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RESNA
Working to Restore Nature

REPORT
SUBSURFACE ENVIRONMENTAL INVESTIGATION

Former Chevron Service Station No. 9-3575
5775 Broadway
Oakland, California

Muhammad Ali next door site

Prepared for:

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January 6, 1993

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REPORT
SUBSURFACE ENVIRONMENTAL INVESTIGATION

Former Chevron Service Station No. 9-3575
5775 Broadway
Oakland, California

for

Chevron U.S.A. Products Company

1.0 INTRODUCTION

At the request of Chevron U.S.A. Products Company (Chevron), RESNA Industries Inc. (RESNA) performed a subsurface environmental investigation at Former Chevron Service Station No. 9-3575 located at 5775 Broadway, Oakland, California (Plate 1). Work RESNA performed during this investigation included drilling three soil borings, constructing groundwater monitoring wells in the borings, sampling soil and groundwater, chemically analyzing selected soil and groundwater samples, and preparing this report. The purpose of this investigation was to evaluate whether petroleum hydrocarbons are present in soil and ground water below the site at the locations of the borings.

2.0 BACKGROUND

The site located at 5775 Broadway in Oakland was formerly a Standard Oil service station. Information in Chevron's files indicates that four 1,000-gallon, one 7,500-gallon, and one 6,000-gallon underground gasoline storage tanks were removed from the site in April 1973. The site was later demolished, and is now an undeveloped lot.

2.1 Previous Work

Other consultants previously performed subsurface investigations at the site in January, March, November, and December, 1991, and June 1992. Work performed during these previous investigations included (1) excavating approximately 114 tons of soil containing oil and grease near the west corner of the site; (2) drilling six soil borings to bedrock (depths varied between six and17.5 feet below ground surface); (3) excavating additional soil at four areas to remove oil-and-grease-bearing soil detected during drilling; and (4) characterizing and disposing excavated soil at the Browning-Ferris Industries (BFI) landfill in Livermore, California. A total of 406 cubic yards of oil--and-grease-bearing soil was excavated from the site during previous investigations.

Following excavation, loose debris was cleaned from pit sidewalls and bottoms. This material was also disposed at the BFI landfill. We understand that total petroleum hydrocarbons as gasoline (TPHg), and benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) were not detected in any of the samples collected from the six soil borings during drilling. We understand that total oil and grease (TOG) was not detected in each soil sample collected following the completion of soil excavation. Consultant reports presenting the results of previous investigations were submitted to Chevron.

3.0 FIELD INVESTIGATION

3.1 Site-Specific Health and Safety Plan/ Background Review/ Permitting

RESNA prepared a Site-Specific Health and Safety Plan required by the Occupational Health and Safety Administration (OSHA) Standard "Hazardous Waste Operations and Emergency Response" guidelines (29 CFR 1910.120). The Site-Specific Health and Safety Plan (HSP) was prepared by RESNA personnel, following a review of site conditions. The HSP was reviewed by the project manager, RESNA field personnel, and subcontractor personnel before beginning field operations at the site.

3.2 Soil Borings and Sampling

All applicable permits pertaining to drilling soil borings and installing groundwater monitoring wells were obtained prior to drilling from the Alameda County Flood Control & Water Conservation District, Zone 7. Copies of permits obtained by RESNA are in Appendix A.

During field operations, RESNA personnel followed standard operating procedures for drilling soil borings and installing groundwater monitoring wells. Standard operating procedures are presented in Appendix B. At Chevron's request, a geologist from RESNA was at the site on August 20 and 21, 1992, to observe Westex Drilling of West Sacramento, California, drill three soil/rock borings (B-1 through B-3) using a truck-mounted air-rotary drill rig. An air-rotary drill rig was used because indurated bedrock was known to occur at the site. Boring locations are shown on the Site Plan (Plate 2). Borings B-1 and B-3 were drilled to an approximate depth of 43 feet below ground surface; boring B-2 was drilled to an approximate depth of 38 feet below ground surface. Soil sampling equipment was washed in a solution of Alconox between samples to reduce the possibility of cross-contamination. Where appropriate, the field geologist logged the earth materials encountered during drilling using the Unified Soil Classification System. Materials encountered are presented on the boring logs (Appendix C). Drill cuttings were placed on plastic sheeting pending characterization and disposal .

During drilling, soil samples were collected at five-foot intervals and at noticeable stratigraphic changes using a 2- inch inside diameter, California-modified sampler lined with cleaned brass sleeves. The sampler was driven 18 inches ahead of the drill bit at each sample point. Soil samples were screened in the field using a photoionization detector (PID). Hydrocarbons were not detected by the PID in any of the soil samples collected during this investigation. Results of the PID screening are on the boring logs. At each sampling point, one sample was sealed with

aluminum foil, capped, taped with Teflon tape, and labeled. Samples were placed on ice in an insulated container for delivery under chain-of-custody protocol to a California-certified laboratory.

3.3 Monitoring Well Construction

Monitoring wells MW-1 through MW-3 were installed in borings B-1 through B-3, respectively. Monitoring wells were constructed of flush -threaded, 2-inch diameter, schedule 40 PVC casing and 0.020-inch-slot well screen. The well screen of monitoring wells MW-1 through MW-3 was installed between depths of 27-43 feet, 18-38 feet, and 23-43 feet, respectively. Well construction details are on the boring logs in Appendix D. A sand filter was placed around each well screen to a height of approximately 2 feet above the top of the screen. The wells were sealed with a two-feet-thick bentonite plug to prevent cement from entering the sand pack; the remaining annular space was filled to grade with a cement/bentonite slurry. At the request of Chevron, wellheads were completed inside a steel cylinder "stovepipe" extending about three feet above grade.

3.4 Monitoring Well Development and Sampling

Monitoring wells MW-1, MW-2, and MW-3 were developed by surging and pumping on August 26, 1992. The purpose of well development is to remove fine-grained sediments from the well and sand pack, produce an evenly distributed sand filter pack, and improve ground-water flow to the well. Fine-grained sediments were removed from each well by pumping. Development water was retained on site in a DOT-approved 55-gallon drum pending disposal.

On November 10, 1992, RESNA personnel measured the depth-to-water in each well using an interface probe. The interface probe consists of an optical sensor and electrical conductivity probe which distinguishes between water and petroleum products. Free phase petroleum hydrocarbons were not detected in any of the wells. Before collecting ground-water samples, RESNA personnel purged approximately three well casing volumes of water from the wells using a bailer. Ground water samples were collected following groundwater recovery for a time sufficient to allow collection of representative samples. Ground-water samples were collected using a Teflon bailer cleaned with a solution of Alconox and rinsed with tap water and distilled water. Immediately before collection of water samples, a distilled water rinsate blank was collected from the Teflon bailer. A trip blank was also prepared and accompanied the ground-water samples to the analytical laboratory. Each sample was preserved with hydrochloric acid, labeled, and placed on ice in an insulated container for delivery under chain-of-custody protocol to a California-certified laboratory. Purge water generated during ground-water sampling was stored in a DOT-approved purge water trailer and transported to Chevron's Refinery in Richmond, California for recycling.

At Chevron's request, a technician from RESNA returned to the site on November 25, 1992, to resample groundwater from monitoring well MW-3. On that date our technician collected a groundwater sample from well MW-3 using the methods described above.

4.0 LABORATORY ANALYSES

A limited number of soil/rock samples were analyzed because (1) drilling and sampling occurred primarily in a bedrock environment; (2) no hydrocarbons were detected by the PID during drilling; and (3) imported fill was present over much of the site. Soil samples selected for laboratory analysis included samples collected from a depth of 20.9 feet in boring B-1, 22.8 feet in boring B-2, and 30.5 feet in boring B-3. Each selected sample was analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd) using modified Environmental Protection Agency (EPA) Method 8015, benzene, toluene, ethylbenzene and xylenes (BTEX) using EPA Method 8020, halogenated volatile organics (HVO's) using EPA Method 8010, total oil and grease using Standard Method 5520F, and the metals cadmium, chromium, lead, nickel, and zinc using EPA Method 6010. One soil sample was also analyzed for organic lead using the California Department of Health Services (DHS) method described in the LUFT manual. Ground-water samples were analyzed for TPHg and TPHd, BTEX, and TOG using EPA Methods 8015 (modified) and 602, and Standard method 5520F, respectively.

5.0 SITE CONDITIONS

5.1 Geology and Hydrogeology

Sandy gravel fill was encountered at the locations of borings B-1 and B-2; fill thickness ranged from 2 to 5-1/2 feet. A green-to-brown, very dense, indurated mudstone was encountered underlying the fill at the location of borings B-1, and at the surface at the location of boring B-3. At the location of boring B-1, a green, fractured metamorphic rock (possibly serpentinite) was encountered underlying the mudstone at a depth of about 25 feet and was present to the total depth of the boring. At the location of boring B-2 a dark brown gravelly sand was present below surface fill from depths between 5-1/2 to 10-1/2 feet. Weathered, green very dense bedrock was encountered below the sandy gravel and extended to the total depth of the boring. Weathering of bedrock had produced varying amounts of clay, sand and gravel. At the location of boring B-3 mudstone extended from the surface to the total depth of the boring with local lenses of sandy clay to clayey gravel. Descriptions of the materials encountered are on the boring logs in Appendix D. During drilling, ground water was first encountered in boring B-1 at a depth of about 41 feet and in boring B-2 at a depth of about 27 feet. Groundwater was not encountered during drilling of boring B-3. However, following well installation, on November 10, 1992, groundwater was present in monitoring well MW-3 at an approximate depth of 33 feet. The presence of groundwater in monitoring well MW-3 is probably due to groundwater seepage through bedrock fractures. On November 10, 1992, depth to groundwater in monitoring wells MW-1 and MW-2 was approximately 15 and 16 feet, respectively.

5.2 Groundwater Gradient

The elevation of each wellhead with respect to mean sea level was surveyed by Moldenhauer Engineering Company (Moldenhauer) of Davis, California (licensed land surveyor). Because groundwater was not encountered during drilling of boring B-3, at Chevron's request, Moldenhauer also surveyed the location and elevation of one groundwater monitoring well (SHELL-3) at a Shell service station adjacent to the site. Well survey data are in Appendix C.

These data were combined with the depths to groundwater measured on November 10, 1992, to evaluate the elevation of the ground-water surface in each well and the ground-water gradient across the site. A map of the potentiometric surface at the site is presented in Figure 3. Because the groundwater elevation in monitoring well MW-3 was anomalous (approximately 17 feet lower than other wells), it was not used to compile Plate 3. Data used to compile the Potentiometric Map is presented in Table 1. Based on these data, the interpreted groundwater flow direction at the site is to the southeast with an evaluated gradient of approximately 0.013 feet per foot.

6.0 ANALYTICAL RESULTS

6.1 Soil

Results of all soil samples analyses are summarized in Table 2. Laboratory analytical results are included in Appendix E. TPHg, TPHd, BTEX, and TOG were not detected in any of the chemically analyzed soil samples. Six parts per billion chloroform was detected in one soil sample. Metals were detected at the concentrations indicated in Table 1.

6.2 Groundwater

TPHg and BTEX were not detected in ground-water samples collected from monitoring wells MW-1 and MW-2. On November 10, 1992, a TPHg concentration of 53 parts per billion (ppb) and a benzene concentration of 1.7 ppb was detected in the ground-water sample collected from monitoring well MW-3. On November 25, 1992, TPHg and BTEX were not detected in the groundwater sample collected from monitoring well MW-3. Results of all ground-water sample analyses are summarized in Table 3; laboratory analytical reports are included in Appendix D.

7.0 LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this investigation was performed. This investigation was conducted solely for the purpose of evaluating environmental conditions of soil and ground water beneath the site. No soil engineering or geotechnical recommendations are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this investigation is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of investigation.

8.0 REFERENCES

RESNA Industries Inc., July 27, 1992, *Work Plan for Evaluation of Soil and Groundwater at Chevron Service Station No. 9--3575, 5775 Broadway, Oakland, California*. RESNA 17046-1W

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Table 1

SOIL ANALYTICAL RESULTS
Chevron Service Station No. 9-3575
5775 Broadway
Oakland, California

Analyte	B-1 20.9	B-2 22.8	B-3 30.5	A,B,C,D
TPHg	<1	<1	<1	<1
TPHd	<1	<1	1	9
Benzene	<0.005	<0.005	<0.005	<0.005
Toluene	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005
Xylenes	<0.005	<0.005	<0.005	<0.005
TOG	<50	<50	<50	<50
HVO	ND	ND	6*	NA
Cadmium	<1	<1	<1	NA
Chromium	130	160	620	NA
Zinc	<20	<20	70	NA
Lead	<5	<5	<5	NA
Nickel	60	190	730	NA

Notes:

All results in parts per million (ppm)

TPHg = Total Petroleum Hydrocarbons as Gasoline.
TPHd = Total Petroleum Hydrocarbons as Diesel.
TOG = Total Oil and Grease
HVO = Halogenated Volatile Organics.
* = Chloroform
ND = Not detected; see laboratory analytical reports for detection limits of individual compounds
NA = Not analyzed
< = Less than indicated detection limit established by the laboratory

Table 2

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GROUNDWATER ELEVATION DATA
Chevron Service Station No. 9-3575
5775 Broadway
Oakland, California

WELL NUMBER	DATE	TOC	DTW	ELEV./P.S.
MW-1	11-10-92	189.13	15.53	173.60
MW-2	11-10-92	189.82	16.86	172.96
MW-3	11-10-92	189.05	33.37	155.68
SHELL 3	11-10-92	177.51	4.42	173.09

Notes:

Elevations in feet
TOC = Top-of-Casing elevation feet above sea level
DTW = Depth to Water
ELEV./P.S. = Groundwater/Potentiometric Surface elevation above mean sea level.

Table 3

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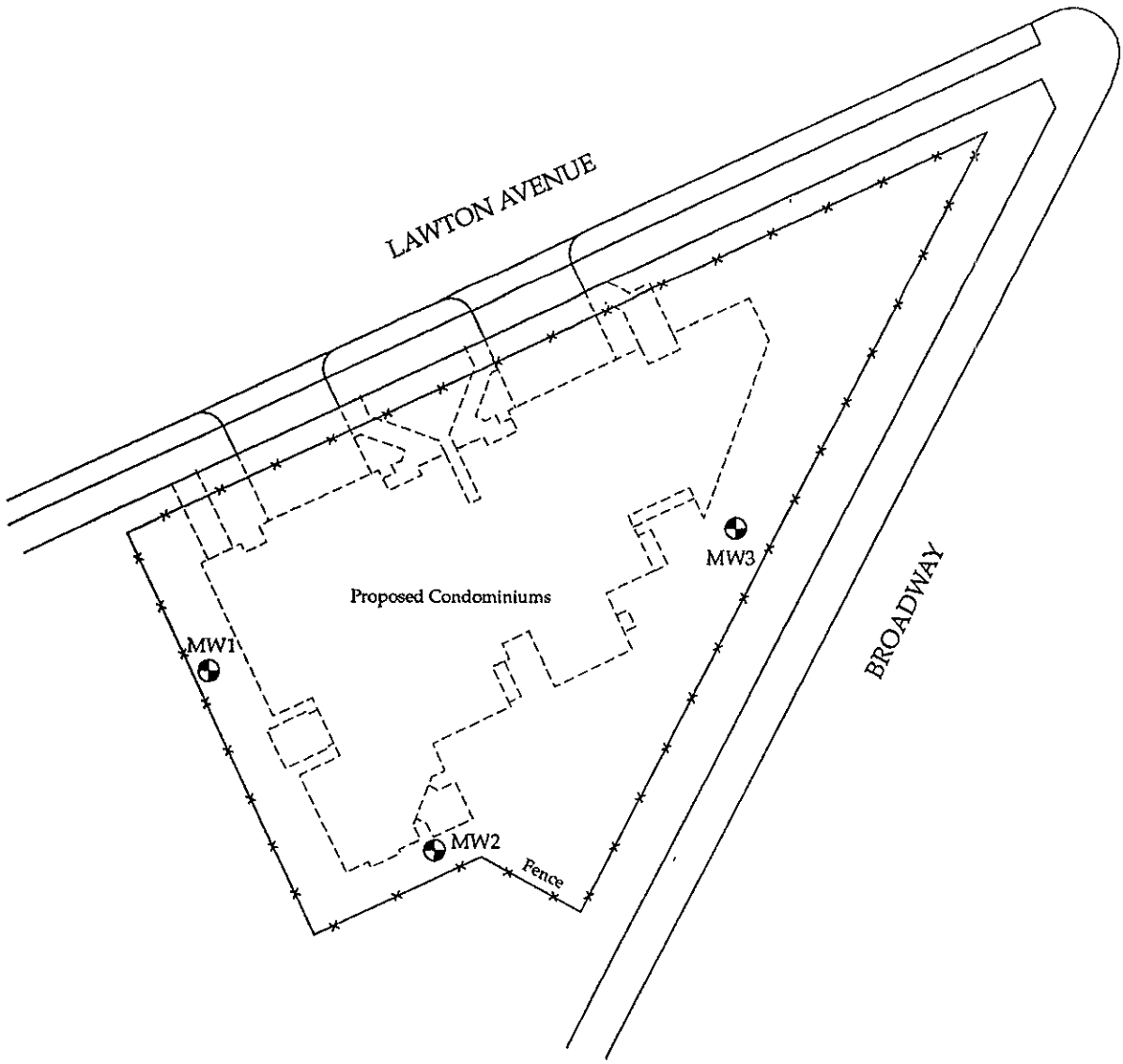
GROUNDWATER ANALYTICAL RESULTS
Chevron Service Station No. 9-3575
5775 Broadway
Oakland, California

Sample Number	Sample Date	TPHg	B	T	E	X	TOG	HVO
MW-1	11/10/91	<50	<0.5	<0.5	<0.5	<0.5	<5000	ND
MW-2	11/10/91	<50	<0.5	<0.5	<0.5	<0.5	<5000	ND
MW-3	11/10/91	53	1.7	0.6	<0.5	0.8	<5000	ND
MW-3	11/25/91	<50	<0.5	<0.5	<0.5	<0.5	<5000	NA

Notes:

All results in parts per billion (ppb)

TPHg	=	Total Petroleum Hydrocarbons as Gasoline.
B	=	Benzene
E	=	Ethylbenzene
T	=	Toluene
X	=	Total Xylenes
TOG	=	Total Oil and Grease
HVO	=	Halogenated Volatile Organics
ND	=	Not detected; see laboratory analytical reports for detection limits of individual compounds
<	=	Less than indicated detection limit established by the laboratory



SHELL 3

0 30' 60' 90'

N

Map Source: site map by Riedel Environmental Services, Inc. and well locations survey by Moldenhauer Engineering Company

12 / 92

EXPLANATION

MW-3 Monitor Well location (RESNA, November 1992)

SHELL 3 Off-site monitoring well (Weiss Associates)

Site Map

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

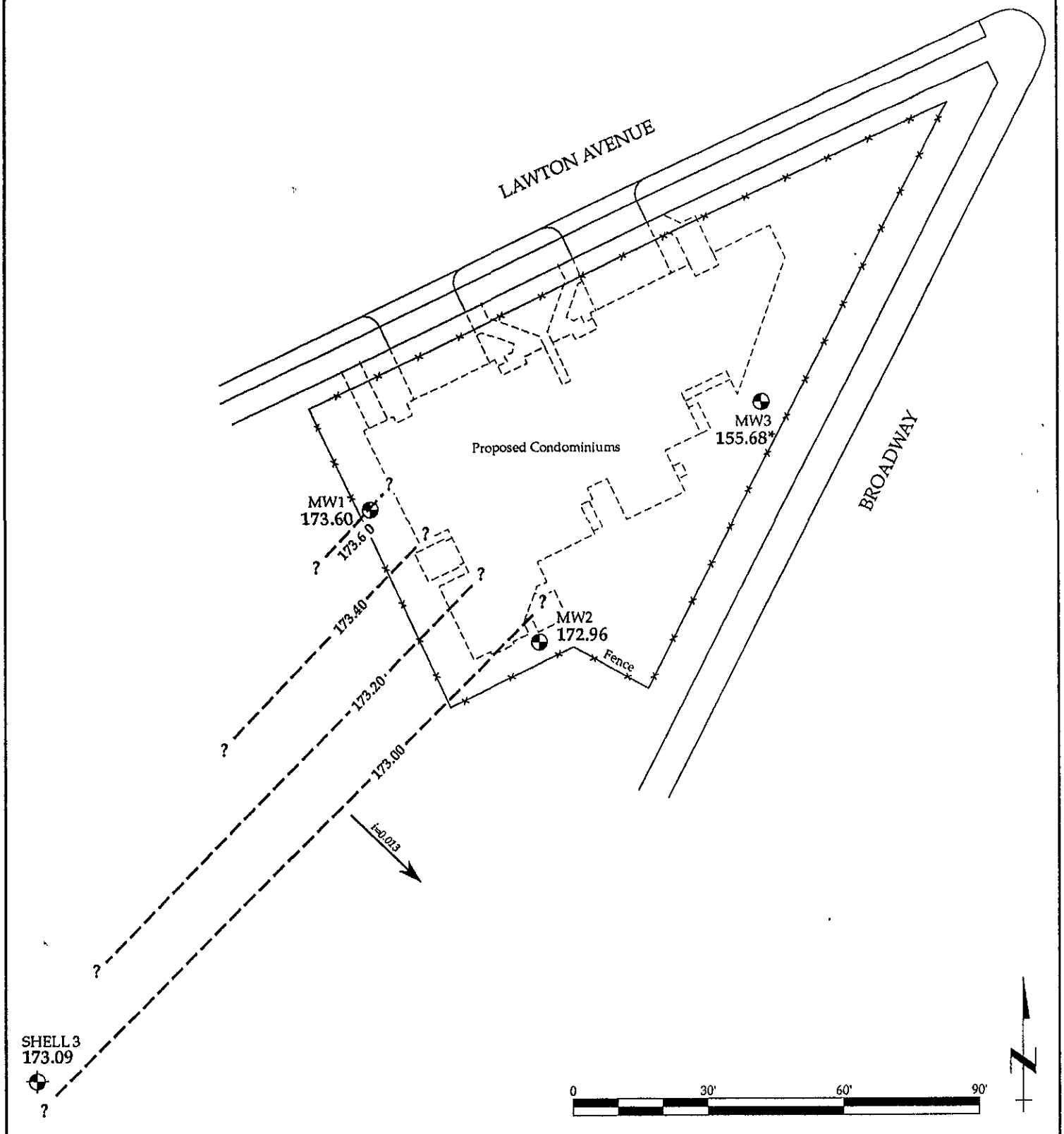
PLATE

2

Map Source: site map by Riedel Environmental Services, Inc. and well locations survey by Moldenhauer Engineering Company

RESNA

17046.01



Map Source: site map by Riedel Environmental Services, Inc. and well locations survey by Moldenhauer Engineering Company

12 / 92

EXPLANATION

MW-1	Monitor Well location (RESNA, November 1992)
SHELL 3	Off-site monitoring well (Weiss Associates)
173.09	Groundwater elevation, feet above mean sea level
*	Anomalous groundwater surface elevation
173.00 — — ·?	Groundwater elevation contour, feet above mean sea level, dashed where inferred, queried where uncertain
i=0.013	Estimated direction of groundwater flow with evaluated gradient

Potentiometric Surface of Shallow Groundwater
November 10, 1992

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

PLATE

3

RESNA

17046.01

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE ♦ PLEASANTON, CALIFORNIA 94588 ♦ (510) 484-2600

12 August 1992

Resna
73 Digital Drive
Novato, Ca 94949

Gentlemen:

Enclosed is drilling permit 92384 for a monitoring well Construction project at 5775 Broadway in Oakland for Chevron, U. S. A.

Please note that permit condition A-2 requires that a well construction report be submitted after completion of the work. The report should include drilling and completion logs, location sketch, and permit number.

If you have any questions, please contact Wyman Hong or me at 484-2600.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer

WH:dkp

RECEIVED
AUG 13 1992
Approved
Job #
Copy To

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 5775 Broadway
Oakland, California

CLIENT
Name Chevron U.S.A.
Address 2410 Camino Ramon Phone
City San Ramon Zip 94583

APPLICANT
Name RESNA Industries
Address 73 Digital Drive Phone 415 382 7400
City Novato Zip 94949

TYPE OF PROJECT
Well Construction
Cathodic Protection ___
Water Supply ___
Monitoring X
Geotechnical Investigation
General ___
Contamination ___
Well Destruction ___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ✓ Auger ___
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 552198

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth 5 ft. Number 3

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

ESTIMATED STARTING DATE 8-19-92
ESTIMATED COMPLETION DATE 8-19-92

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

APPLICANT'S SIGNATURE Justin Lowe Date 8-6-92

FOR OFFICE USE

PERMIT NUMBER 92384
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 and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

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 6 Aug 92
Wyman Hong

31992

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STANDARD OPERATING PROCEDURES
RE: SOIL SAMPLING
SOP-2

Soil samples for chemical analysis are collected in thin-walled brass tubes, typically 6 inches long and 2 inches or 2.5 inches outside diameter. Three of these tubes and a spacer tube are set in a 2 inch or 2.5 inch inside diameter, 18 inch long split-barrel sampler.

The split-barrel sampler is driven its entire length either hydraulically or using a 140-pound drop hammer. The sampler is extracted from the borehole and the brass tubes, containing the soil samples, are removed. Upon removal from the sampler, the selected brass tubes are immediately trimmed and capped with aluminum foil and plastic caps. They are then hermetically sealed with duct tape, labeled and refrigerated for delivery, under chain-of-custody, to the analytic laboratory. These procedures minimize the potential for cross-contamination and volatilization of volatile organic compounds (VOC) prior to chemical analysis.

One soil sample collected at each sampling interval is analyzed in the field using either a photoionization detector (PID), a flame ionization detector (FID), or an explosimeter. The purpose of this field analysis is to qualitatively determine the presence or absence of hydrocarbons and to establish which soil samples will be analyzed at the laboratory. The soil sample is sealed in a zip-lock plastic bag and placed in the sun to enhance volatilization of the hydrocarbons from the sample. The data is recorded on the drill logs at the depth corresponding to the sampling point.

Other soil samples are collected to document the stratigraphy and estimate relative permeability of the subsurface materials. All drilling and sampling equipment are steam-cleaned prior to use at each site and between boreholes to minimize the potential for cross-contamination.

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STANDARD OPERATING PROCEDURES
RE: GROUNDWATER PURGING AND SAMPLING
SOP-4

Prior to water sampling, each well is purged by evacuating a minimum of three well-casing volumes of groundwater or until the temperature, conductivity, and pH of the discharge water stabilizes. If a well is purged dry before three casing volumes have been removed, the sample will be taken after the well has recovered to within 80 percent of the static water level.

The sampling equipment consists of either a teflon or steam-cleaned PVC bailer, a stainless steel bladder pump with a teflon bladder, or submersible stainless steel pump. If the sampling system is dedicated to the well, then the bailer is made of teflon, and the bladder pump is PVC with a polypropylene bladder. A submersible stainless steel and teflon electric pump will be used for purging larger volume wells. Forty milliliter (ml) glass volatile-organic-analysis (VOA) vials, with teflon septa, are used as sample containers. For other analyses the appropriate EPA approved sampling container is used.

The groundwater sample is decanted into each VOA vial in such a manner that there is a meniscus at the top of the vial. The cap is quickly placed over the top of the vial and securely tightened. The VOA vial is then inverted and tapped to see if air bubbles are present. If none are present, the sample is labeled and refrigerated for delivery under chain-of-custody to the laboratory. Label information should include a sample identification number, job identification number, date, time, type of analysis requested, and the sampler's name.

For quality control purposes, a duplicate water sample is collected from each well. This sample is put on hold at the laboratory. A trip blank is prepared at the laboratory and placed in the transport cooler. It remains with the cooler and is analyzed by the laboratory along with the groundwater samples. A field blank is prepared in the field when sampling equipment is not dedicated. The field blank is prepared after a pump or bailer has been steam-cleaned, prior to use in a second well, and is analyzed along with the other samples. The field blank demonstrates the quality of in-field cleaning procedures to prevent cross-contamination.

To minimize the potential for cross-contamination between wells, all the well-development and water sampling equipment that is not dedicated to a well is steam-cleaned between each well. As a second precautionary measure, wells will be sampled in order of least to highest concentrations as established by previous analyses.

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STANDARD OPERATING PROCEDURES
RE: ROTARY DRILLING MONITORING WELL INSTALLATION AND DEVELOPMENT
SOP-7

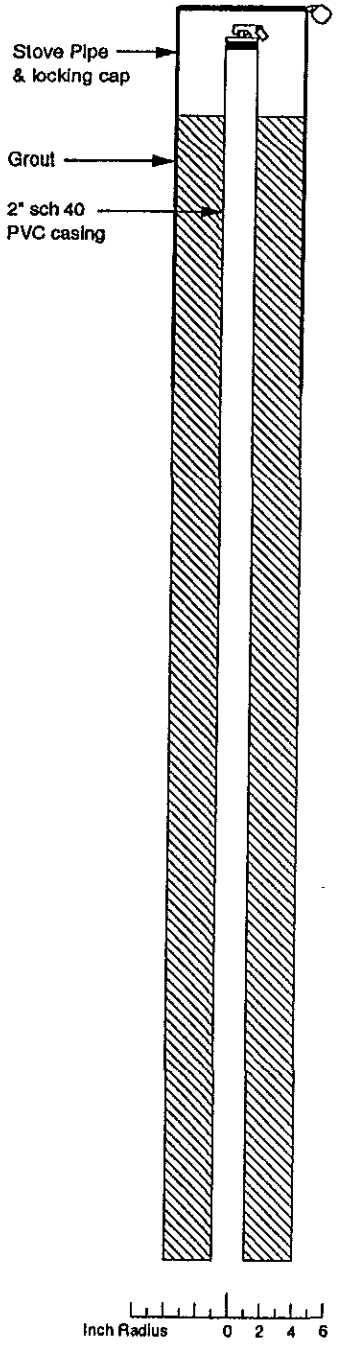
Stratigraphic test holes for monitoring wells may be drilled using truck-mounted drill rigs capable of: air and/or mud-rotary drilling, and continuous wire-line coring and/or drilling with tri-cone roller or fixed-blade drag bits. Generally, rotary drilling is used when conventional auger drilling is initially not possible or becomes no longer possible. Various drilling fluids (muds or air), are used to keep the hole from caving and to remove cuttings. These are chosen according to the formations expected to be encountered and the nature of the monitoring program. Samples may be collected directly from cores. A geologist from Western Geologic Resources continuously logs each test hole during drilling, and constantly checks drilling returns for odors. All drilling equipment is steam cleaned between test holes to prevent cross-contamination.

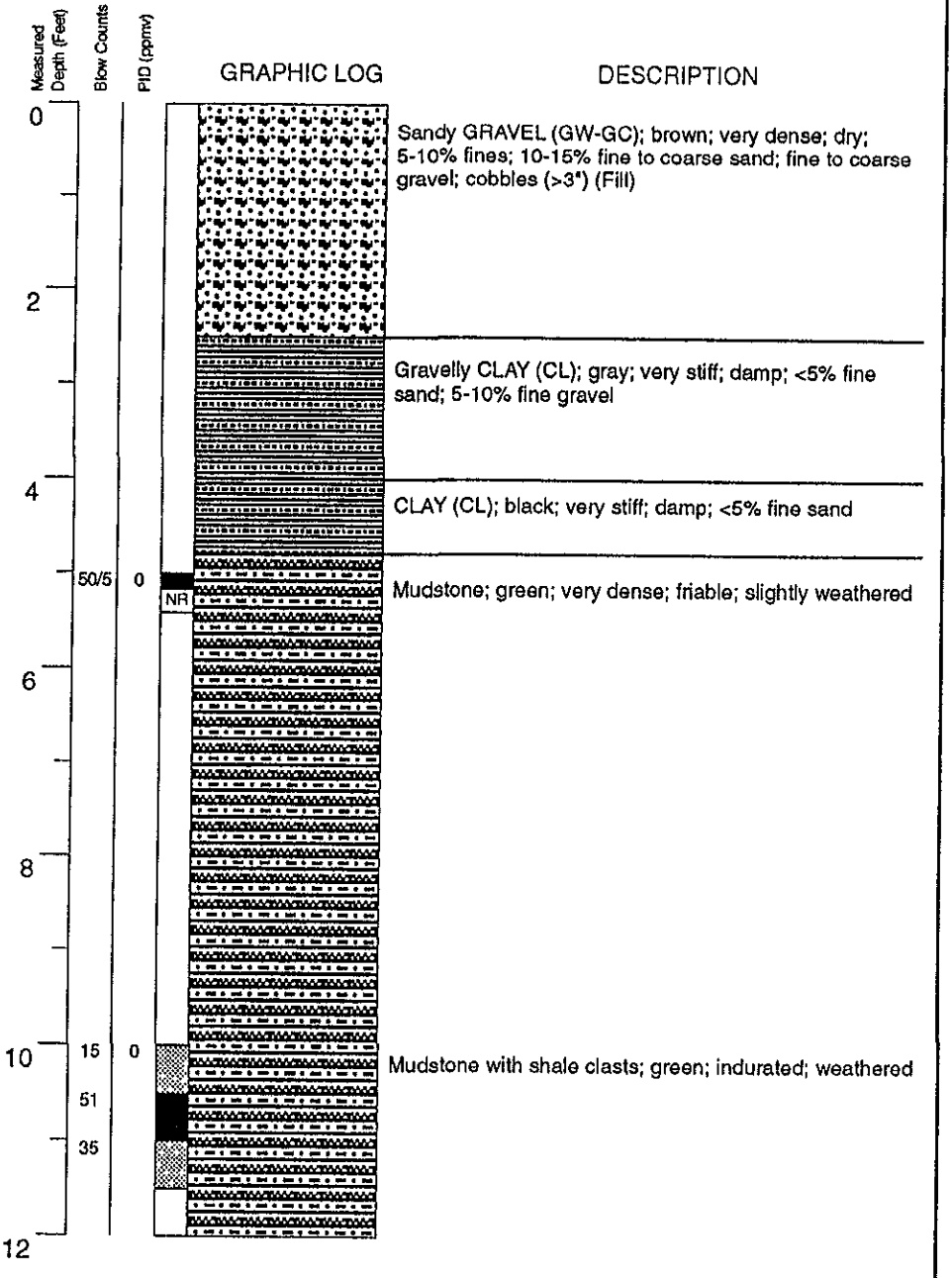
Frequently, hollow-stem augers are used to drill and sample to a minimum depth, or to auger refusal. The augers can be left in place as temporary surface casing. The center plug is then removed and coring is carried out through the augers. Alternatively, a shallow conductor casing or surface casing may be set by drilling to a desired depth with a large diameter bit, setting the casing, and proceeding with the coring. After total depth is reached, the test hole may be geophysically logged and/or hydraulically tested. If the casing is not to be set at the bottom of the hole, the lower portion of the hole may be grouted or backfilled according to well installation guidelines. Next, the test hole is drilled-out (reamed) after removal of the hollow-stem augers or conductor casing, if necessary, with a bit that is a minimum of 4 inches larger than the outside diameter of the well casing.

Upon reaching total depth for the reamed portion of the hole, the drilling fluid is circulated to remove cuttings and thinned as necessary. The selected casing is then placed down the hole. Monitoring wells are cased with threaded, factory-perforated and blank casing. No solvents or cements are used to assemble the casing. Centering devices may be affixed to the casing if there is concern that an even distribution of filter material and grout within the borehole annulus will not be attained. The well casing is thoroughly washed and steam-cleaned prior to installation. All recoverable drilling fluids and cuttings are collected for temporary storage and then are disposed of properly depending on analytic results.

After setting the casing, sand or gravel filter material is poured or tremied in to fill the annular space from the bottom of the hole to the top of the perforated interval. A 1- to 2-foot thick bentonite plug is placed above this filter material to prevent grout from infiltrating down into the filter material. Neat cement, containing about 5% bentonite, is then tremied into the annular space from the top of the bentonite plug to the surface. A lockable, water-tight cap is placed on each wellhead. Traffic-rated Christy boxes are installed around the wellhead for wells in parking lots and driveways while steel stove pipes are usually set over wellheads in landscaped areas.

After installation, the wells are thoroughly developed to remove residual drilling materials from the wellbore, and to improve well performance by removing any fine material in the filter pack that can pass from the formation into the well. Well development techniques used include pumping, bailing, surging, swabbing, jetting, flushing, and airlifting. All development water is collected for temporary storage in 55-gallon drums, and is then properly disposed of depending on analytic results. To assure that cross-contamination does not occur between wells during drilling and development, all development equipment is steam-cleaned prior to introduction into a new well.





continues

Logged by:	Justin Power	Drilling Company:	Westex	Well Head Completion:	Stove pipe & locking cap
Project Mgr:	Barry Marcus	Drilling Method:	Air Rotary	Type of Sampler:	2" " split barrel
Dates Drilled:	8/20/92–8/21/92	Driller:	Randy	TD (Total Depth):	43.0 ft.

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

- Contacts: Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery

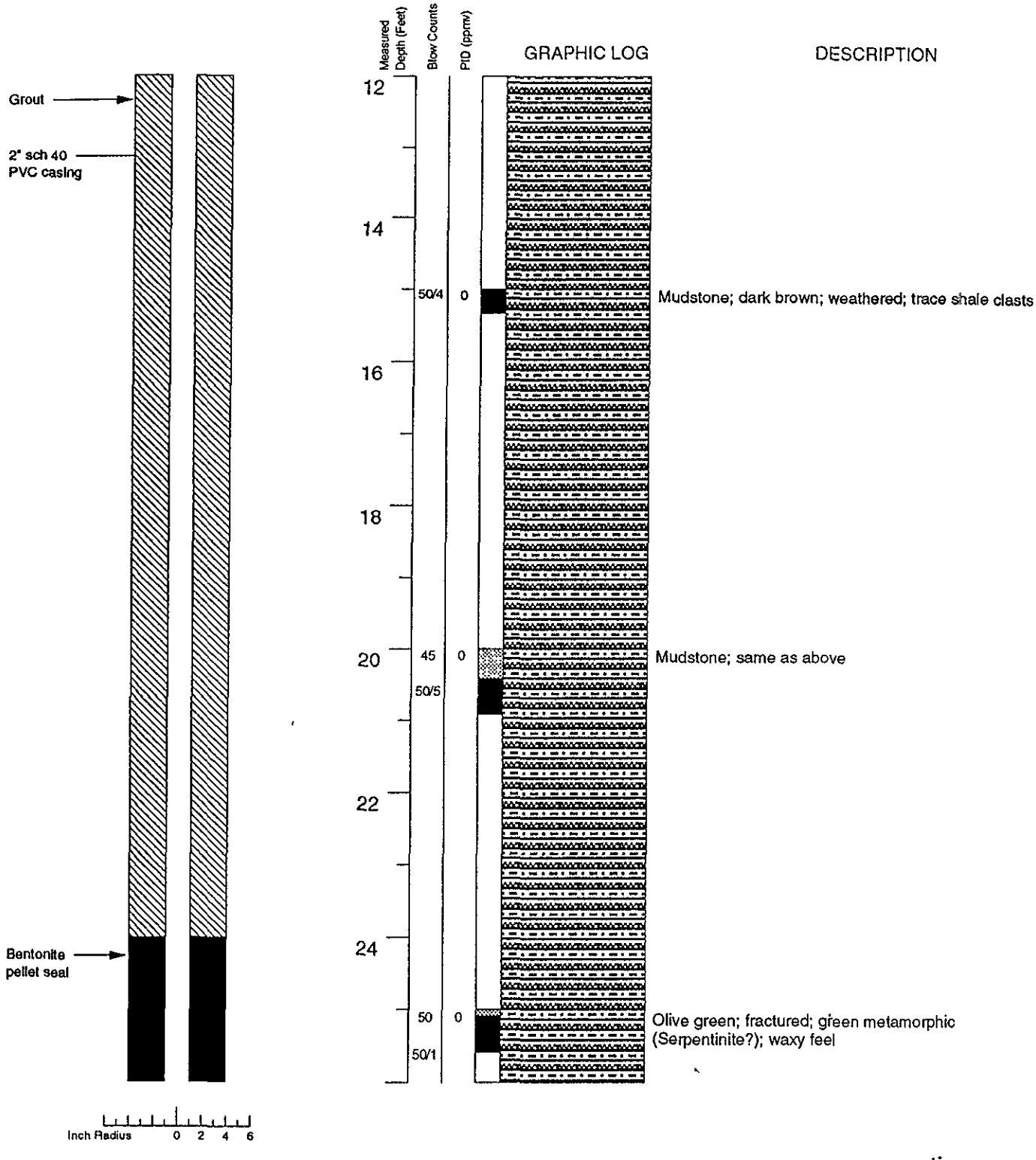
Boring Log
Monitor Well 1 (Boring B-1)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
1

RESNA

17046.01



continues

EXPLANATION

- Water level during drilling
- Water level in completed well
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All symbols and definitions may not be applicable

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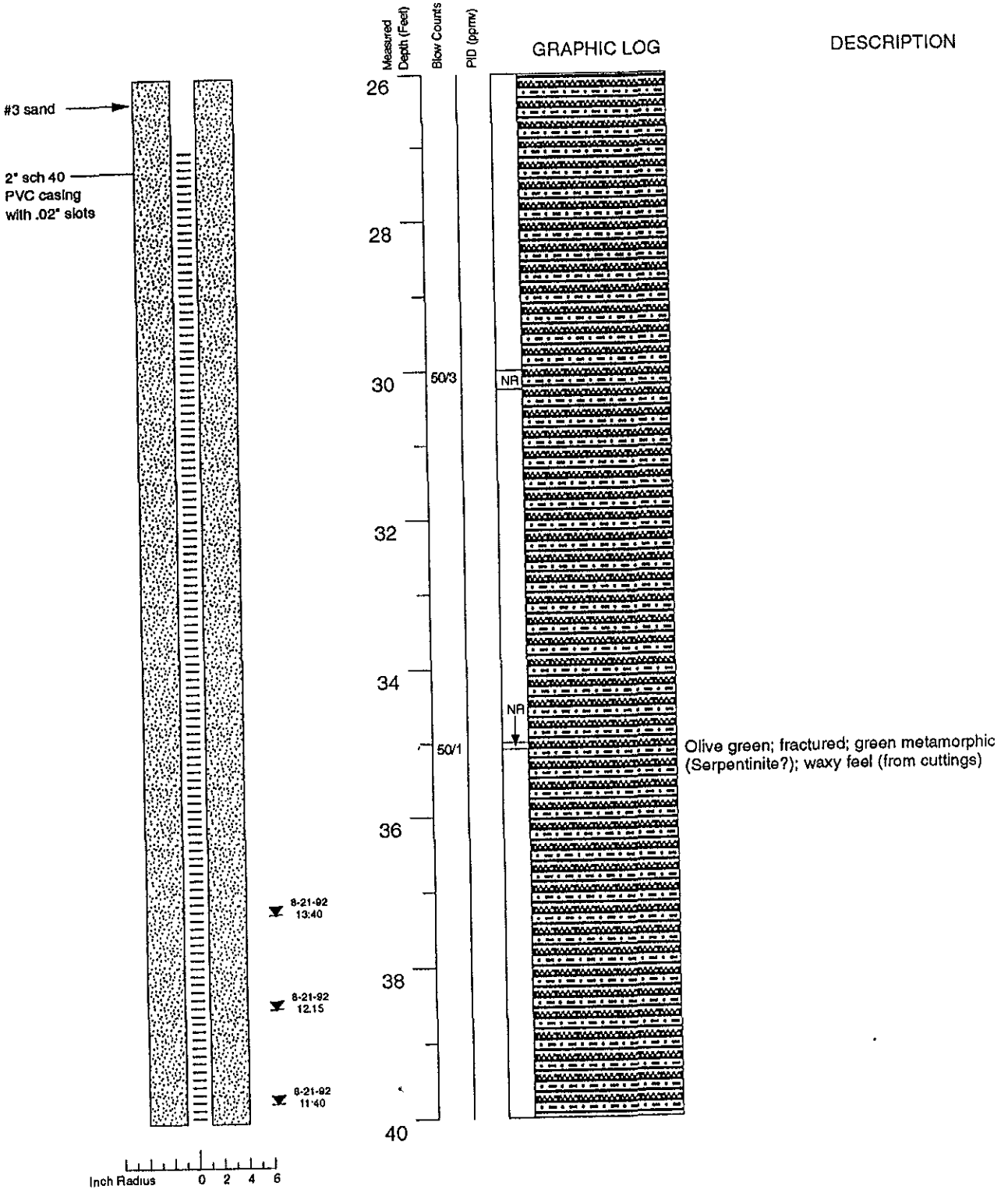
Monitor Well 1 (Boring B-1)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
1

RESNA

17046.01



continues

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
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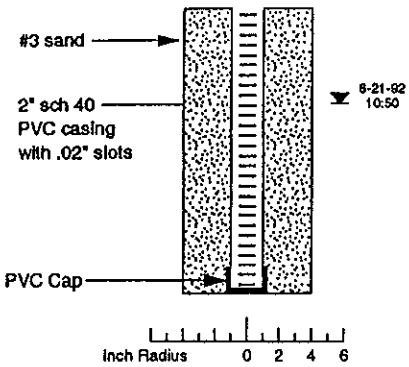
All symbols and definitions may not be applicable

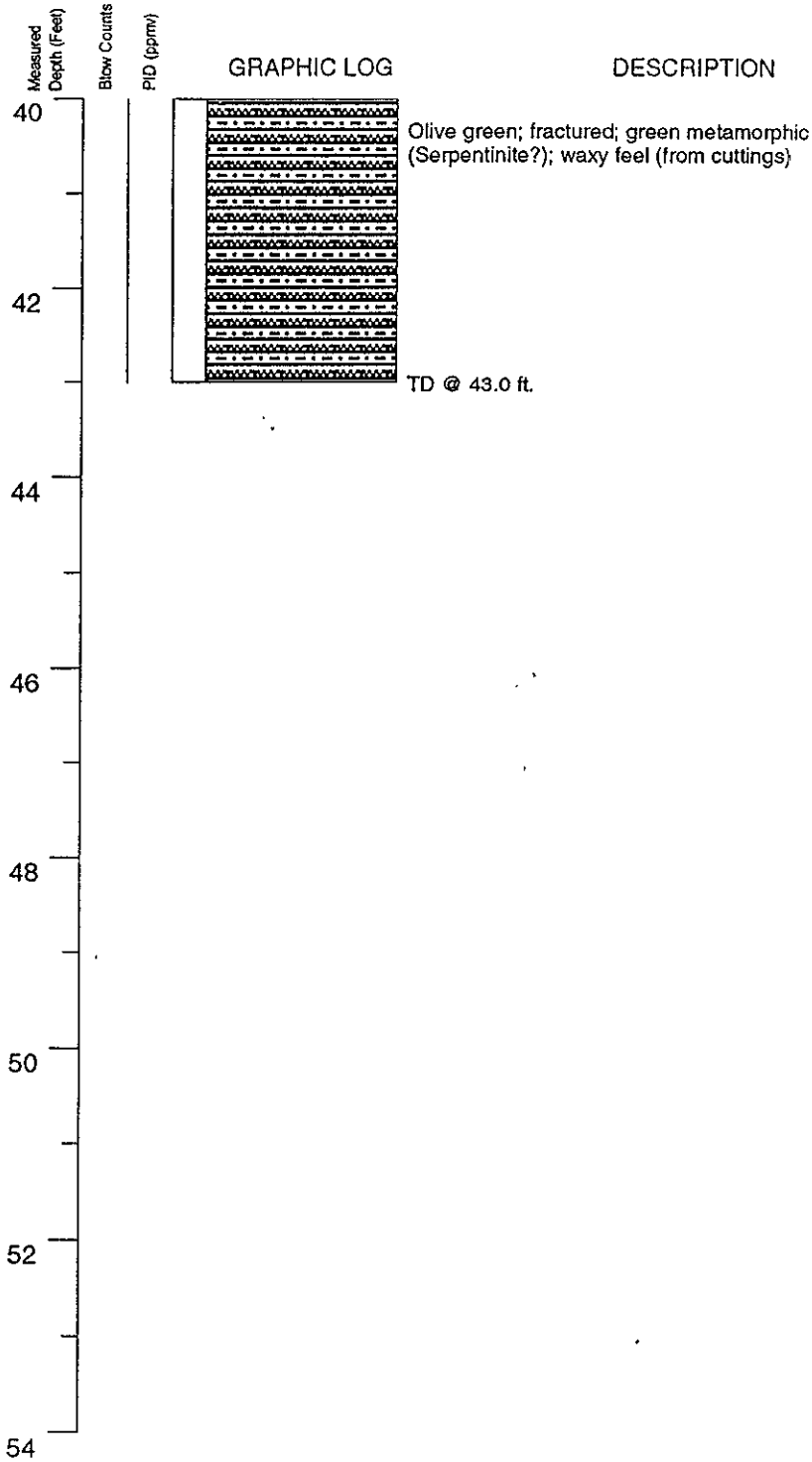
Boring Log
Monitor Well 1 (Boring B-1)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
1

17046.01





EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

Contacts:
- Solid where certain
- Dotted where approximate
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- Hachured where gradational

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- NR — No recovery

Boring Log
Monitor Well 1 (Boring B-1)

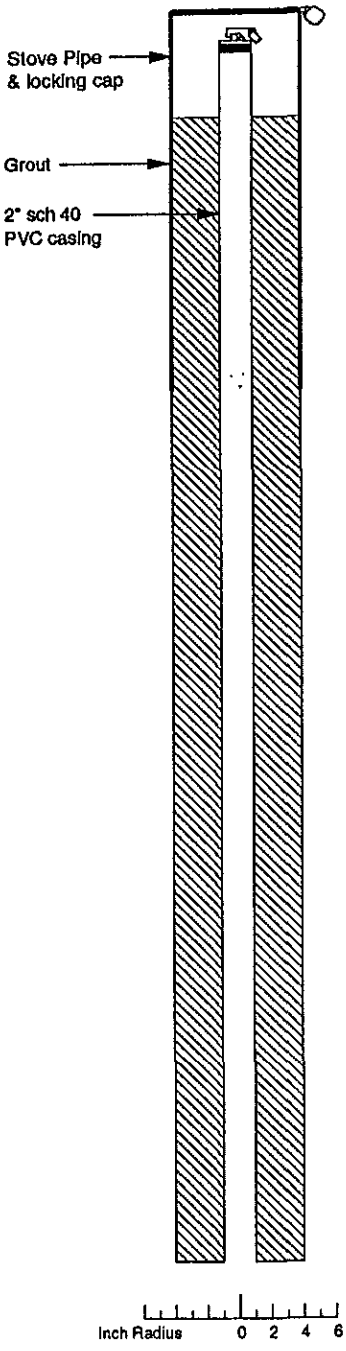
Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

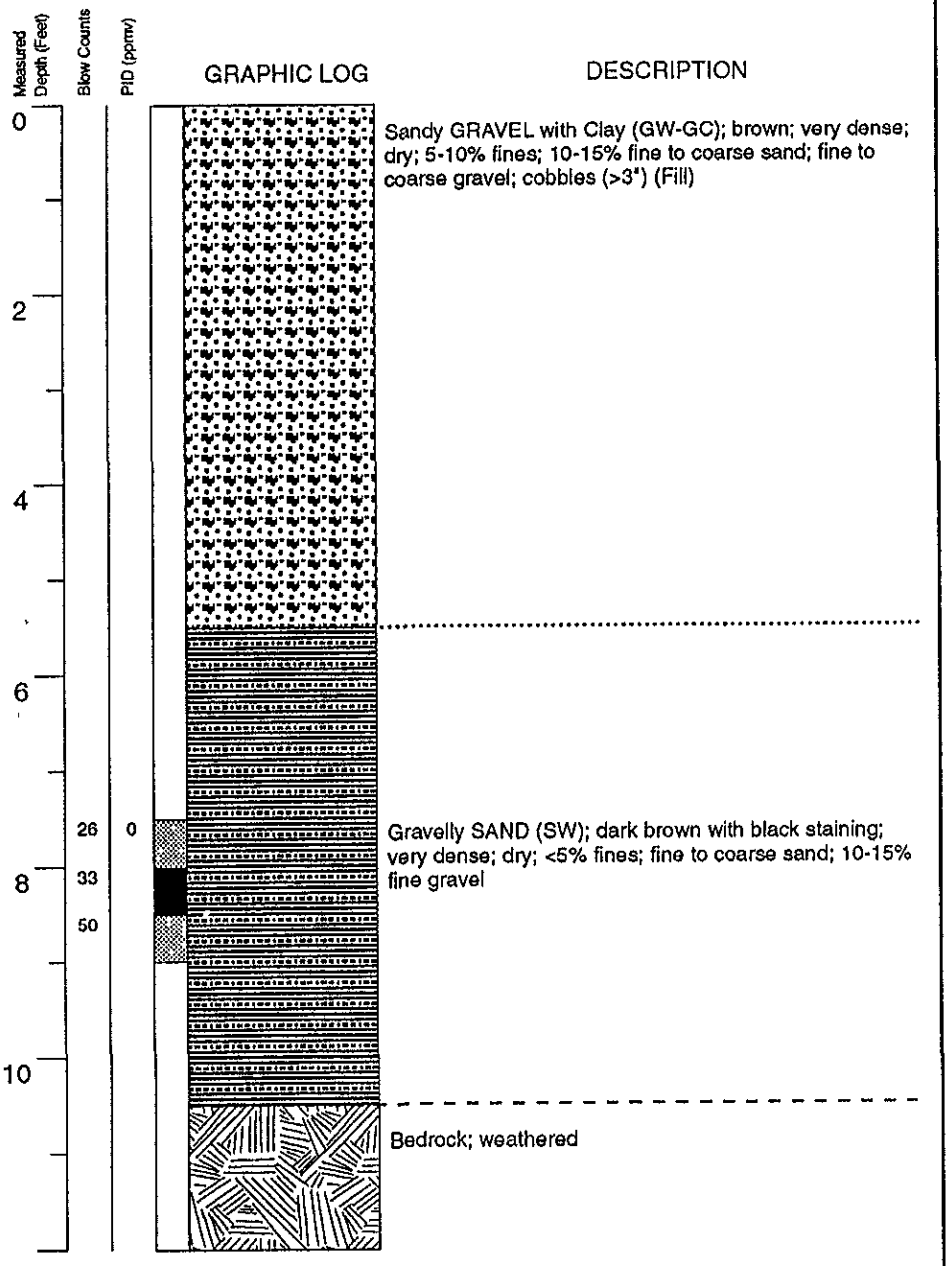
MONITOR WELL

1

RESNA

17046.01





continues

Logged by:	Justin Power	Drilling Company:	Westex	Well Head Completion:	Stove pipe & locking cap
Project Mgr:	Barry Marcus	Drilling Method:	Air Rotary	Type of Sampler:	2" split barrel
Dates Drilled:	8/20/92–8/22/92	Driller:	Randy	TD (Total Depth):	38.0 ft.

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

- Contacts: Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery

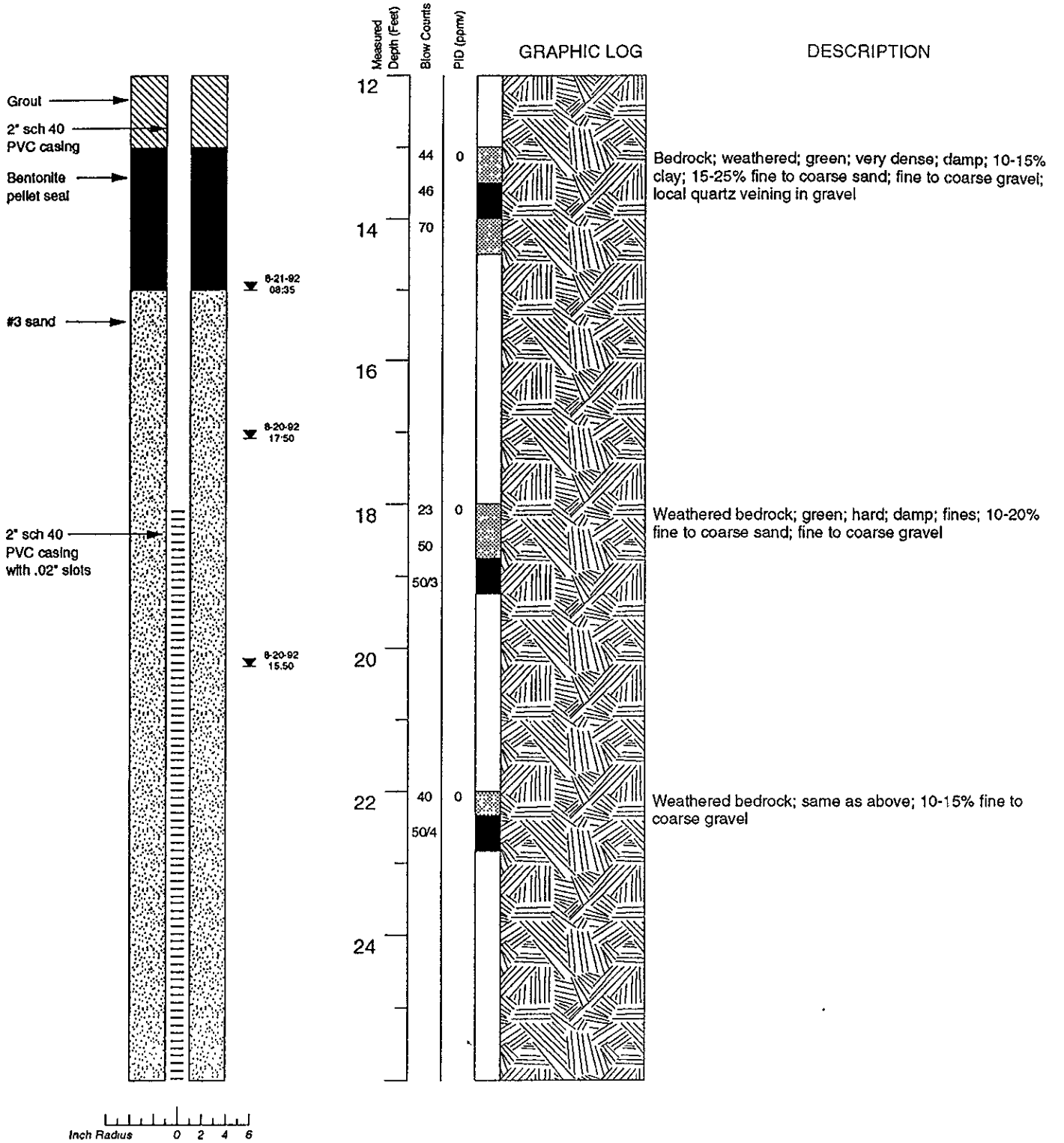
Boring Log
Monitor Well 2 (Boring B-2)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
2

RESNA

17046.01



continues

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

Contacts:
- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational

est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary

NR — No recovery

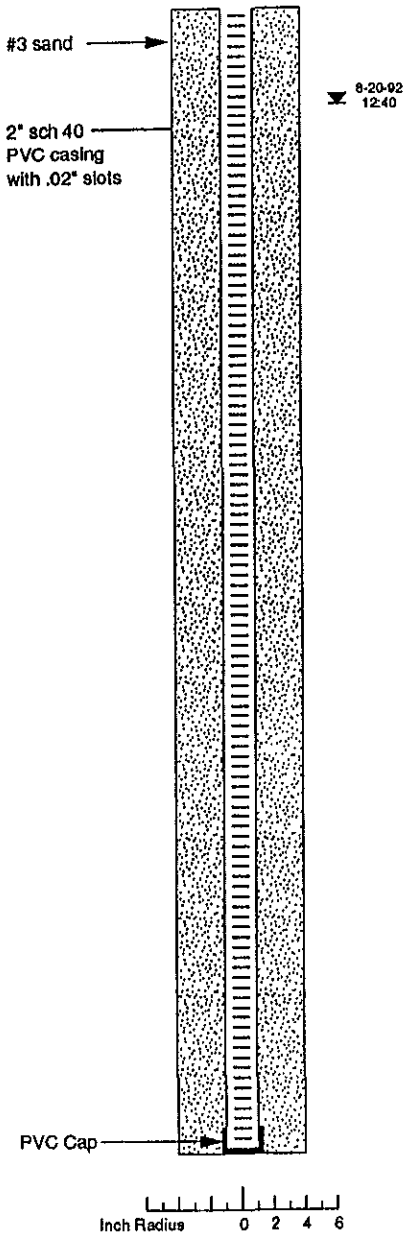
Boring Log
Monitor Well 2 (Boring B-2)

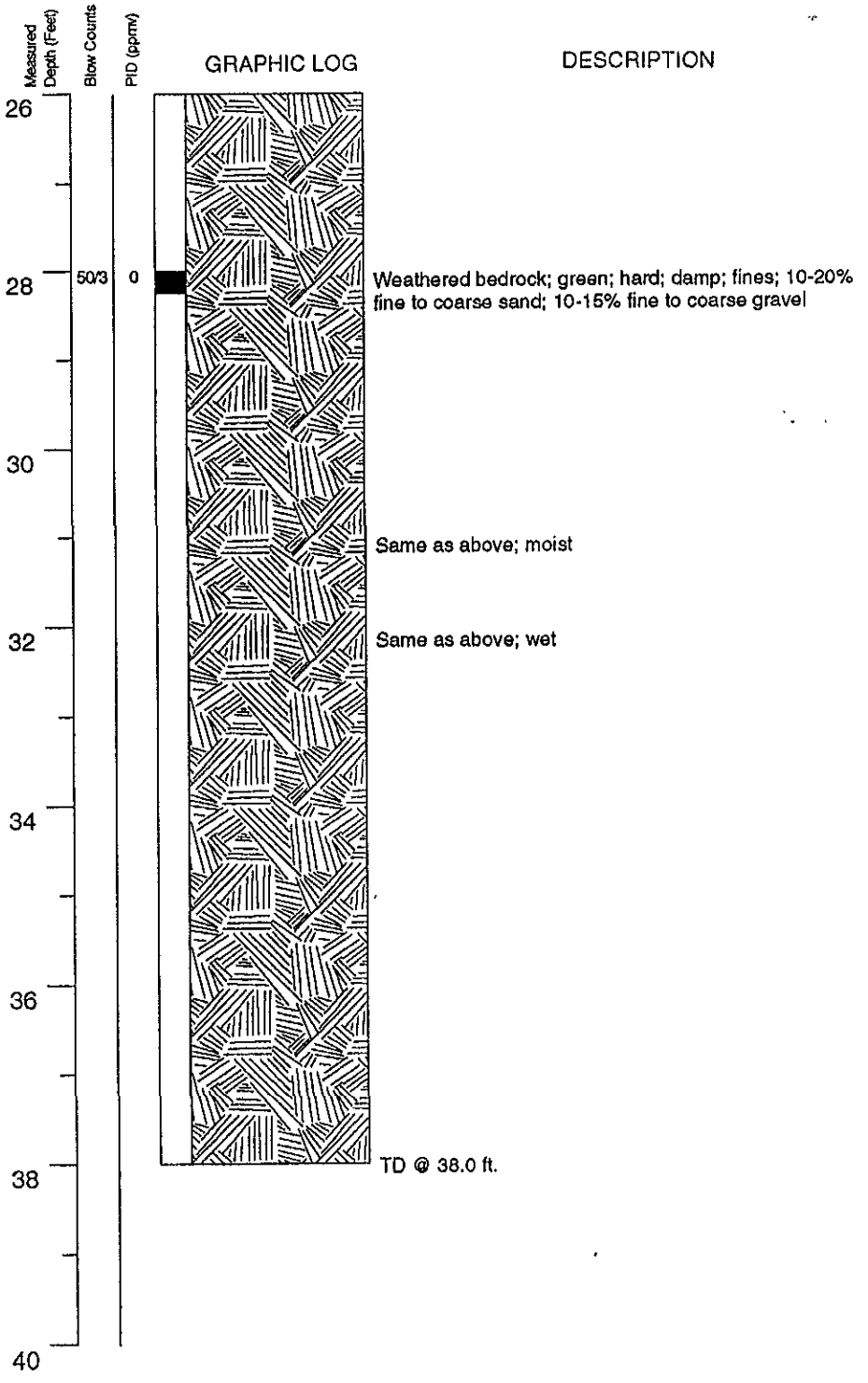
Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL **2**

RESNA

17046.01





EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

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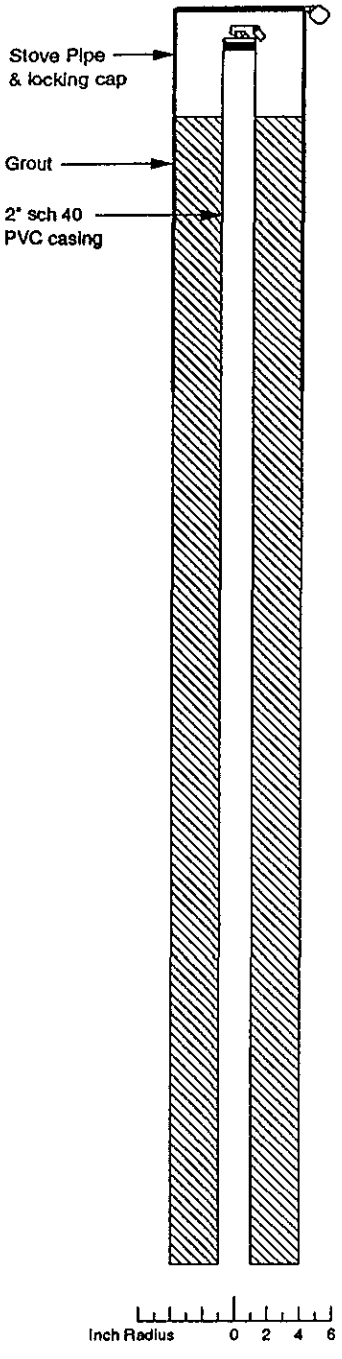
Boring Log
Monitor Well 2 (Boring B-2)

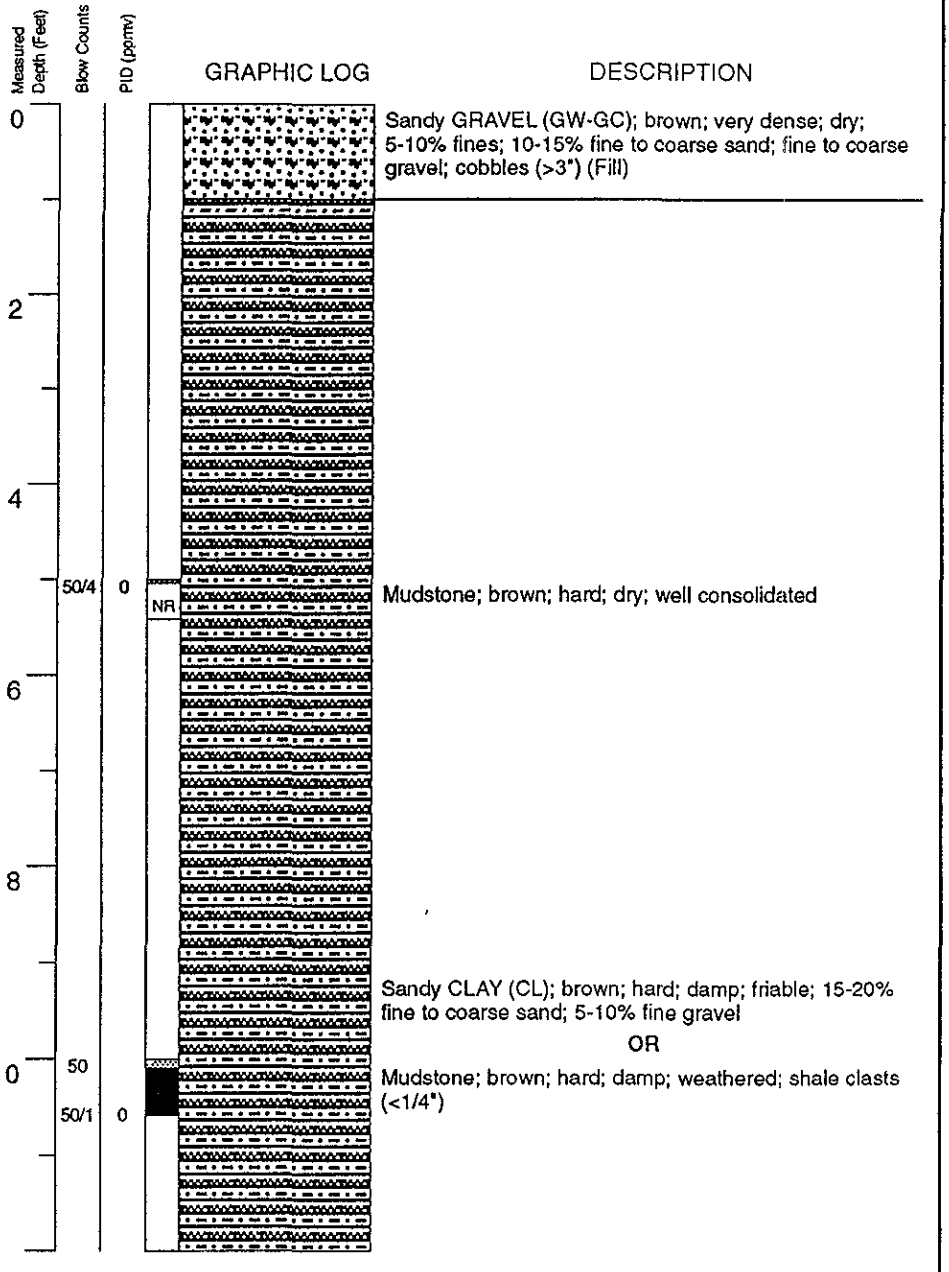
Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
2

RESNA

17046.01





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Logged by:	Justin Power	Drilling Company:	Westex	Well Head Completion:	Stove pipe & locking cap
Project Mgr:	Barry Marcus	Drilling Method:	Air Rotary	Type of Sampler:	2" & 2.5" split barrel
Dates Drilled:	8/21/92	Driller:	Randy	TD (Total Depth):	43.0 ft.

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

- Contacts: Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery

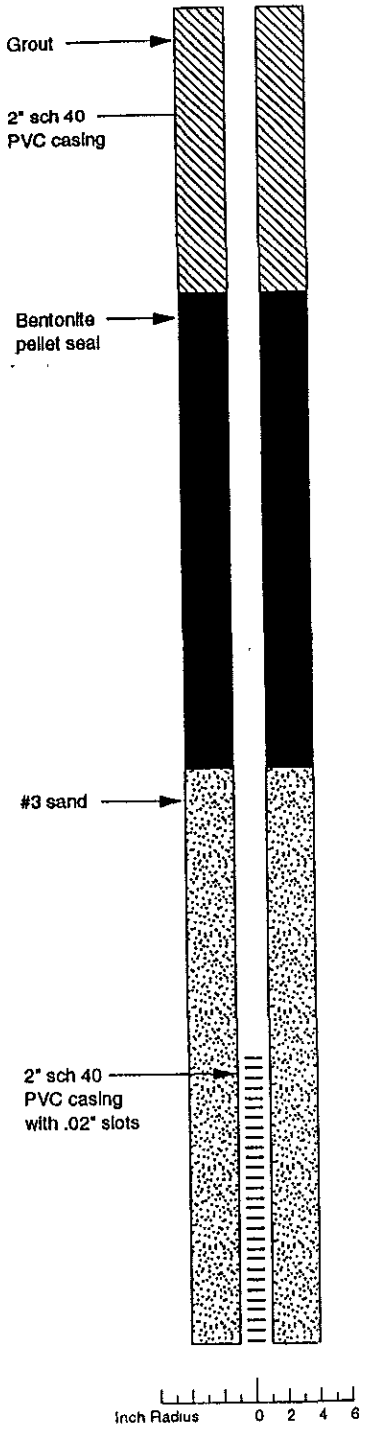
Boring Log
Monitor Well 3 (Boring B-3)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
3

RESNA

17046.01



Measured Depth (Feet)	Blow Counts	PID (ppmv)	GRAPHIC LOG	DESCRIPTION
12				
14				
	50	0		Clayey GRAVEL (GM); brown; very dense; damp; 20-30% fines; 10-15% fine to coarse sand; fine gravel
	50/1			OR
16				Weathered silt/sandstone; clasts
18				
	50	0		Same as above
20	50/1			
22				
24				
	49	0		Mudstone; brown; hard; damp; weathered; shale clasts (<1/4")
	50			

continues

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

Contacts:
- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational

est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary

NR — No recovery

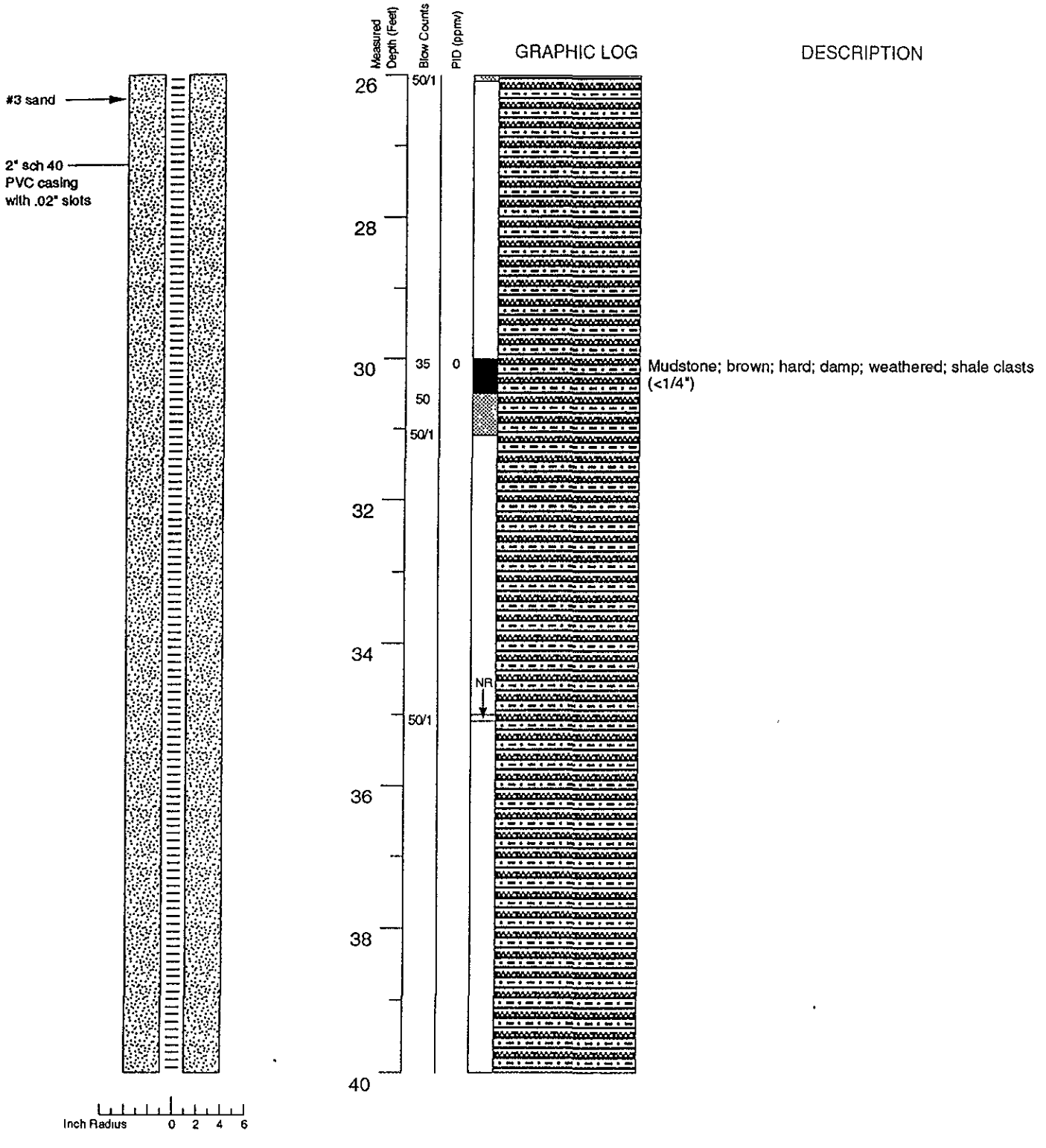
Boring Log
Monitor Well 3 (Boring B-3)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
3

RESNA

17046.01



continues

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

All symbols and definitions may not be applicable

- Contacts: Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery

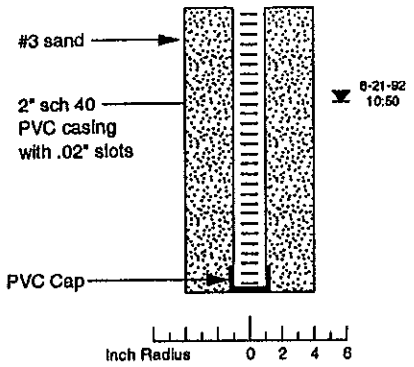
Boring Log
Monitor Well 3 (Boring B-3)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
3

RESNA

17046.01



Measured Depth (Feet)	Blow Counts	GRAPHIC LOG	DESCRIPTION
40	50/1	NR	
42			TD @ 43.0 ft.
44			
46			
48			
50			
52			
54			

EXPLANATION

- Water level during drilling
- Water level in completed well
- Location of recovered drill sample
- Location of sample sealed for chemical analysis
- Sieve sample
- Grab sample

Contacts:
- Solid where certain
- Dotted where approximate
- Dashed where uncertain
- Hachured where gradational
- est K — Estimated permeability (hydraulic conductivity) 1K = primary 2K = secondary
- NR — No recovery

All symbols and definitions may not be applicable

Boring Log
Monitor Well 3 (Boring B-3)

Former Chevron Service Station #9-3575
5775 Broadway
Oakland, California

MONITOR WELL
3

RESNA

17046.01

APPENDIX D

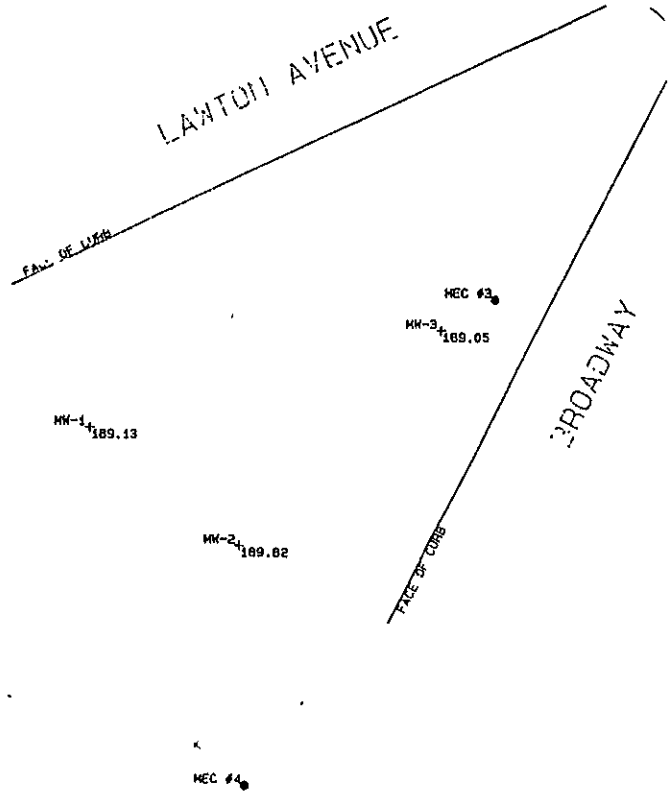
SURVEY DATA

WELL COORDINATES

WELL NO.	NORTH	EAST	ELEVATION (OAKLAND)	ELEVATION (NGS)
MW-1	10088.54	4960.08	192.13	189.13
MW-2	10059.38	4998.34	192.82	189.82
MW-3	10113.21	5047.89	192.05	189.05
SHELL 3	9961.58	4886.79	180.51	177.51

REFERENCE POINTS

POINT	NORTH	EAST
MEC #3	10121.05	5061.68
MEC #4	10000.00	5000.00



ATION:
BENCHMARK 47/8 (ELEV. = 185.41'

moldenhauer

1111 KENNEDY PLACE SUITE 1 DAVIS, C
401 VERNON ST. SUITE D ROSEVILLE, C

APPENDIX E

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 09/09/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
86538- 4	B-1 20.9	08/20/92	08/28/92	Soil
86538- 9	B-2 22.8	08/20/92	08/28/92	Soil

RESULTS OF ANALYSIS

Laboratory Number:	86538- 4	86538- 9
Oil and Grease:	ND<50	ND<50
Diesel:	ND<1	ND<1
Gasoline:	ND<1	ND<1
Benzene:	ND<.005	ND<.005
Toluene:	ND<.005	ND<.005
Ethyl Benzene:	ND<.005	ND<.005
Xylenes:	ND<.005	ND<.005
Concentration:	mg/kg	mg/kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

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

QA/QC INFORMATION
SET: 86538

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil and Grease:	30 mg	82/73	12	56-106
Diesel:	200 ng	92/109	17	70-130
Gasoline:	200 ng	97/86	12	70-130
Benzene:	200 ng	98/97	0	70-130
Toluene:	200 ng	100/95	6	70-130
Ethyl Benzene:	200 ng	100/98	3	70-130
Xylenes:	200 ng	107/101	6	70-130

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

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

LABORATORY NO.: 86538
CLIENT: RESNA
CLIENT JOB NO.: 17046.01

DATE RECEIVED:08/24/92
DATE REPORTED:09/09/92

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD & ZINC
by EPA SW-846 Method 6010

LAB #	Sample Identification	Concentration(mg/kg) Cadmium	Chromium	Lead	Zinc
4	B-1 20.9	ND<1	130	ND<5	ND<20
9	B-2 22.8	ND<1	160	ND<5	20

mg/kg - parts per million (ppm)

Method Detection Limit for Cadmium in Soil: 1 mg/kg
Method Detection Limit for Chromium in Soil: 5 mg/kg
Method Detection Limit for Lead in Soil: 5 mg/kg
Method Detection Limit for Zinc in Soil: 20 mg/kg

QAQC Summary: MS/MSD Average Recovery : 83%
Duplicate RPD : 7%

Richard Srna, Ph.D.
Nancy A. Nelson for
Laboratory Manager

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 86538
CLIENT: RESNA
CLIENT JOB NO.: 17046.01

DATE RECEIVED:08/24/92
DATE REPORTED:09/09/92
DATE SAMPLED :08/20/92

ANALYSIS FOR TOTAL NICKEL
by SW-846 METHOD 6010

LAB #	Sample Identification	Concentration(mg/kg) Total Nickel
4	B-1 20.9	60
9	B-2 22.8	190

mg/kg - parts per million (ppm)

Method Detection Limit for Nickel in Soil: 10 mg/kg

QAQC Summary: MS/MSD Average Recovery : 90%
Duplicate RPD : 2%

Richard Srna, Ph.D.

Nancy A. Nelson for
Laboratory Manager

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 09-September-1992

EPA METHOD 8010

Laboratory Number	Sample Identification	Matrix
86538- 4	B-1 20.9	Soil
86538- 9	B-2 22.8	Soil

RESULTS OF ANALYSIS

Laboratory Number:	86538- 4	86538- 9
Chloromethane:	ND<5	ND<5
Vinyl Chloride:	ND<5	ND<5
Bromomethane:	ND<5	ND<5
Chloroethane:	ND<5	ND<5
Trichlorofluoromethane:	ND<5	ND<5
1,1-Dichloroethene:	ND<5	ND<5
Dichloromethane:	ND<5	ND<5
c-1,2-Dichloroethene:	ND<5	ND<5
1,1-Dichloroethane:	ND<5	ND<5
t-1,2-Dichloroethene:	ND<5	ND<5
Chloroform:	ND<5	ND<5
1,1,1-Trichloroethane:	ND<5	ND<5
Carbon tetrachloride:	ND<5	ND<5
1,2-Dichloroethane:	ND<5	ND<5
Trichloroethene:	ND<5	ND<5
1,2-Dichloropropane:	ND<5	ND<5
Bromodichloromethane:	ND<5	ND<5
c-1,3-Dichloropropene:	ND<5	ND<5
t-1,3-Dichloropropene:	ND<5	ND<5
1,1,2-Trichloroethane:	ND<5	ND<5
Tetrachloroethene:	ND<5	ND<5
Dibromochloromethane:	ND<5	ND<5
Chlorobenzene:	ND<5	ND<5
Bromoform:	ND<5	ND<5
1,1,2,2-Tetracl-ethane:	ND<5	ND<5
1,3-Dichlorobenzene:	ND<5	ND<5
1,4-Dichlorobenzene:	ND<5	ND<5
1,2-Dichlorobenzene:	ND<5	ND<5
Concentration:	ug/kg	ug/kg
4-Chlorotoluene:	93%	93%

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

EPA METHOD 8010
Quality Assurance and Control Data - Soil
Laboratory Number 86538

Compound	Method Blank (ug/kg)	PQL (ug/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)	Spike Level (ug/kg)
Chloromethane:	ND<5	5				
Vinyl Chloride:	ND<5	5				
Bromomethane:	ND<5	5				
Chloroethane:	ND<5	5				
Trichlorofluoromethane:	ND<5	5				
1,1-Dichloroethene:	ND<5	5	94		1	200
Dichloromethane:	ND<5	5				
t-1,2-Dichloroethene:	ND<5	5				
1,1-Dichloroethane:	ND<5	5				
c-1,2-Dichloroethene:	ND<5	5				
Chloroform:	ND<5	5				
1,1,1-Trichloroethane:	ND<5	5				
Carbon tetrachloride:	ND<5	5				
1,2-Dichloroethane:	ND<5	5				
Trichloroethene:	ND<5	5	84		1	200
1,2-Dichloropropane:	ND<5	5				
Bromodichloromethane:	ND<5	5				
t-1,3-Dichloropropene:	ND<5	5				
c-1,3-Dichloropropene:	ND<5	5				
1,1,2-Trichloroethane:	ND<5	5				
Tetrachloroethene:	ND<5	5				
Dibromochloromethane:	ND<5	5				
Chlorobenzene:	ND<5	5	97		4	200
Bromoform:	ND<5	5				
1,1,2,2-Tetracl-ethane:	ND<5	5				
1,3-Dichlorobenzene:	ND<5	5				
1,4-Dichlorobenzene:	ND<5	5				
1,2-Dichlorobenzene:	ND<5	5				
Average Spike Recovery:			92	60-140	1	

Definitions:

ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

SPC File No. 86538

Nancy A. Nelson
Senior Analyst

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 09-September-1992

EPA METHOD 8010

Sample preparation by Purge and Trap (EPA SW-846 Method 5030) and Chromatographic analysis using an electrolytic conductivity detector (EPA SW-846 Method 8010).

Chronology

Laboratory Number 86538

Identification	Sampled	Received	Extracted	Analyzed	Run #	Lab #
B-1 20.9	08/20/92	08/24/92	09/01/92	09/01/92		4
B-2 22.8	08/20/92	08/24/92	09/01/92	09/01/92		9

Chain-of-Custody Record

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

Chevron Facility Number: 9-3575
Facility Address: 5775 Broadway, Oakland
Consultant Project Number: 17046.01
Consultant Name: Resna
Address: 73 Digital Drive, Novato, CA 94949
Project Contact (Name): Justin Power
(Phone) 415 382 7400 (Fax Number) 415 382 7415

Chevron Contact (Name): Ken Kan
(Phone) 510 842 8752
Laboratory Name: Superior Analytical
Laboratory Release Number: 7899191
Samples Collected by (Name): Justin Power
Collection Date: 8-20-92
Signature: Justin Power

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Remarks
B-1 5.1	1	1	S	D		None	Y									
B-1 11.0	2	1	S	D		None	Y									Hold
B-1 15.3	3	1	S	D		None	Y									Hold
B-1 20.9	(4)	1	S	D		None	Y	X	X	X	X				X	Hold
B-1 25.5	5	1	S	D		None	Y									
B-2 8.5	6	1	S	D		None	Y									Hold
B-2 14.0	7	1	S	D		None	Y									Hold
B-2 19.3	8	1	S	D		None	Y									Hold
B-2 22.8	(9)	1	S	D		None	Y	X	X	X	X				X	Hold
B-2 28.2	(6)	1	S	D		None	Y									

Please initial: SS
Samples Stored in Ice.
Appropriate containers.
Samples preserved.
VOA's without headspace.
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Justin Power	RESNA	8-24-92 15:35	Ron Just	EV-IT	8-24 1545
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Ron Just	EV-IT	8-24 17:20			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			Nancy H. Nelson		8/24/92 17:20

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

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 09/09/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
86539- 5	B-3 30.5	08/21/92	09/03/92	Soil

RESULTS OF ANALYSIS

Laboratory Number: 86539- 5

Oil and Grease:	ND<50
Diesel:	1*
Gasoline:	ND<1
Benzene:	ND<.005
Toluene:	ND<.005
Ethyl Benzene:	ND<.005
Xylenes:	ND<.005
Concentration:	mg/kg

* Diesel range concentration. The pattern observed in the chromatogram was not typical of diesel.

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

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

QA/QC INFORMATION
SET: 86539

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/kg = parts per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 50mg/kg

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005mg/kg

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil and Grease:	30 mg	82/73	12	56-106
Diesel:	200 ng	92/109	17	70-130
Gasoline:	200 ng	95/88	8	70-130
Benzene:	200 ng	87/94	8	70-130
Toluene:	200 ng	94/102	8	70-130
Ethyl Benzene:	200 ng	97/104	7	70-130
Xylenes:	200 ng	94/100	6	70-130

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 ▪ Martinez, California 94553 ▪ (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 09-September-1992

EPA METHOD 8010

Laboratory Number	Sample Identification	Matrix
86539- 5	B-3 30.5	Soil

RESULTS OF ANALYSIS

Laboratory Number: 86539- 5

Chloromethane:	ND<5
Vinyl Chloride:	ND<5
Bromomethane:	ND<5
Chloroethane:	ND<5
Trichlorofluoromethane:	ND<5
1,1-Dichloroethene:	ND<5
Dichloromethane:	ND<5
c-1,2-Dichloroethene:	ND<5
1,1-Dichloroethane:	ND<5
t-1,2-Dichloroethene:	ND<5
Chloroform:	6
1,1,1-Trichloroethane:	ND<5
Carbon tetrachloride:	ND<5
1,2-Dichloroethane:	ND<5
Trichloroethene:	ND<5
1,2-Dichloropropane:	ND<5
Bromodichloromethane:	ND<5
c-1,3-Dichloropropene:	ND<5
t-1,3-Dichloropropene:	ND<5
1,1,2-Trichloroethane:	ND<5
Tetrachloroethene:	ND<5
Dibromochloromethane:	ND<5
Chlorobenzene:	ND<5
Bromoform:	ND<5
1,1,2,2-Tetracl-ethane:	ND<5
1,3-Dichlorobenzene:	ND<5
1,4-Dichlorobenzene:	ND<5
1,2-Dichlorobenzene:	ND<5
Concentration:	ug/kg
4-Chlorotoluene:	100%

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

EPA METHOD 8010
Quality Assurance and Control Data - Soil
Laboratory Number 86539

Compound	Method Blank (ug/kg)	PQL (ug/kg)	Average Spike Recovery (%)	Limits (%)	RPD (%)	Spike Level (ug/kg)
Chloromethane:	ND<5	5				
Vinyl Chloride:	ND<5	5				
Bromomethane:	ND<5	5				
Chloroethane:	ND<5	5				
Trichlorofluoromethane:	ND<5	5				
1,1-Dichloroethene:	ND<5	5	94	60-140	1	100
Dichloromethane:	ND<5	5				
trans-1,2-Dichloroethene:	ND<5	5				
1,1-Dichloroethane:	ND<5	5				
cis-1,2-Dichloroethene:	ND<5	5				
Chloroform:	ND<5	5				
1,1,1-Trichloroethane:	ND<5	5				
Carbon tetrachloride:	ND<5	5				
1,2-Dichloroethane:	ND<5	5				
Trichloroethene:	ND<5	5	84	60-140	1	100
1,2-Dichloropropane:	ND<5	5				
Bromodichloromethane:	ND<5	5				
trans-1,3-Dichloropropene:	ND<5	5				
cis-1,3-Dichloropropene:	ND<5	5				
1,1,2-Trichloroethane:	ND<5	5				
Tetrachloroethene:	ND<5	5				
Dibromochloromethane:	ND<5	5				
Chlorobenzene:	ND<5	5	97	60-140	4	100
Bromoform:	ND<5	5				
1,1,2,2-Tetracl-ethane:	ND<5	5				
1,3-Dichlorobenzene:	ND<5	5				
1,4-Dichlorobenzene:	ND<5	5				
1,2-Dichlorobenzene:	ND<5	5				
4-Chlorotoluene:	97%					

Definitions:

ND = Not Detected
PQL = Practical Quantitation Limit

RPD = Relative Percent Difference

SC File No. 86539

Charles Duncan
Senior Analyst

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

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

LABORATORY NO.: 86539
CLIENT: RESNA
CLIENT JOB NO.: 17046.01

DATE RECEIVED: 08/24/92
DATE REPORTED: 09/09/92

ANALYSIS FOR CADMIUM, CHROMIUM, LEAD & ZINC
by EPA SW-846 Method 6010

LAB #	Sample Identification	Concentration (mg/kg) Cadmium	Chromium	Lead	Zinc
5	B-3 30.5	ND<1	620	ND<5	70

mg/kg - parts per million (ppm)

Method Detection Limit for Cadmium in Soil: 1 mg/kg
Method Detection Limit for Chromium in Soil: 5 mg/kg
Method Detection Limit for Lead in Soil: 5 mg/kg
Method Detection Limit for Zinc in Soil: 20 mg/kg

QAQC Summary: MS/MSD Average Recovery : 83 - 102%
Duplicate RPD : <7%

Richard Srna, Ph.D.

Laboratory Manager

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 86539
CLIENT: RESNA
CLIENT JOB NO.: 17046.01

DATE RECEIVED:08/24/92
DATE REPORTED:09/09/92
DATE SAMPLED :08/21/92

ANALYSIS FOR TOTAL NICKEL
by SW-846 METHOD 6010

LAB #	Sample Identification	Concentration(mg/kg) Total Nickel
5	B-3 30.5	730

mg/kg - parts per million (ppm)

Method Detection Limit for Nickel in Soil: 10 mg/kg

QAQC Summary: MS/MSD Average Recovery : 90%
Duplicate RPD : 2%

Richard Srna, Ph.D.

Laboratory Manager

Fax copy of Lab Report and COC to Chevron Contact: ☐ No ☐ Yes

Chain of Custody Record

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

Chevron Facility Number: 9-3575
Facility Address: 5775 Broadway, Oakland
Consultant Project Number: 17046.01
Consultant Name: Resna
Address: 73 Digital Drive, Novato, CA 94949
Project Contact (Name): Justin Power
(Phone) 415 382 7400 (Fax Number) 415 382 7415

Chevron Contact (Name): Ken Kan
(Phone) 510 842 8752
Laboratory Name: Superior Analytical
Laboratory Release Number: 7899191
Samples Collected by (Name): Justin Power
Collection Date: 8-21-92
Signature:

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)						Remarks
B-3 10.5	1	1	S	D		None	Y														Hold
B-3 15.5	2	1	S	D		None	Y														Hold
B-3 20.5	3	1	S	D		None	Y														Hold
B-3 26.0	4	1	S	D		None	Y														Hold
B-3 30.5	5	1	S	D		None	Y	X	X	X	X				X						

Please Initial:
Samples Stored in Ice.
Appropriate containers.
Samples preserved.
VOA's without headspace.
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Justin Power	Resna	8-24-92 15:35	Dan Wilson	Ex. I r	8-24 15:45
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Dan Wilson	Ex-II	8-24 17:50			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			Nancy H. Nelson		8/24/92 17:20

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

COC-3.DWG/03 91/HCH

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

RESNA
Attn: Justin Power

Project 17046.01
Reported 08/27/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
86540- 1	CUTTING(A-D)	08/22/92	08/27/92	Water

RESULTS OF ANALYSIS

Laboratory Number: 86540- 1

Gasoline:	ND<1
Benzene:	0.011
Toluene:	0.016
Ethyl Benzene:	ND<.005
Xylenes:	0.021
Diesel:	9
Oil Grease:	ND
Concentration:	mg/Kg

Superior Precision Analytical, Inc.
825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

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

QA/QC INFORMATION
SET: 86540

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
mg/Kg = parts per billion (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Soil: 5 mg/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 1 mg/kg

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil : 1 mg/Kg

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Soil: 0.005 mg/Kg

ANALYTE	SPIKE LEVEL	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	200 ng	97/100	3%	70-130
Benzene:	200 ng	103/89	15%	70-130
Toluene:	200 ng	111/95	15%	70-130
Ethyl Benzene:	200 ng	114/98	15%	70-130
Xylenes:	200 ng	111/95	15%	70-130
Diesel:	200 mg	100/97	3%	70-130
Oil Grease:	30 mg	82/73	12%	56-126

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 9-3575
Facility Address 5775 Broadway, Oakland
Consultant Project Number 17046.01
Consultant Name Resna
Address 73 Digital Drive, Novato, CA 94949
Project Contact (Name) Justin Power
(Phone) 415 382 7400 (Fax Number) 415 382 7415

Chevron Contact (Name) Ken Kan
(Phone) 510 842 8752
Laboratory Name Superior Analytical
Laboratory Release Number 7899191
Samples Collected by (Name) Justin Power
Collection Date 8-22-92
Signature Justin Power

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Remarks
Cutting A		1	S	G		None	Y	X	X	X						Composite A, B, C, D into one then analyze Composited Sample.
B		1	S	C		None	Y	X	X	X						
C		1	S	C		None	Y	X	X	X						
D		1	S	C		None	Y	X	X	X						

Please initial:
Samples Stored in ice. SC
Appropriate containers.
Samples preserved.
VOA's without headspace.
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Justin Power	Resna	8-24-92 15:45	Dan Lewis	Ex-IT	8-24 15:45
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Dan Lewis	Ex-IT	8-24-92 17:20			
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			Nancy A. Nelson		8/24/92 17:20

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

Superior Precision Analytical, Inc.
1555 Burke, Unit I ▪ San Francisco, California 94124 ▪ (415) 647-2081 / fax (415) 821-7123

Resna/Western Geologic Resources
Attn: BARRY MARCUS

Project 17046.01
Reported 11/19/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
13735- 1	MW-1	11/10/92	11/16/92	Water
13735- 2	MW-2	11/10/92	11/16/92	Water
13735- 3	MW-3	11/10/92	11/17/92	Water
13735- 4	TB-LB	11/10/92	11/16/92	Water

RESULTS OF ANALYSIS

Laboratory Number:	13735- 1	13735- 2	13735- 3	13735- 4
Oil and Grease:	ND<5000	ND<5000	ND<5000	ND<5000
Gasoline:	ND<50	ND<50	53	ND<50
Benzene:	ND<0.5	ND<0.5	1.7	ND<0.5
Toluene:	ND<0.5	ND<0.5	0.6	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5	ND<0.5	ND<0.5
Xylenes:	ND<0.5	ND<0.5	0.8	ND<0.5
Concentration:	ug/L	ug/L	ug/L	ug/L

Superior Precision Analytical, Inc.
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CERTIFICATE OF ANALYSIS

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS

QA/QC INFORMATION
SET: 13735

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Oil and Grease:	80/84	5%	63-100
Gasoline:	97/96	1%	76-111
Benzene:	102/96	6%	78-110
Toluene:	96/95	1%	78-111
Ethyl Benzene:	96/95	1%	78-118
Xylenes:	96/94	2%	73-113

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

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

LABORATORY NO.: 13750-1
CLIENT: Resna/Western Geologic Resources
JOB NO.: 17046.01

DATE SAMPLED: 11/10/92
DATE RECEIVED: 11/11/91
DATE ANALYZED: 11/18/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-1

Compound	MDL (ug/L)	RESULTS (ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/L = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =< 15%
MS/MSD average recovery = 98 % :MS/MSD RPD = 1 %

Richard Srna, Ph.D.
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 13750-2
CLIENT: Resna/Western Geologic Resources
JOB NO.: 17046.01

DATE SAMPLED: 11/10/92
DATE RECEIVED: 11/11/91
DATE ANALYZED: 11/18/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-2

Compound	MDL (ug/L)	RESULTS (ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/L = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =< 15%
MS/MSD average recovery = 98 % :MS/MSD RPD = 1 %

Richard Srna, Ph.D.
for
Laboratory Director

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

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

LABORATORY NO.: 13750-3
CLIENT: Resna/Western Geologic Resources
JOB NO.: 17046.01

DATE SAMPLED: 11/10/92
DATE RECEIVED: 11/11/91
DATE ANALYZED: 11/18/92

EPA SW-846 METHOD 8010
HALOGENATED VOLATILE ORGANICS
SAMPLE:MW-3

Compound	MDL (ug/L)	RESULTS (ug/L)
Chloromethane/Vinyl Chloride	1.0	ND
Bromomethane/Chloroethane	1.0	ND
Trichlorofluoromethane	0.5	ND
1,1-Dichloroethene	0.5	ND
Methylene Chloride	0.5	ND
trans-1,2-Dichloroethene	0.5	ND
1,1-Dichloroethane	0.5	ND
cis-1,2-Dichloroethene	0.5	ND
Chloroform	0.5	ND
1,1,1-Trichloroethane	0.5	ND
Carbon tetrachloride	0.5	ND
1,2-Dichloroethane	0.5	ND
Trichloroethylene	0.5	ND
1,2-Dichloropropane	0.5	ND
Bromodichloromethane	0.5	ND
Cis-1,3-Dichloropropene	0.5	ND
trans-1,3-Dichloropropene	0.5	ND
1,1,2-Trichloroethane	0.5	ND
Tetrachloroethene	0.5	ND
Dibromochloromethane	0.5	ND
Chlorobenzene	0.5	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.5	ND
1,3-Dichlorobenzene	0.5	ND
1,2-Dichlorobenzene	0.5	ND
1,4-Dichlorobenzene	0.5	ND

MDL = Method Detection Limit
ug/L = parts per billion (ppb)
QA/QC Summary: Daily Standard RPD =< 15%
MS/MSD average recovery = 98 % :MS/MSD RPD = 1 %

Richard Srna, Ph.D.
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ NO

Chain-of-Custody-Record

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

Chevron Facility Number 9-3575
Facility Address BROADWAY, OAKLAND
Consultant Project Number 17046.01
Consultant Name RESNA
Address NOVATO
Project Contact (Name) BARRY MARCUS
(Phone) 415 382 7400 (Fax Number)

Chevron Contact (Name) KEN KHAN
(Phone) 510-842-8752
Laboratory Name SUPERIOR SF.
Laboratory Release Number 7899191
Samples Collected by (Name) M. FRYE
Collection Date 11-10-92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010) 601	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)	Remarks
MW-1		5	W	D	1333	HCl/Ascorbic	YES	X	X	X	X					
MW-2		↓	↓	↓	1456	↓	↓	↓	↓	↓	↓					→ Add per Barry Marcus As per phone conversation 11/13/92 KC
MW-3		↓	↓	↓	1350	↓	↓	↓	↓	↓	↓					
TB-LB		2	↓	↓	—	↓	↓	↓								

Cancel per Barry Marcus 11/13/92 KC
Did not want to fax COC.

Please Initial:
~~Samples Stored in ice.~~ Yes
Appropriate containers. Yes
Samples preserved. VOAs
VOA's without headspace. Yes
~~Comments:~~

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	RESNA	11-10 1555	Kulwant AERO771	AERO	11-10 3.55
Kulwant	AERO	11/10 6:12			
			Received For Laboratory By (Signature)		Date/Time
					11/10/92 6:15P

Turn Around Time (Circle Choice)
24 Hrs.
48 Hrs.
5 Days
→10 Days←
As Contracted

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

Resna/Western Geologic Resources
Attn: BARRY MARCUS

Project 17046.01
Reported 12/08/92

TOTAL PETROLEUM HYDROCARBONS

Lab #	Sample Identification	Sampled	Analyzed	Matrix
13812- 1	MW-3	11/25/92	12/04/92	Water
13812- 2	TB-LB	11/25/92	12/04/92	Water

RESULTS OF ANALYSIS

Laboratory Number:	13812- 1	13812- 2
Gasoline:	ND<50	ND<50
Benzene:	ND<0.5	ND<0.5
Toluene:	ND<0.5	ND<0.5
Ethyl Benzene:	ND<0.5	ND<0.5
Xylenes:	ND<0.5	ND<0.5
Concentration:	ug/L	ug/L

Superior Precision Analytical, Inc.
1555 Burke, Unit I • San Francisco, California 94124 • (415) 647-2081 / fax (415) 821-7123

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

QA/QC INFORMATION
SET: 13812

NA = ANALYSIS NOT REQUESTED
ND = ANALYSIS NOT DETECTED ABOVE QUANTITATION LIMIT
ug/L = parts per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 5520F:
Minimum Detection Limit in Water: 5000ug/L

Modified EPA SW-846 Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 50ug/L

EPA SW-846 Method 8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L

EPA SW-846 Method 8020/BTXE
Minimum Quantitation Limit in Water: 0.5ug/L

ANALYTE	MS/MSD RECOVERY	RPD	CONTROL LIMIT
Gasoline:	90/88	2%	76-111
Benzene:	84/94	11%	78-110
Toluene:	89/97	9%	78-111
Ethyl Benzene:	89/97	9%	78-118
Xylenes:	86/93	8%	73-113

Richard Srna, Ph.D.
Laboratory Director

Fax copy of Lab Report and COC to Chevron Contact: ☐ No

Chain-of-Custody-Record

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

Chevron Facility Number 9-3575
Facility Address OAKLAND - BROADWAY
Consultant Project Number 17046.01
Consultant Name RESNA
Address NOVATO
Project Contact (Name) BARRY MARCUS
(Phone) 415 382 7400 (Fax Number) 415 382 7415

Chevron Contact (Name) KENNETH KHAN
(Phone) (510) 842-8752
Laboratory Name SUPERIOR
Laboratory Release Number 7899191
Samples Collected by (Name) MARK FRYE
Collection Date 11.25.92
Signature

Sample Number	Lab Sample Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite D = Discrete	Time	Sample Preservation	Iced (Yes or No)	Analyses To Be Performed: BTEX + TPH GAS (8020 + 8015)	TPH Diesel (8015)	Oil and Grease (5520)	Purgeable Halocarbons (8010)	Purgeable Aromatics (8020)	Purgeable Organics (8240)	Extractable Organics (8270)	Metals Cd,Cr,Pb,Zn,Ni (ICAP or AA)						Remarks
MW-3		3	W	D	1335	HCl	YES	X													

Please initial
Sample Stored in ice. ✓
Appropriate containers. ✓
Samples preserved. ✓
VOA headspace. ✓
Comments:

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	RESNA	11.25.92 1555		ECS	11.25.92 1655
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
	ECS	11.25.92 1655			
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory By (Signature)		Date/Time 1655 11/25/92

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

COC-3.DWG/03 91/HCH

Chevron U.S.A. Products Company
2410 Camino Ramon, San Ramon, California • Phone (510) 842-9500
Mail Address: P.O. Box 5004, San Ramon, CA 94583-0804

Operations

January 18, 1993

1/27/93
Larry,
This is still
your case.
Susan

Mr. Larry Seto
Alameda County Environmental Health
80b Swan Way, Room 200
Oakland, CA 94621

Re : Former Chevron Service Station No. 9-3575
5775 Broadway, Oakland, California

Dear Mr. Seto :

Enclosed is RESNA's subsurface environmental investigation report dated January 6, 1993.

Briefly, total petroleum hydrocarbon as gasoline (TPH-g) and as diesel (TPH-d) in soil was below the detection limit of 1 ppm with the exception of B-3 at 30.5 ft. which was at 1 ppm. Benzene, toluene, ethylbenzene, xylenes (BTEX), total oil and grease (TOG) in all soil samples were below the detection limit of 0.5 ppm and 50 ppm, respectively. For water, TPH-g, BTEX, and TOG were not detected in monitoring wells MW-1 and MW-2. TPH-g at 53 ppb, benzene at 1.7 ppb, and toluene at 0.6 ppb was detected in monitoring well MW-3. A second sample from MW-3 was taken later, and the result show no TPH-g, BTEX, and TOG. The detection of TPH-d, TPH-g, benzene, and toluene is probably an anomaly.

Chevron will continue to monitor and sample the wells on this site on a quarterly basis and take depth to water level measurements on a monthly basis for one year unless otherwise directed.

For additional information, please refer to the report. If you have any questions or comments, please feel free to call me at (510) 842-8752.

Sincerely,

Chevron U.S.A. Products Co.

Kenneth Kan

Kenneth Kan

LKAN/MacFile 9-3575R

Enclosure

cc : Mr. Richard Hiett, RWQC-San Francisco Bay Region
2101 Webster Str., Suite 500, Oakland, CA 94612

Mr. Mohamad Ali, California Pacific Investment Company
210 Fell Street, San Francisco, CA 94102