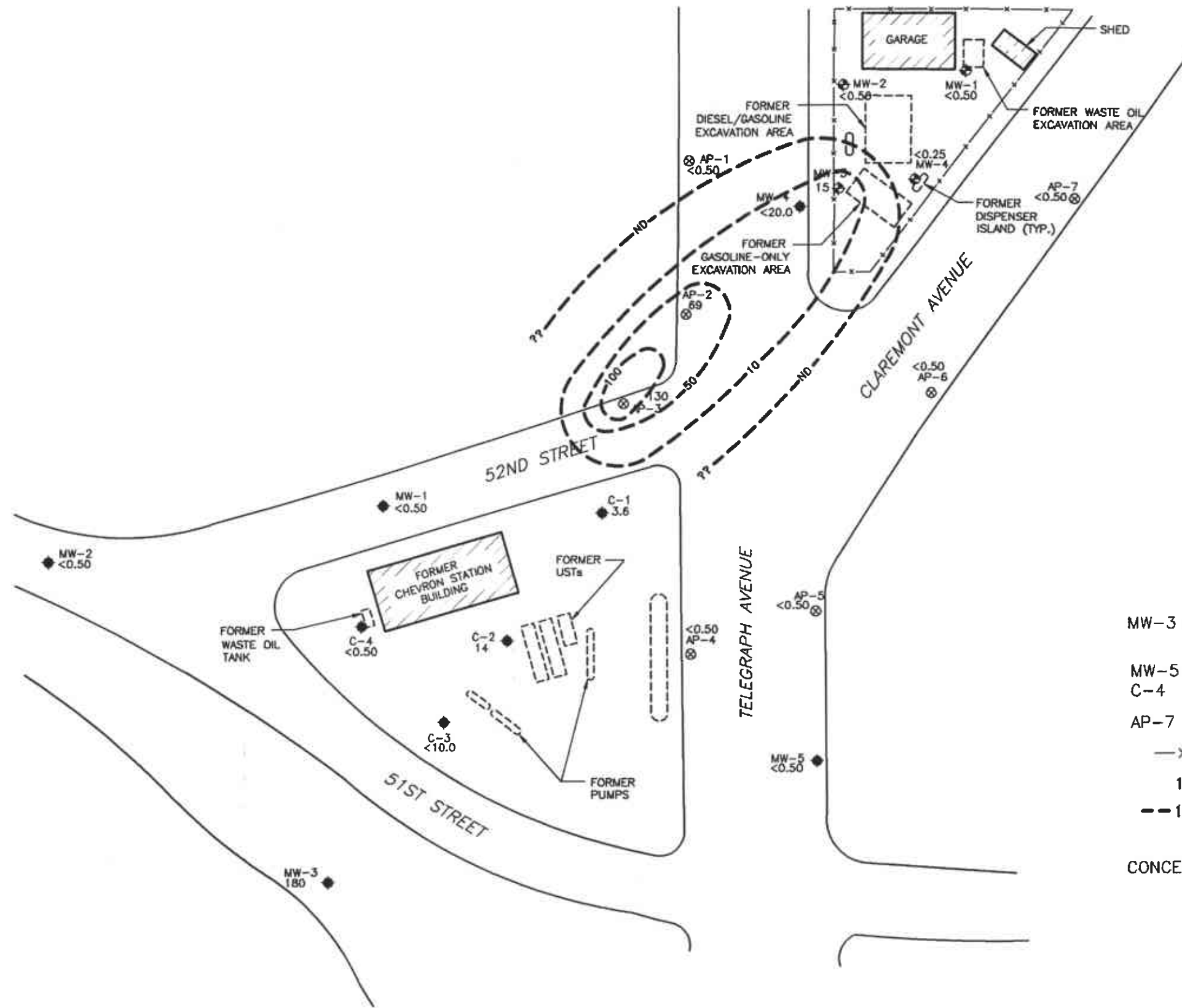
- MW-3 ⊕ GROUND WATER MONITORING WELLS INSTALLED BY ESE
- MW-5 ● GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- C-4 ●
- AP-7 ⊗ SOIL BORING WITH GRAB GROUND WATER SAMPLE
- x- FENCE
- 2,800 CONCENTRATION OF TPH-D IN GROUND WATER
- 50,000- CONCENTRATION ISOPLETH

CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) or PARTS PER BILLION (ppb).



CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.

 Environmental Science & Engineering, Inc.	DATE 8/8/96	ESTIMATED EXTENT OF TPH-D IN GROUND WATER	FIGURE NO. 5
	REVISED 8/29/96		AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 65521905		




LEGEND

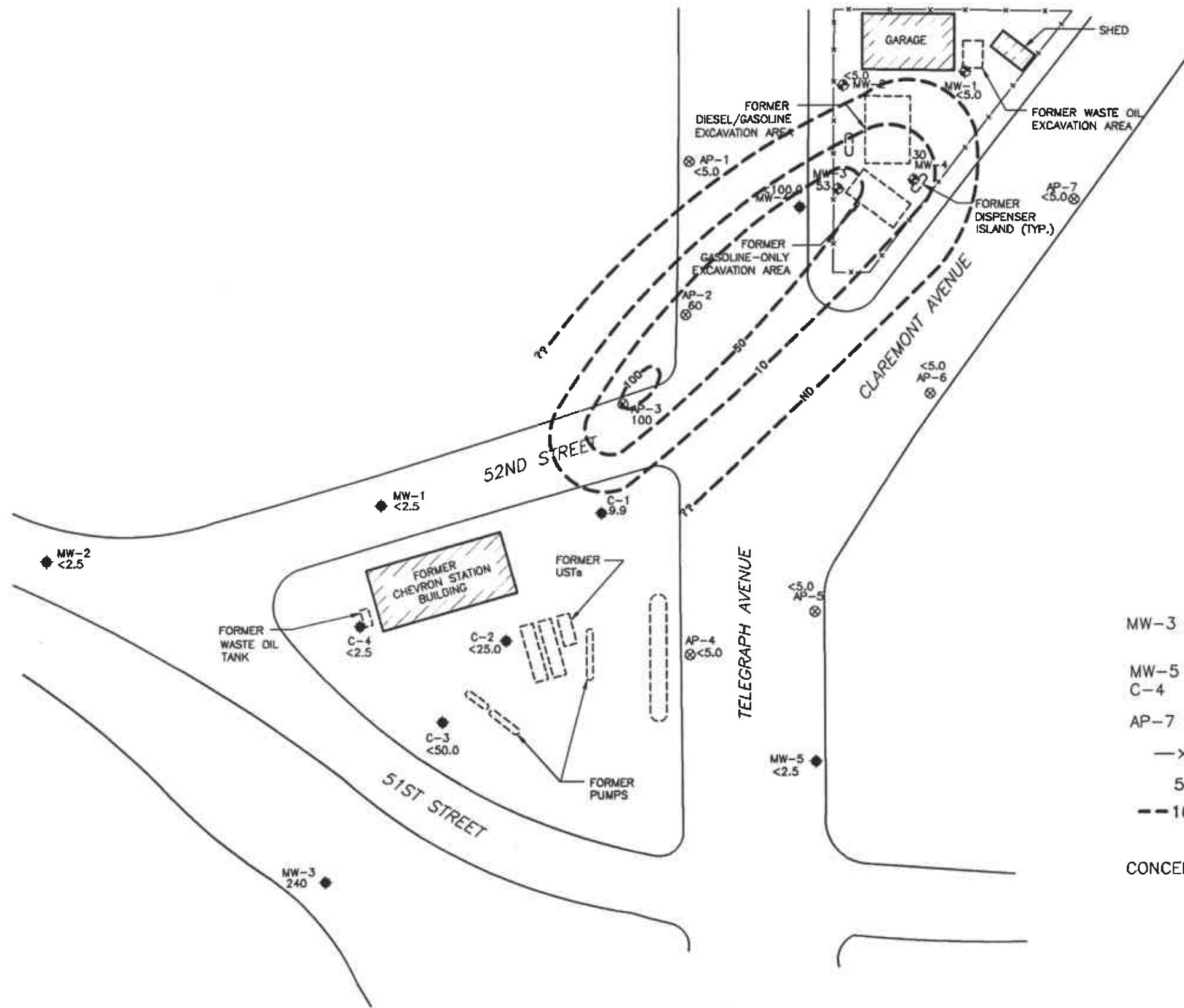
- MW-3 ⊕ GROUND WATER MONITORING WELLS INSTALLED BY ESE
- MW-5 ● GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- C-4 ●
- AP-7 ⊗ SOIL BORING WITH GRAB GROUND WATER SAMPLE
- x- FENCE
- 15 CONCENTRATION OF BENZENE IN GROUND WATER
- 100-- CONCENTRATION ISOPLETH

CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) or PARTS PER BILLION (ppb).



CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.
 CHEVRON WELLS ANALYTICAL DATA FROM BLAINE TECH SERVICES, INC.

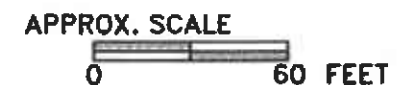
 Environmental Science & Engineering, Inc.	DATE 8/8/96	ESTIMATED EXTENT OF BENZENE IN GROUND WATER	FIGURE NO. 6
	REVISED 8/29/96		AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA
4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE 65521906	PROJ. NO. 65-95-219	




LEGEND

- MW-3 ⊕ GROUND WATER MONITORING WELLS INSTALLED BY ESE
- MW-5 ● GROUND WATER MONITORING WELLS INSTALLED FOR CHEVRON
- C-4 ●
- AP-7 ⊗ SOIL BORING WITH GRAB GROUND WATER SAMPLE
- x- FENCE
- 53 CONCENTRATION OF MTBE IN GROUND WATER
- 100-- CONCENTRATION ISOPLETH

CONCENTRATIONS IN MICROGRAMS PER LITER (ug/L) or PARTS PER BILLION (ppb).



CHEVRON SITE BASE MAP FROM CAMBRIA ENVIRONMENTAL TECHNOLOGY, INC.
 CHEVRON WELLS ANALYTICAL DATA FROM BLAINE TECH SERVICES, INC.

 Environmental Science & Engineering, Inc.	DATE	8/8/96	ESTIMATED EXTENT OF MTBE IN GROUND WATER	FIGURE NO.
	REVISED	8/29/96		7
	4090 NELSON AVENUE, SUITE J CONCORD, CA 94520	CAD FILE	65521907	AUTOPRO 5200 TELEGRAPH AVENUE OAKLAND, CALIFORNIA

Appendix A
Geologic Boring Logs



**Environmental
Science &
Engineering, Inc.**

**BORING LOG AND
WELL COMPLETION SUMMARY**

AP-1

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch
Ref. Elevations:
Logged By: Chris Valcheff

Total Depth: 16 Feet

Page 1 of 1

Dates:

Start: 7-2-96

Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log		Vapor	Remarks
			Sample/Blows	Lithology		
0	ASPHALT CONCRETE ROCK					
5	SANDY CLAY, brown, stiff, moist, 10 to 20% medium grained sands, no odor.	CL				0 Sample AP-1-5 @ 10:40
10	SANDY CLAY, grey/green, stiff, moist, 10 to 20% medium grained sands, strong hydrocarbon odor.	CL				29 Sample AP-1-10 @ 10:45 Water @ -12.5 Feet
15	CLAYEY SAND, green/grey, dense, wet, 20 to 30% clay, medium grained sands, strong hydrocarbon odor.	SC				0 Sample AP-1-15 @ 10:50 Water Sample AP-1 @ 11:00 Total Depth 16 Feet Boring backfilled with neat cement grout.
20						
25						
30						
35						



**Environmental
Science &
Engineering, Inc.**
A GILCORP Company

BORING LOG AND WELL COMPLETION SUMMARY

AP-2

WELL COMPLETION

Completion Depth: NA
Size/Type _____

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch
Ref. Elevations:
Logged By: Chris Valcheff

Total Depth: 16 Feet

Page 1 of 1

Dates:

Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks <small>Water, drilling/completion, summary, sample type</small>
			Sample/Blows	Lithology	Well Installation		
0	ASPHALT CONCRETE ROCK						
5	SANDY CLAY, brown, soft, damp, 10 to 20% medium grained sands, high plasticity, no odor.	CL				0	Sample AP-2-5 @ 09:50
10	SANDY CLAY, brown, soft, damp, 10 to 20% medium grained sands, high plasticity, no odor.	CL				0	Sample AP-2-10 @ 09:55
15	CLAYEY SAND, green/grey, dense, wet, 10 to 20% clay, medium grained sands, strong hydrocarbon odor.	SC				0	Sample AP-2-15 @ 10:00
20							Water @ -12.5 Feet
25							Water Sample AP-2 @ 10:10 Total Depth 16 Feet Boring backfilled with neat cement grout.
30							
35							



**Environmental
Science &
Engineering, Inc.**

**BORING LOG AND
WELL COMPLETION SUMMARY**

AP-3

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch
Ref. Elevations:
Logged By: Chris Valcheff

Total Depth: 16 Feet

Page 1 of 1

Dates:
Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks
			Sample/Blows	Lithology	Well Installation		
0	ASPHALT CONCRETE ROCK						
0 - 5	SANDY CLAY, brown, soft, damp, 20 to 30% medium grained sand, medium plasticity, no odor.	CL					
5							0 Sample AP-3-5 @ 11:40
10	SANDY CLAY, greenish/grey, soft, damp, 20 to 30% medium grained sand, medium plasticity, strong hydrocarbon odor.	CL					28 Sample AP-3-10 @ 11:45
10							Water @ ~12 Feet
15	SAND, green/grey, very dense, wet, medium grained sand, strong hydrocarbon odor.	SP					102 Sample AP-3-15 @ 11:50
15							Water Sample AP-3 @ 12:00 Total Depth 16 Feet Boring backfilled with neat cement grout.
20							
25							
30							
35							



**Environmental
Science &
Engineering, Inc.**
A GILCORP Company

BORING LOG AND WELL COMPLETION SUMMARY

AP-4

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California






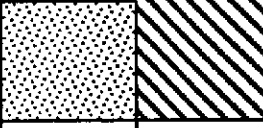

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch
Ref. Elevations:
Logged By: Chris Valcheff

Total Depth: 16 Feet

Page 1 of 1

Dates:
Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks
			Sampler/Blows	Lithology	Well Installation		
0	ASPHALT CONCRETE ROCK						
0 - 5	SANDY CLAY, black, stiff, damp, 10 to 20% medium grained sands, no odor.	CL					
5						0 Sample AP-4-5 @ 13:30	
10	SANDY CLAY, black, stiff, moist, 20 to 30% medium grained sands, strong odor.	CL					
10						52 Sample AP-4-10 @ 13:45	
15	SAND, grey/green, dense, wet, medium grained, strong hydrocarbon odor.	SP					
15						148 Sample AP-4-15 @ 13:55	
14.5						Water @ ~12.5 Feet	
14						Water Sample AP-4 @ 14:10 Total Depth 16 Feet Boring backfilled with neat cement grout.	
20							
25							
30							
35							



**Environmental
Science &
Engineering, Inc.**

BORING LOG AND WELL COMPLETION SUMMARY

AP-5

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA


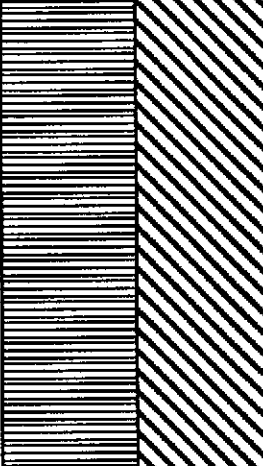



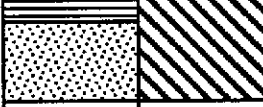
Well Cap or Box: NA

Project Name: Tri-Star Partnership Project No: 65-96-219
Location: 5200 Telegraph Avenue
Oakland, California

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch Total Depth: 16 Feet
Ref. Elevations:
Logged By: Chris Valcheff

Page 1 of 1

Dates:
Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks Water, drilling/completion, summary, sample type
			Sampler/Blows	Lithology	Well Installation		
0	ASPHALT CONCRETE ROCK						
	SANDY CLAY, brown, stiff, damp, 10 to 20% fine grained sands, high plasticity, no odor.	CL					
5						0 Sample AP-5-5 @ 14:50	
10	SANDY CLAY, brown, stiff, moist, 10 to 20% fine grained sands, high plasticity, no odor.	CL				0 Sample AP-5-10 @ 14:55 Water @ 12 Feet	
15	SAND, brown, very dense, wet, medium grained, no odor.	SP				0 Sample AP-5-15 @ 15:00 Water Sample AP-5 @ 15:05 Total Depth 16 Feet Boring backfilled with neat cement grout.	
20							
25							
30							
35							



**Environmental
Science &
Engineering, Inc.**

**BORING LOG AND
WELL COMPLETION SUMMARY**

AP-6

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch Total Depth: 16 Feet
Ref. Elevations:
Logged By: Chris Valcheff

Page 1 of 1

Dates:
Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log		Vapor	Remarks Water, drilling/completion, summary, sample type
			Sample/Blows	Lithology		
0	ASPHALT ROCK					
	SANDY CLAY, brown, stiff, damp, 10 to 20% fine to medium grained sands, medium plasticity, no odor.	CL				
5			█			0 Sample AP-6-5 @ 15:45
10	SANDY CLAY, brown, stiff, damp, 10 to 20% fine to medium grained sands, medium plasticity, no odor.	CL	█			0 Sample AP-6-10 @ 15:50
	CLAYEY SAND, brown, dense, damp, 30 to 40% clay, medium grained sand, no odor.	SC				▼ Water @ 13 Feet
15			█			0 Sample AP-6-15 @ 15:55
						Water Sample AP-6 @ 16:00 Total Depth 16 Feet Boring backfilled with neat cement grout.
20						
25						
30						
35						



**Environmental
Science &
Engineering, Inc.**

BORING LOG AND WELL COMPLETION SUMMARY

AP-7

WELL COMPLETION

Completion Depth: NA
Size/Type

Casing: NA
Screen: NA
Filter: NA
Seal: NA
NA

Well Cap or Box: NA

Project Name: Tri-Star Partnership
Location: 5200 Telegraph Avenue
Oakland, California

Project No: 65-95-219

Driller: Gregg Drilling & Testing
Method: Geoprobe
Hole Diameter: 2-inch
Ref. Elevations:
Logged By: Chris Valcheff

Total Depth: 16 Feet

Page 1 of 1

Dates:
Start: 7-2-96
Finish: 7-2-96

Depth (ft)	Lithologic Description	USC	Graphic Log			Vapor	Remarks
			Sample/Blows	Lithology	Well Installation		
0	ASPHALT ROCK						
	SANDY CLAY, brown, stiff, damp, 30 to 40% medium grained sand, no odor.	CL					
5							0 Sample AP-7-5 @ 17:05
10	SANDY CLAY, brown, stiff, moist, 10 to 20% medium grained sands, no odor.	CL					0 Sample AP-7-10 @ 17:10
	CLAYEY SAND, brown, dense, wet, medium grained sand, 30 to 40% clay, no odor.	SC					Water @ 12.5 Feet
15							0 Sample AP-7-15 @ 17:15
20							Water Sample AP-7 @ 17:15 Total Depth 16 Feet Boring backfilled with neat cement grout.
25							
30							
35							

Appendix B

**Laboratory Reports and Chain-of-Custody
Documentation: Soil Samples**

Environmental Science & Eng., Inc. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 65-95-219; Tri Star Partnership	Date Sampled: 07/02/96
	Client Contact: Chris Valcheff	Date Received: 07/05/96
	Client P.O: # SMSA-C-021	Date Extracted: 07/05-07/09/96
		Date Analyzed: 07/05-07/09/96

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*
 EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
66566	AP-1-5	S	ND	ND	ND	ND	ND	ND	107
66567	AP-1-10	S	ND	ND	ND	ND	ND	ND	101
66569	AP-2-5	S	ND	ND	ND	ND	ND	ND	104
66570	AP-2-10	S	1.5,d	ND	ND	ND	ND	ND	101
66572	AP-3-5	S	ND	ND	ND	ND	ND	ND	103
66573	AP-3-10	S	ND	ND	ND	ND	ND	ND	102
66575	AP-4-5	S	ND	ND	ND	ND	ND	ND	102
66576	AP-4-10	S	ND	ND	ND	ND	ND	ND	107
66578	AP-5-5	S	ND	ND	ND	ND	ND	ND	91
66579	AP-5-10	S	ND	ND	ND	ND	ND	ND	102
66581	AP-6-5	S	ND	ND	ND	ND	ND	ND	103
66582	AP-6-10	S	ND	ND	ND	ND	ND	ND	105
66583	AP-7-5	S	ND	ND	ND	ND	ND	ND	101
66584	AP-7-10	S	ND	ND	ND	ND	ND	ND	104
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L	5.0	0.5	0.5	0.5	0.5	0.5	
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

Environmental Science & Eng., Inc. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 65-95-219; Tri Star Partnership	Date Sampled: 07/02/96
	Client Contact: Chris Valcheff	Date Received: 07/05/96
	Client P.O.: # SMSA-C-021	Date Extracted: 07/05-07/09/96
		Date Analyzed: 07/05-07/09/96

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil*
EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	TPH(mo) ⁺	% Recovery Surrogate
66566	AP-1-5	S	ND	ND	99
66567	AP-1-10	S	ND	ND	100
66569	AP-2-5	S	ND	ND	99
66570	AP-2-10	S	ND	ND	100
66572	AP-3-5	S	ND	ND	99
66573	AP-3-10	S	ND	ND	98
66575	AP-4-5	S	ND	ND	99
66576	AP-4-10	S	ND	ND	98
66578	AP-5-5	S	ND	ND	98
66579	AP-5-10	S	ND	ND	99
66581	AP-6-5	S	ND	ND	100
66582	AP-6-10	S	ND	ND	100
66583	AP-7-5	S	ND	ND	101
66584	AP-7-10	S	ND	ND	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L	250 ug/L		
	S	1.0 mg/kg	5.0 mg/kg		

* water samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP and STLC extracts in mg/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

⁺ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant; d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/05/96

Matrix: Soil

Analyte	Concentration (mg/kg) Sample (#66075)			Amount Spiked	‡ Recovery		RPD
	MS	MSD			MS	MSD	
TPH (gas)	0.000	1.913	2.008	2.03	94	99	4.8
Benzene	0.000	0.202	0.208	0.2	101	104	2.9
Toluene	0.000	0.204	0.212	0.2	102	106	3.8
Ethylbenzene	0.000	0.208	0.214	0.2	104	107	2.8
Xylenes	0.000	0.618	0.632	0.6	103	105	2.2
TPH (diesel)	0	292	284	300	97	95	2.7
TRPH (oil and grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

‡ Rec. = (MS - Sample) / amount spiked x 100

RPD = (MS - MSD) / (MS + MSD) x 2 x 100

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/09/96

Matrix: Soil

Analyte	Concentration (mg/kg) Sample (#66075)			Amount Spiked	% Recovery		RPD
	MS	MSD			MS	MSD	
TPH (gas)	0.000	2.315	2.163	2.03	114	107	6.8
Benzene	0.000	0.192	0.178	0.2	96	89	7.6
Toluene	0.000	0.188	0.180	0.2	94	90	4.3
Ethylbenzene	0.000	0.188	0.174	0.2	94	87	7.7
Xylenes	0.000	0.544	0.514	0.6	91	86	5.7
TPH (diesel)	0	290	293	300	97	98	0.8
TRPH (oil and grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\dagger \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$


DATE July 2, 1996 PAGE 1 OF 2

CHAIN OF CUSTODY RECORD

6724AESE 347

PROJECT NAME TRISTAR PARTNERSHIP
 ADDRESS 5200 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
 PROJECT NO. 65-95-219
 SAMPLED BY CHRIS VALCHEFF
 LAB NAME McLAMPBELL

ANALYSES TO BE PERFORMED					MATRIX	MATRIX	NUMBER OF CONTAINERS
TPH-G (6015)	TPH-D (SOLSM)	TPH-MD (SOLSM)	BTEX (6020)	MTBE (6030)			



Environmental Science & Engineering, Inc.
 A DILCORP Company
 4090 Nelson Avenue Suite J
 Concord, CA 94520
 Phone (510) 685-4053
 Fax (510) 685-5323

SAMPLE #	DATE	TIME	LOCATION	TPH-G (6015)	TPH-D (SOLSM)	TPH-MD (SOLSM)	BTEX (6020)	MTBE (6030)	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
AP-1-5	7-2-96	1040	OAKLAND	X	X	X	X	X	SOIL	1	66566
AP-1-10		1045		X	X	X	X	X		1	66567
AP-1-15		1050		H	O	L	D			1	66568
AP-2-5		0950		X	X	X	X	X		1	66569
AP-2-10		0955		X	X	X	X	X		1	66570
AP-2-15		1000		H	O	L	D			1	66571
AP-3-5		1140		X	X	X	X	X		1	66572
AP-3-10		1145		X	X	X	X	X		1	66573
AP-3-15		1150		H	O	L	D			1	66574
AP-4-5		1330		X	X	X	X	X		1	66575
AP-4-10		1345		X	X	X	X	X		1	66576
AP-4-15		1355		H	O	L	D			1	66577

RELINQUISHED BY: (signature) [Signature] RECEIVED BY: (signature) [Signature] date 7/5/96 time 9:30
 1. [Signature]
 2. [Signature]
 3. ICE/T GOOD CONDITION HEAD SPACE ABSENT PRESERVATIVE APPROPRIATE CONTAINERS
 4. ICE/T GOOD CONDITION HEAD SPACE ABSENT PRESERVATIVE APPROPRIATE CONTAINERS
 5. ICE/T GOOD CONDITION HEAD SPACE ABSENT PRESERVATIVE APPROPRIATE CONTAINERS

TOTAL NUMBER OF REPORT RESULTS TO: Chris Valcheff SPECIAL SHIP REQUIREMENTS: COLD STORAGE / 19
 SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
 CHAIN OF CUSTODY SEALS
 REC'D GOOD CONDITN/COLD [Signature]
 CONFORMS TO RECORD [Signature]

SINNOARD NOW AROUND THE

DATE July 2, 1996 PAGE 2 OF 2

CHAIN OF CUSTODY RECORD

6724 AESE 347

PROJECT NAME TRISAR PARTNERSHIP

ADDRESS 5200 TELEGRAPH AVE.
OAKLAND, CALIFORNIA

PROJECT NO. 65-95-219

SAMPLED BY CHRIS VALCHEFF

LAB NAME McCAMPBELL

ANALYSES TO BE PERFORMED

MATRIX

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED					MATRIX	MATRIX	NUMBER OF CONTAINERS
				PH-G (6015)	PH-D (6015M)	PH-MD (6015M)	PH-EX (6020)	PH-SE (6020)			
AP-5-5	7-2-96	1450	OAKLAND	X	X	X	X	X	Soil	1	
AP-5-10	[Handwritten bracket]	1455	[Handwritten bracket]	X	X	X	X	X	[Handwritten bracket]	1	
AP-5-15		1505		H	O	L	D	1			
AP-6-5		1545		X	X	X	X	X		1	
AP-6-10		1550		X	X	X	X	X		1	
AP-6-15		1555		X	X	X	X	X		1	
AP-7-5		1705		X	X	X	X	X		1	
AP-7-10		1710		X	X	X	X	X		1	
AP-7-15	1715	H	O	L	D	1					



Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

Phone (510) 685-4053

Fax (510) 685-5323

REMARKS (CONTAINER, SIZE, ETC.)

- 66578
- 66579
- 66580
- 66581
- 66582
- 66583
- 66584
- 66585

RELINQUISHED BY: (signature) 1. <u>[Signature]</u>	RECEIVED BY: (signature) <u>[Signature]</u>	date <u>7/5/96</u>	time <u>9:30</u>
2.			
3.			
4. ICE? <input checked="" type="checkbox"/> GOOD CONDITION <input checked="" type="checkbox"/>	PRESERVATIVE APPROPRIATE <input checked="" type="checkbox"/>		
5. HEAD SPACE ABSENT <input checked="" type="checkbox"/>	CONTAINERS <input checked="" type="checkbox"/>		

TOTAL NUMBER OF CONTAINERS <u>8</u>	REPORT RESULTS TO: <u>Chris Valcheff</u>	SPECIAL SHIPMENT REQUIREMENTS <u>EMERGENCY STORAGE / 10 min Spill</u>
SAMPLE RECEIPT		

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):
STANDARD NOW AROUND TIME

CHAIN OF CUSTODY SEALS	
REC'D GOOD COND'TN/COLD	<u>[Initials]</u>
CONFORMS TO RECORD	<u>[Initials]</u>

Appendix C

Laboratory Reports and Chain-of-Custody Documentation: Grab Ground Water Samples

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553

Tele: 510-798-1620 Fax: 510-798-1622

Environmental Science & Eng., Inc. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 65-95-219; Tri Star Partnership	Date Sampled: 07/02/96
		Date Received: 07/05/96
	Client Contact: Chris Valcheff	Date Extracted: 07/05-07/06/96
	Client P.O.: # SMSA-C-021	Date Analyzed: 07/05-07/06/96

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*
 EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g) ⁺	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Rec. Surrogate
66559	AP-1	W	1400, j,b,i	ND	ND	2.9	ND	3.1	106
66560	AP-2	W	7900,b,d,h,i	60	69	12	20	43	103
66561	AP-3	W	14,000,b,d,h,i	100	130	16	45	44	108
66562	AP-4	W	ND,i	ND	ND	ND	ND	ND	99
66563	AP-5	W	ND	ND	ND	ND	ND	ND	99
66564	AP-6	W	ND,i	ND	ND	ND	ND	ND	101
66565	AP-7	W	ND,i	ND	ND	ND	ND	ND	97
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP extracts in mg/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment; j) no recognizable pattern.

Environmental Science & Eng., Inc. 4090 Nelson Avenue, Suite J Concord, CA 94520	Client Project ID: # 65-95-219; Tri Star Partnership	Date Sampled: 07/02/96
	Client Contact: Chris Valcheff	Date Received: 07/05/96
	Client P.O.: # SMSA-C-021	Date Extracted: 07/05-07/08/96
		Date Analyzed: 07/05-07/08/96

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil*
EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d) ⁺	TPH(mo) ⁺	% Recovery Surrogate
66559	AP-1	W	190,d,i	ND	101
66560	AP-2	W	74,000,d,h,i	ND	102
66561	AP-3	W	47,000,d,h,i	ND	99
66562	AP-4	W	ND,i	ND	102
66563	AP-5	W	ND	ND	103
66564	AP-6	W	410,g,i	1900	98
66565	AP-7	W	ND,i	ND	100
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	W	50 ug/L	250 ug/L		
	S	1.0 mg/kg	5.0 mg/kg		

* water samples are reported in ug/L, soil and sludge samples in mg/kg, and all TCLP and STLC extracts in mg/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+ The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~ 5 vol. % sediment.

McCAMPBELL ANALYTICAL INC.

110 2nd Avenue South, #D7, Pacheco, CA 94553
 Tele: 510-798-1620 Fax: 510-798-1622

QC REPORT FOR HYDROCARBON ANALYSES

Date: 07/05/96

Matrix: Water

Analyte	Concentration (ug/L) Sample (#66528)			Amount Spiked	% Recovery		
	MS	MSD			MS	MSD	RPD
TPH (gas)	0.0	111.5	104.9	100.0	111.5	104.9	6.1
Benzene	0.0	10.3	9.8	10.0	103.0	98.0	5.0
Toluene	0.0	10.5	10.5	10.0	105.0	105.0	0.0
Ethyl Benzene	0.0	10.4	10.7	10.0	104.0	107.0	2.8
Xylenes	0.0	33.3	32.1	30.0	111.0	107.0	3.7
TPH (diesel)	0	150	147	150	100	98	1.9
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

6723AESE346

DATE July 2, 1996 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

PROJECT NAME 121 Side Partnership

ADDRESS 5300 TELEGRAPH AVE.

OAKLAND, CA

PROJECT NO. 65 95 219

SAMPLED BY Chris Valchreff

LAB NAME McCampbell

ANALYSES TO BE PERFORMED

MATRIX



Environmental Science & Engineering, Inc.

4090 Nelson Avenue Suite J Concord, CA 94520

Phone (510) 685-4053

Fax (510) 685-5323

REMARKS (CONTAINER, SIZE, ETC.)

SAMPLE #	DATE	TIME	LOCATION	ANALYSES TO BE PERFORMED					MATRIX	MATRIX	NUMBER OF CONTAINERS	REMARKS (CONTAINER, SIZE, ETC.)
				TPH-G (EPA 8015)	TPH-D (EPA 8015M)	TPH-MO (EPA 8015M)	BTEX (EPA 8020)	NHBE (EPA 8020)				
AP-1	7-2-96	1100	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66559
AP-2	7-2-96	1010	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66560
AP-3	7-2-96	1200	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66561
AP-4	7-2-96	1410	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66562
AP-5	7-2-96	1505	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66563
AP-6	7-2-96	1600	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66564
AP-7	7-2-96	1715	OAKLAND	X	X	X	X	X	H ₂ O	4	3 VOLs. / 11CL, 1 LIR	66565
AP-8	7-2-96		OAKLAND	X	X	X	X	X	H₂O	4	3 VOLs. / 11CL, 1 LIR	

RELINQUISHED BY: (signature)

RECEIVED BY: (signature)

date time

7-2-96 9:30

TOTAL NUMBER OF CONTAINERS

1. ICE/GOOD CONDITION/NO SPACE ABSENT
- 2.
- 3.
- 4.
- 5.

- PRESERVATIVE APPROPRIATE
 CONTAINERS

REPORT RESULTS TO: Chris Valchreff

SPECIAL SHIPMENT REQUIREMENTS: COLD STORAGE/PACKAGE

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

STRANDED TURNAROUND TIME

SAMPLE RECEIPT
 CHAIN OF CUSTODY SEALS
 REC'D GOOD COND'TN/COLD
 CONFORMS TO RECORD

Appendix D

Ground Water Sample Collection Logs



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: TRUSTAR PARTNERSHIP
PROJECT NO.: 68-95-219
DATE: JUNE 26, 1996

SAMPLE LOCATION I.D.: MW-1
SAMPLER: Chris Vancuse
PROJECT MANAGER: Chris Vancuse

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: _____ (ft.) PRODUCT THICKNESS: _____ (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 11.90 (ft.) WATER COLUMN: 17.02 (ft.) (3 of 4 WCV): 8.33 (gal)
DEPTH OF WELL: 28.92 (ft.) WELL CASING VOLUME: 2.78 (gal) ACTUAL VOLUME PURGED: 10 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1015</u>	<u>0</u>	<u>7.25</u>	<u>0.97</u>	<u>63.1</u>	<u>-</u>	<u>Backflow/leak 4000</u>
<u>1020</u>	<u>5</u>	<u>7.35</u>	<u>0.98</u>	<u>62.0</u>	<u>-</u>	<u>5</u>
<u>1025</u>	<u>10</u>	<u>7.36</u>	<u>0.99</u>	<u>62.6</u>	<u>-</u>	<u>5</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE PCWS UNIT# _____ DATE: 6-26-96 TIME: 0930 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

Displacement Pump Other Displ. Bailer
 Bailer (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
	<u>MW-1</u>	<u>1030</u>	<u>6-26-96</u>	<u>Multispec</u>	<u>184-5-672/194-4/101-22/1100</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: [Signature] PROJECT MANAGER: [Signature]
4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: TRISTAR PARKWAY
PROJECT NO.: 65-95-219
DATE: JUNE 26, 1996

SAMPLE LOCATION I.D.: MW-2
SAMPLER: CHRIS VALCHEFF
PROJECT MANAGER: CHRIS VALCHEFF

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: _____ (ft.) PRODUCT THICKNESS: _____ (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 11.16 (ft.) WATER COLUMN: 13.20 (ft.) (3 or 4 WCV): 6.46 (gal)
DEPTH OF WELL: 24.36 (ft.) WELL CASING VOLUME: 2.15 (gal) ACTUAL VOLUME PURGED: 7 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Microhmhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1035</u>	<u>0</u>	<u>7.83</u>	<u>1.73</u>	<u>61.3</u>	_____	<u>Redox / 131-119</u>
<u>1040</u>	<u>2.5</u>	<u>7.85</u>	<u>1.65</u>	<u>60.9</u>	_____	_____
<u>1045</u>	<u>7.0</u>	<u>7.85</u>	<u>1.62</u>	<u>61.2</u>	_____	_____

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE PENS UNIT# _____ DATE: 6-26-96 TIME: 0930 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

____ Displacement Pump Other Dis. Bailer
____ Bailer (Teflon/PVC/SS) _____ Submersible Pump

SAMPLE METHOD

____ Bailer (Teflon/PVC/SS) _____ Dedicated
 Bailer (Disposable) _____ Other

SAMPLES COLLECTED

	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	<u>MW-2</u>	<u>1050</u>	<u>6-26-96</u>	<u>Palmescon</u>	<u>TPH, 6/10/11/12/13/14/15/16/17/18/19/20</u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valchuff PROJECT MANAGER: Chris Valchuff
4090 Nelson Avenue, Suite J Concord, CA 94520 Phone (510) 685-4053 Fax (510) 685-5323



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: TRISTAR PARTNERSHIP
PROJECT NO.: LS-96-219
DATE: JUNE 26, 1996

SAMPLE LOCATION I.D.: MW-3
SAMPLER: CARLOS VALCAREFF
PROJECT MANAGER: CARLOS VALCAREFF

CASING DIAMETER

2" Y
4" _____
Other _____

SAMPLE TYPE

Ground Water X
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: — (ft.) PRODUCT THICKNESS: — (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 10.00 (ft.) WATER COLUMN: 13.20 (ft.) (3 or 4 WCV): 6.46 (gal)
DEPTH OF WELL: 24.00 (ft.) WELL CASING VOLUME: 2.15 (gal) ACTUAL VOLUME PURGED: 7 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1130</u>	<u>0</u>	<u>7.13</u>	<u>1.93</u>	<u>61.7</u>	<u>—</u>	<u>Black/4.00/5.0000/1.0.096</u>
<u>1135</u>	<u>3.5</u>	<u>7.11</u>	<u>0.95</u>	<u>60.9</u>	<u>—</u>	<u>—</u>
<u>1140</u>	<u>7.0</u>	<u>7.10</u>	<u>0.97</u>	<u>60.8</u>	<u>—</u>	<u>—</u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Pens UNIT# — DATE: 6-20-96 TIME: 0930 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

___ Displacement Pump X Other Use Bailer
___ Bailer (Teflon/PVC/SS) ___ Submersible Pump

SAMPLE METHOD

___ Bailer (Teflon/PVC/SS) ___ Dedicated
X Bailer (Disposable) ___ Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	<u>MW-3</u>	<u>1145</u>	<u>6-26-96</u>	<u>Melanesia</u>	<u>TEH-6/316x/101-0/101-MJ/MTK</u>
DUPLICATE	<u>DUP</u>	<u>1145</u>	<u>6-26-96</u>	<u>Melanesia</u>	<u>TDH-6/316x/101-0/101-MJ/MTK</u>
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: CHV PROJECT MANAGER: CHV



Environmental
Science &
Engineering, Inc.

SAMPLE COLLECTION LOG

PROJECT NAME: TRISTAR PARTNERSHIP
PROJECT NO.: 65-95-219
DATE: JUNE 26, 1996

SAMPLE LOCATION I.D.: MU-4
SAMPLER: Chris Valchert
PROJECT MANAGER: Chris Valchert

CASING DIAMETER

2"
4" _____
Other _____

SAMPLE TYPE

Ground Water
Surface Water _____
Treat. Influent _____
Treat. Effluent _____
Other _____

WELL VOLUMES PER UNIT

Well Casing I.D. (inches)	Gal/Ft.
2.0	0.1632
4.0	0.6528
6.0	1.4690

DEPTH TO PRODUCT: (ft.) PRODUCT THICKNESS: (ft.) MINIMUM PURGE VOLUME
DEPTH TO WATER: 10.77 (ft.) WATER COLUMN: 13.25 (ft.) (3 or 4 WCY): 6.25 (gal)
DEPTH OF WELL: 24.03 (ft.) WELL CASING VOLUME: 2.17 (gal) ACTUAL VOLUME PURGED: 7.0 (gal)

TIME	Volume (GAL)	pH (Units)	E.C. (Micromhos)	Temperature (F°)	Turbid. (NTU)	Other
<u>1110</u>	<u>0</u>	<u>8.25</u>	<u>1.11</u>	<u>61.5</u>	<u> </u>	<u> </u>
<u>1115</u>	<u>3.5</u>	<u>8.10</u>	<u>1.23</u>	<u>61.3</u>	<u> </u>	<u> </u>
<u>1120</u>	<u>7.0</u>	<u>8.07</u>	<u>1.32</u>	<u>61.5</u>	<u> </u>	<u> </u>

INSTRUMENT CALIBRATION

pH/COND./TEMP.: TYPE Pens UNIT# DATE: 6.2.96 TIME: 3930 BY: CHV
TURBIDITY: TYPE _____ UNIT# _____ DATE: _____ TIME: _____ BY: _____

PURGE METHOD

Displacement Pump Other Dis. Bailer
 Bailer (Teflon/PVC/SS) Submersible Pump

SAMPLE METHOD

Bailer (Teflon/PVC/SS) Dedicated
 Bailer (Disposable) Other

SAMPLES COLLECTED

SAMPLE	ID	TIME	DATE	LAB	ANALYSES
SAMPLE	<u>MU-4</u>	<u>1120</u>	<u>6.26.96</u>	<u>P. Lab</u>	<u> </u>
DUPLICATE	_____	_____	_____	_____	_____
SPLIT	_____	_____	_____	_____	_____
FIELD BLANK	_____	_____	_____	_____	_____

COMMENTS: _____

SAMPLER: Chris Valchert

PROJECT MANAGER: Chris Valchert

Appendix E

Laboratory Reports and Chain-of-Custody Documentation: Ground Water Samples

QC REPORT FOR HYDROCARBON ANALYSES

Date: 06/26/96-06/27/96

Matrix: Water

Analyte	Concentration (ug/L) Sample (#66291)			Amount Spiked	% Recovery		RPD
	MS	MSD			MS	MSD	
TPH (gas)	0.0	109.0	106.5	100.0	109.0	106.5	2.3
Benzene	0.0	9.6	9.3	10.0	96.0	93.0	3.2
Toluene	0.0	9.5	9.3	10.0	95.0	93.0	2.1
Ethyl Benzene	0.0	9.4	9.2	10.0	94.0	92.0	2.2
Xylenes	0.0	27.9	27.4	30.0	93.0	91.3	1.8
TPH (diesel)	0	152	155	150	102	103	1.4
TRPH (oil & grease)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

$$\% \text{ Rec.} = (\text{MS} - \text{Sample}) / \text{amount spiked} \times 100$$

$$\text{RPD} = (\text{MS} - \text{MSD}) / (\text{MS} + \text{MSD}) \times 2 \times 100$$

DATE JUNE 26, 1996 PAGE 1 OF 1

CHAIN OF CUSTODY RECORD

6673 AESE 337

PROJECT NAME TRISTAR PARTNERSHIP

ADDRESS 5200 TELEGRAPH AVE.

OAKLAND, CALIFORNIA

PROJECT NO. 65-95-219

SAMPLED BY CHRIS VALCHEFF

LAB NAME McKENNABELL

ANALYSES TO BE PERFORMED

MATRIX

CONTAINERS
NUMBER
OF

SAMPLE #	DATE	TIME	LOCATION	TPH GAS-BTEX/MTBE	TPH Diesel/Motor Oil									
MW-1	6-26-96	1030	OAKLAND	X	X									
MW-2	6-26-96	1050	OAKLAND	X	X									
MW-3	6-26-96	1145	OAKLAND	X	X									
MW-4	6-26-96	1125	OAKLAND	X	X									
DVP	6-26-96	1145	OAKLAND	X	X									
TRIP				X										



Environmental Science & Engineering, Inc.

4090 Nelson Avenue
Suite J
Concord, CA 94520

Phone (510) 685-4053
Fax (510) 685-5323

REMARKS
(CONTAINER, SIZE, ETC.)

3 VOA w/MLL; 1 ANAL. CR.

66354

66355

66356

66357

66358

66359

RELINQUISHED BY: (signature) [Signature]

RECEIVED BY: (signature) [Signature]

date time 6/26/96 9:05

21

TOTAL NUMBER OF CONTAINERS

- 1. [Signature]
- 2.
- 3.
- 4. 100% GOOD CONDITION
- 5. HEAD SPACE ABSENT

VOAS COG METALS OTHER

PRESERVATIVE

APPROPRIATE CONTAINERS

REPORT RESULTS TO:
CHRIS VALCHEFF

SPECIAL SHIPMENT REQUIREMENTS
COLD STORAGE / TRANSPORT

SAMPLE RECEIPT

INSTRUCTIONS TO LABORATORY (handling, analyses, storage, etc.):

STANDARD TURN AROUND TIME

CHAIN OF CUSTODY SEALS

REC'D GOOD CONDITN/COLD [Signature]

CONFORMS TO RECORD [Signature]