GeoStrategies Inc.

WELL INSTALLATION REPORT

Chevron Service Station No. 0504
15900 Hesperian Boulevard
San Lorenzo, California

Report No. 7259-5

October 19, 1990

GeoStrategies Inc.
2140 WEST WINTON AVENUE
HAYWARD, CALIFORNIA 94545
(415) 352-4800

October 19, 1990

Gettler-Ryan Inc.
2150 West Winton Avenue
Hayward, California 94545

Re: WELL INSTALLATION REPORT
Chevron Service Station # 0504
15900 Hesperian Boulevard
San Lorenzo, California

Gentlemen:

This report summarizes the ground-water monitoring well installation, soil sampling and ground-water sampling performed at the above referenced location (Plate 1). Three soil borings were drilled on November 27 and 28, 1989, and were subsequently completed as 2-inch diameter ground-water monitoring wells designated C-6, C-7 and C-8. Three additional monitoring wells were installed off-site on August 28, 1990, designated C-9, C-10 and C-11. The monitoring well locations are shown on Plate 2.

SITE BACKGROUND

In December 1983, Gettler-Ryan Inc. (G-R) installed five ground-water monitoring wells at the site designated C-1 through C-5. G-R issued a letter report dated January 9, 1984, documenting the well installations.

In June 1989, G-R conducted ground-water sampling at the site. The results are presented in a G-R Ground-water Sampling Report dated June 27, 1989.

In November 1989, GeoStrategies Inc. (GSI) installed three ground-water monitoring wells designated C-6, C-7 and C-8. Soil and ground-water analytical data are presented in this report.

FIELD PROCEDURES

Three exploratory soil borings were drilled in November 1989 and three additional borings were drilled in August 1990. All borings were drilled using a truck mounted hollow-stem auger drilling rig. All borings were subsequently completed as ground-water monitoring wells. All field work was performed according to GSI Field Methods and Procedures presented in Appendix A. Soil samples were collected at five-foot depth intervals, using a modified California split-spoon sampler fitted with clean brass tube liners. A GSI geologist supervised the drilling, described soil samples using the Unified Soil Classification System (ASTM D-2488) as well as geologic observations and prepared a lithology log for each borehole. Exploratory boring logs are presented in Appendix B.

A 4-inch long brass tube of soil from each sample interval was used to perform head-space analysis in the field to screen for the presence of Volatile Organic Compounds (VOCs). Head-space analysis involved transferring soil from a brass liner into a clean glass jar and immediately covering the jar with aluminum foil secured with a ring-type threaded lid. After approximately twenty minutes, the foil was pierced and the head-space within the jar was tested for total organic vapor measured in parts per million using an Organic Vapor Monitor (OVM) photoionization detector. Head-space analysis results are presented on the boring logs in Appendix B.

Selected soil samples retained for chemical analysis were collected in clean brass liners, covered on both ends with aluminum foil and sealed with plastic end caps. The samples were labeled, entered on a Chain-of-Custody form and transported in a cooler with blue ice to Superior Analytical Laboratories (Superior), State-certified laboratories located in Martinez and San Francisco, California.

Monitoring Well Construction

Borings C-6 through C-11 were drilled with 8-inch-diameter hollow-stem augers to a total depth of 25.5 feet. The monitoring wells were constructed through the hollow-stem augers using 2-inch-diameter Schedule 40 PVC well casing, and 0.020-inch factory slotted well screen. Lonestar #2/12 sand was placed in the annular space across the entire screened interval and extended at least one foot above the top of the screen. In wells C-6 through C-8, a 1-foot bentonite seal was placed above the filter pack, followed by a cement grout. In wells C-9 through C-11, a 2-foot bentonite seal was placed above the filter pack, followed by the cement grout. A traffic rated box was placed at the ground surface, and a locking cap was then placed on the well. The well construction details are presented with the boring logs in Appendix B.

HYDROGEOLOGIC CONDITIONS

The project site is located on the San Francisco Bay Plain which is underlain by undifferentiated Quaternary Deposits. The Bay Plain is capped by stream alluvium and slope wash overlying thick unconsolidated marine clay and silt with lenses of sand and gravel.

Lithology beneath the site consists of clay and silty clay with groundwater first occurring at depths of approximately 14 to 16 feet below ground surface and stabilizing at approximately 15 feet. This is indicative of an unconfined water-table aquifer. A clayey gravel with sand unit was encountered in boring C-9 at approximately 12 to 16 feet. A clay and clayey silt stratum underlies the aquifer.

Ground-water elevation data collected prior to ground-water sampling in December 1989, indicate an approximate hydraulic gradient of 0.004 which flows toward the southwest beneath the site.

Ground-water elevation data collected prior to ground-water sampling in September 1990, also indicate an approximate hydraulic gradient of 0.004 which flows toward the southwest beneath the site (Plate 3). A summary of the potentiometric data is presented in Table 1.

CHEMICAL ANALYSES

Soil and ground-water samples were analyzed for Total Petroleum Hydrocarbons calculated as Gasoline (TPH-Gasoline), according to EPA Method 8015 (Modified), and Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) according to EPA Method 8020. In addition, ground-water samples from monitoring well C-4 were analyzed for Total Oil and Grease (TOG) according to EPA Method 503E. All soil and ground-water samples were analyzed by Superior.

Soil Analytical Results

Soil samples were retained for chemical analysis from all six borings at the 10.5 foot and 15.5 foot sample intervals and from Wells C-6, C-7, and C-8 at the 20.5 foot sample interval. TPH-Gasoline was reported from Boring C-7 at the 10.5 and 20.5 foot sample intervals at concentrations of 3.7 parts per million (ppm) and 4.0 ppm, respectively. TPH-Gasoline was also reported from Boring C-8 at the 15.5 foot sample interval at a concentration of 37 ppm. All other soil samples were reported as none detected (ND) for TPH-Gasoline. Benzene was only detected in Boring C-7 at the 20.5 foot sample interval at 0.11 ppm. A summary of the soil analytical data is presented in Table 1. A copy of the Superior soil analytical reports are presented in Appendix C.

Ground-water Analytical Results

G-R collected ground-water samples from monitoring wells C-3 through C-8 on December 8, 1989. Prior to ground-water sampling, the wells were monitored for separate-phase hydrocarbons using an oil-water interface probe. A clean, clear acrylic bailer was used to confirm interface probe results. Separate-phase hydrocarbons were observed in Wells C-1 and C-2 at 0.01 and 0.15 feet in measured thickness, respectively. Subsequently, these wells were not sampled.

TPH-Gasoline was detected in monitoring wells C-3, C-7 and C-8, ranging in concentrations from 680 parts per billion (ppb) in Well C-3 to 4,800 ppb in Well C-8. Benzene was detected in Wells C-3, C-7 and C-8, ranging in concentrations from 6 ppb (C-3) to 62 ppb (C-8). TPH-Gasoline and benzene were reported as ND in Wells C-4, C-5 and C-6.

G-R collected ground-water samples from monitoring wells C-3 through C-11 on September 7, 1990. Separate-phase hydrocarbons were observed in Wells C-1 and C-2 at 0.03 and 0.10 feet in measured thickness, respectively. Subsequently, these wells were not sampled.

TPH-Gasoline was detected in monitoring wells C-3, C-6, C-7 and C-8, ranging in concentrations from 57 ppb in Well C-6 to 3,700 ppb in Well C-8. Benzene was detected in monitoring wells C-3, C-7 and C-8, at concentrations ranging from 6 ppb (C-3) to 170 ppb (C-8). TPH-Gasoline was reported as ND in Wells C-4 and C-5, and benzene was reported as ND in Wells C-4, C-5 and C-6. Also, recently installed off-site monitoring wells C-9, C-10 and C-11 were reported as ND for TPH-Gasoline and benzene.

A chemical concentration map has been prepared using TPH-Gasoline and benzene results from the latest sampling event. A summary of the ground-water analytical data is presented in Table 2. A summary of historical ground-water analytical data is presented in Table 3. Copies of the G-R ground-water sampling reports, Chain-of-Custody forms and Superior analytical reports are presented in Appendix D.

WELL SURVEY DATA

A well survey was performed identifying ground-water wells within a one-half-mile radius of the site to assess potential groundwater usage in the project vicinity. This information was obtained from the County of Alameda Public Works Agency. Plate 1 shows 19 wells located within or near the one-half-mile radius of the site. All the wells are located more than one-quarter-mile away from the site. Well 8, located approximately 1,700 feet west of the site, may be the nearest well. This well is reported to be used for irrigation purposes and is 31 feet deep. Wells 13 and 14 are located approximately one-half-mile south of the site. These down-gradient wells are 25 feet deep and also reported to be used for irrigation purposes. Table 4 summarizes the available information on the wells.

SUMMARY OF FINDINGS

The results of this investigation are summarized below.

- Three exploratory borings were drilled on November 27 and 28, 1989. Three additional borings were drilled on August 28, 1990. All six borings were completed as ground-water monitoring wells.

- Based on exploratory borehole data, the lithology of the site consists primarily of clay and silty clay.

- Soil samples submitted for analyses revealed low concentrations of TPH-Gasoline in Boring C-7 at the 10.5 foot and 20.5 foot sample intervals. TPH-Gasoline was also observed in Boring C-8 at the 15.5 foot sample interval at a concentration of 37 ppm.

- Ground-water samples collected by G-R on December 8, 1989, reported concentrations of TPH-Gasoline from 680 ppb (C-3) to 4,800 ppb (C-8). TPH-Gasoline was reported as ND in Wells C-4, C-5 and C-6. Benzene concentrations ranged from 6 ppb (C-3) to 62 ppb (C-8). Benzene was not detected in Wells C-4, C-5 and C-6.

- Ground-water samples collected by G-R on September 7, 1990, reported concentrations of TPH-Gasoline from 57 ppb (C-6) to 3,700 ppb (C-8). TPH-Gasoline was reported as ND in Wells C-4, C-5, C-9, C-10, and C-11. Benzene concentrations ranged from 6 ppb (C-3) to 170 ppb (C-8). Benzene was not detected in Wells C-4 through C-6 and C-9 through C-11.

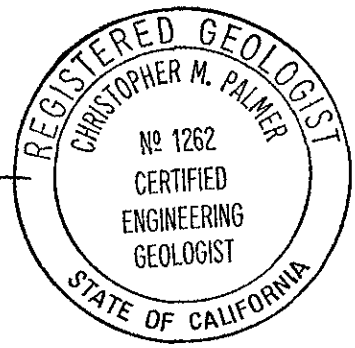
- A well survey shows 19 wells are located within a one-half-mile radius of the site. Well 8, located approximately 1,700 feet west of the site, may be the closest down-gradient well. Wells 13 and 14, also located down-gradient from the site, are approximately one-half-mile south of the site.

If you have any questions, please call.

GeoStrategies Inc. by,

Kevin D. McGraw
Geologist

Christopher M. Palmer
Senior Geologist
C.E.G. 1262, R.E.A. 285



KDM/CMP/mlg

Plate 1. Vicinity Map with Half-mile Well Survey
Plate 2. Site Plan
Plate 3. Potentiometric Map
Plate 4. TPH-Gasoline/Benzene Concentration Map

Appendix A: Field Methods and Procedures
Appendix B Exploratory Boring Logs and Well Construction Details
Appendix C: Soil Analytical Reports
Appendix D: Gettler-Ryan Inc. Groundwater Sampling Reports

TABLE 1

SOIL ANALYSES DATA

SAMPLE NO	SAMPLE DATE	ANALYZED DATE	TPH (PPM)	BENZENE (PPM)	TOLUENE (PPM)	ETHYLBENZENE (PPM)	XYLENES (PPM)
C-6-10.5'	29-Nov-89	06-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-6-15.5'	29-Nov-89	06-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-6-20.5'	29-Nov-89	06-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-7-10.5'	29-Nov-89	06-Dec-89	3.7	<0.05	<0.05	<0.05	0.05
C-7-15.5'	29-Nov-89	06-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-7-20.5'	29-Nov-89	06-Dec-89	4.0	0.11	<0.05	0.05	0.11
C-8-10.5'	29-Nov-89	06-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-8-15.5'	29-Nov-89	08-Dec-89	37	<0.05	<0.05	0.14	0.24
C-8-20.5'	29-Nov-89	08-Dec-89	<1	<0.05	<0.05	<0.05	<0.05
C-9-10.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05
C-9-15.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05
C-10-10.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05
C-10-15.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05
C-11.10.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05
C-11-15.5'	28-Aug-90	04-Sep-90	<1	<0.05	<0.05	<0.05	<0.05

TPH = Total Petroleum Hydrocarbons as Gasoline

Note: 1. All data shown as <X are reported as ND (none detected)

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TABLE 2

GROUND-WATER ANALYSES DATA

WELL NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	OIL & GREASE (PPB)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
C-1	07-Sep-90	----	visible separate phase	----	----	----	----	----	33.93	19.91	0.03	14.04
C-2	07-Sep-90	----	----	----	----	----	----	----	34.21	20.01	0.10	14.28
C-3	07-Sep-90	11-Sep-90	490	6	<0.5	41	120	N/A	35.46	20.15	----	15.31
C-4	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	<5000	35.78	20.20	----	15.58
C-5	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	N/A	35.31	20.21	----	15.10
C-6	07-Sep-90	11-Sep-90	57	<0.5	<0.5	0.6	4	N/A	36.89	20.06	----	16.83
C-7	07-Sep-90	11-Sep-90	880	84	23	46	180	N/A	32.75	19.73	----	13.02
C-8	07-Sep-90	11-Sep-90	3700	170	31	180	270	N/A	33.82	19.50	----	14.32
C-9	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	N/A	33.43	19.37	----	14.06
C-10	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	N/A	31.63	19.14	----	12.49

CURRENT REGIONAL WATER QUAILITY CONTROL BOARD MAXIMUM CONTAMINANT LEVELS ?
Benzene 1.0 ppb Xylenes 1,750 ppb Ethylbenzene 680 ppb

CURRENT DHS ACTION LEVELS
Toluene 100 ppb

TPH-G = Total Petroleum Hydrocarbons calculated as Gasoline
CD = Duplicate Sample
PPB = Parts Per Billion
N/A = Not Analyzed
TB = Trip Blank

Note: 1. All data shown as <x are reported as ND (none detected).
2. Static Water Elevations referenced to mean sea level (MSL). Elevations are corrected for free product using a correction factor of 0.8.
3. DHS Action Levels and MCLs are subject to change pending State review.

TABLE 2

GROUND-WATER ANALYSES DATA

WELL NO	SAMPLE DATE	ANALYZED DATE	TPH-G (PPB)	BENZENE (PPB)	TOLUENE (PPB)	ETHYLBENZENE (PPB)	XYLENES (PPB)	OIL & GREASE (PPB)	WELL ELEV (FT)	STATIC WATER ELEV (FT)	PRODUCT THICKNESS (FT)	DEPTH TO WATER (FT)
C-11	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	N/A	31.58	19.36	----	12.22
CD-3	07-Sep-90	11-Sep-90	460	6	<0.5	40	110	N/A	----	----	----	----
TB	07-Sep-90	11-Sep-90	<50	<0.5	<0.5	<0.5	<0.5	N/A	----	----	----	----

TABLE 3

ANALYTICAL LOG

SAMPLE DATE	SAMPLE POINT	TPH (PPB)	BENZENE (PPB)	TOLUENE (PPB)	E.B. (PPB)	XYLENES (PPB)	DIESEL (PPB)	OIL&GREASE (PPB)	TPH-OIL (PPB)
06-Jun-89	C-1	5100.	250.	170.	200.	990.	N/A	N/A	N/A
06-Jun-89	C-2	130,000.	14,000.	28,000.	3,400.	24,000.	N/A	N/A	N/A
06-Jun-89	C-3	2,600.	63.	20.	390.	370.	N/A	N/A	N/A
08-Dec-89	C-3	680.	6.	1.	31.	58.	N/A	N/A	N/A
07-Sep-90	C-3	490	6	<0.5	41	120	N/A	N/A	N/A
06-Jun-89	C-4	<50.	<0.05	<1.	<1.	<3.	N/A	N/A	<500
08-Dec-89	C-4	<500.	<0.5	<0.5	<0.5	<0.5	<1000.	<5000.	N/A
07-Sep-90	C-4	<50	<0.5	<0.5	<0.5	<0.5	N/A	<5000	N/A
06-Jun-89	C-5	<50.	<0.05	<1.	<1.	<3.	N/A	N/A	N/A
08-Dec-89	C-5	<500.	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-5	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
08-Dec-89	C-6	<500.	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-6	57	<0.5	<0.5	0.6	4	N/A	N/A	N/A
08-Dec-89	C-7	1700.	32.	12.	17.	150.	N/A	N/A	N/A
07-Sep-90	C-7	880	84	23	46	180	N/A	N/A	N/A
08-Dec-89	C-8	4800.	62.	11.	95.	180.	N/A	N/A	N/A
07-Sep-90	C-8	3700	170	31	180	270	N/A	N/A	N/A
07-Sep-90	C-9	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-10	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A
07-Sep-90	C-11	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A	N/A

All data shown as <X are reported as ND (none detected)

TABLE 4

SUMMARY OF ONE-HALF MILE RADIUS WELL SURVEY
Chevron Service Station No. 0504
15900 Hesperian Boulevard, San Lorenzo, California

MAP ID	STATE NUMBER	WELL LOCATION	TOTAL DEPTH	YEAR DRILLED	USAGE (STATUS)
1	2W7E1	Hesperian and Lewelling	50'	1977	Cathodic
2	2W7F1	15559 Usher Street	25'	?	Irrigation
3	2W7F2	15594 Sharon Street	27'	1955	Irrigation
4	2W7G1	624 Lewelling	75'	1937	Domestic
5	2W7J7	16068 Via Cordoba	30'	1977	Domestic
6	2W7J8	15939 Via Cordoba	37'	1977	Irrigation
7	2W7M1	646 Via Del Rio	22'	?	Irrigation
8	2W7M3	754 Grant Avenue	31'	1977	Irrigation
9	2W18B1	16138 Via Segundo	34'	1950	Irrigation
10	2W18B3	17162 Via Primero	40'	1976	Irrigation

SOURCE: County of Alameda Public Works Agency

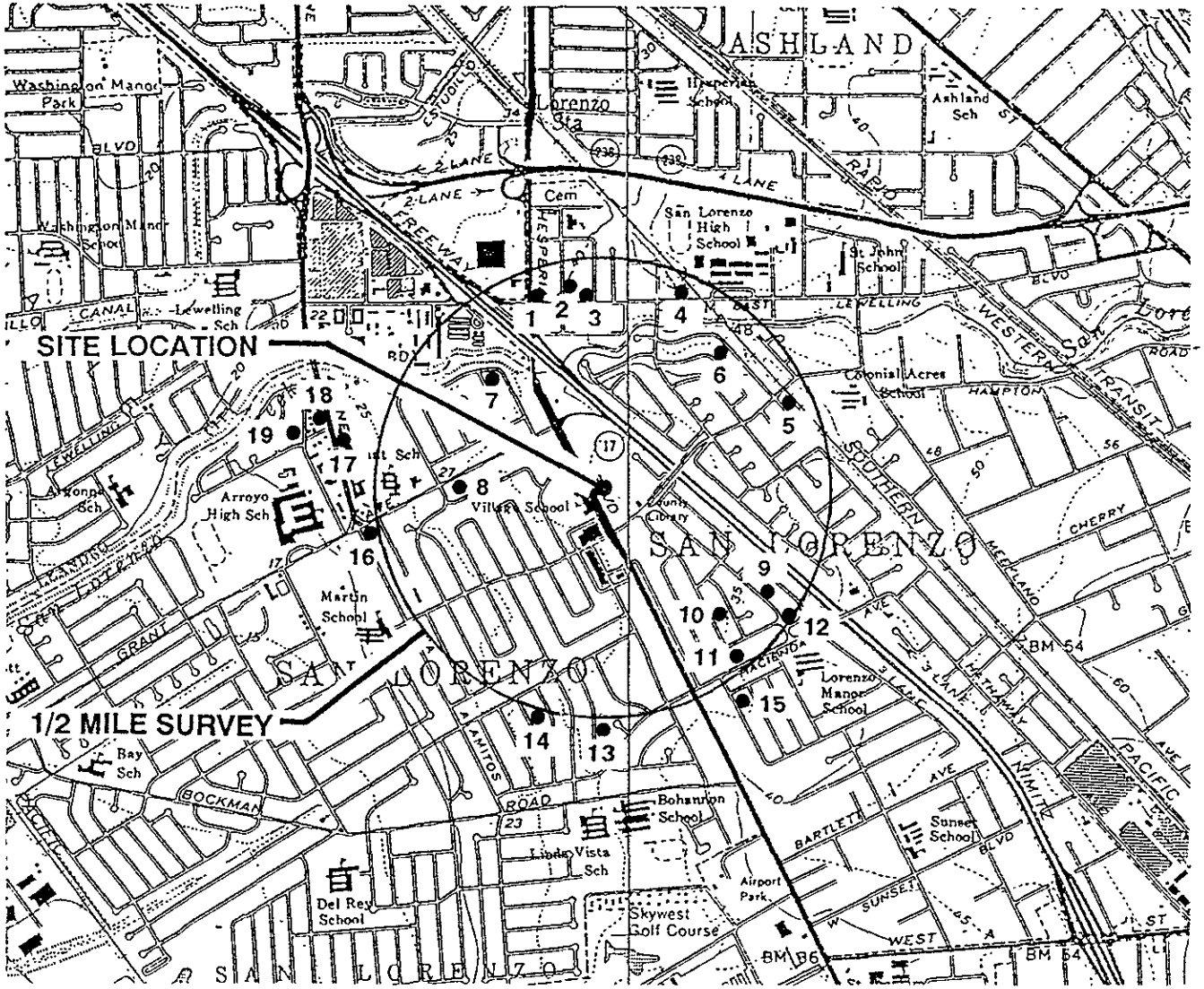
Notes: 1. This survey does not include monitoring wells or piezometers located nearby sites where subsurface investigations are on-going as these are not considered water producing wells.
2. Information regarding type of and method used for sealing wells is not available.
3. Locations are approximated on the vicinity map (Plate 1).

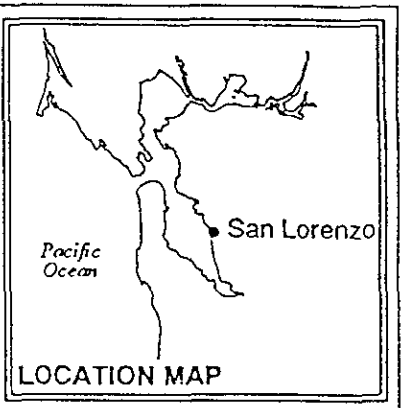
TABLE 4

SUMMARY OF ONE-HALF MILE RADIUS WELL SURVEY
Chevron Service Station No. 0504
15900 Hesperian Boulevard, San Lorenzo, California

MAP ID	STATE NUMBER	WELL LOCATION	TOTAL DEPTH	YEAR DRILLED	USAGE (STATUS)
11	2W18B4	396 Hacienda Avenue	31'	1977	Irrigation
12	2W18B6	17578 Via Primero	30'	1989	Domestic
13	2W18C1	17127 Via Flores	25'	1977	Irrigation
14	2W18F4	17061 Via Perdido	25'	1989	Irrigation
15	2W18G1	18451 Robscott Avenue	26'	1977	Irrigation
16	3W12J1	Washington Avenue/Grant	370'	1940	Abandoned
17	3W12J2	15550 Washington Avenue	360'	1932	Irrigation
18	3W12J3	15325 Washington Avenue	130'	1920	Irrigation
19	3W12J4	15600 Lorenzo Avenue	80'	1978	Irrigation

ILLUSTRATIONS





EXPLANATION

● 1 Well location

N

0 2000

Scale in Feet

Base Map: USGS Topographic Map

GeoStrategies Inc.

Vicinity Map with Half-Mile Well Survey
Chevron Service Station #0504
15900 Hesperain Blvd.
San Lorenzo, California

PLATE 1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE
7259	RMP CEG 12/92	10/90	

PARKING LOT

EXPLANATION

Ground-water monitoring well

N

0 40 Scale in Feet

PRIVATE ROAD

W.O. TANK

C-4

TRASH ENCL.

SERVICE STATION BUILDING

PLANTER

PLANTER

C-5

COMMERCIAL BUILDING

SERVICE ISLANDS

C-6

C-3

SERVICE ISLANDS

U.G. TANKS

PARKING LOT

COMMERCIAL (DONUT SHOP)

PARKING LOT

PLANTER

C-2

C-1

PLANTER

C-7

C-8

HESPERIAN BOULEVARD

C-9

C-11

RESIDENTIAL

PARKING LOT

C-10

PLATE 2

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

GSI

JOB NUMBER 7259

DATE 9/90

REVIEWED BY RG/CEG

REVISED DATE

PRIVATE ROAD

Approximate ground-water flow direction

EXPLANATION

- Ground-water monitoring well
- 19.80 — Groundwater elevation contour Approximate Gradient = 0.004
- *19.73* — Groundwater elevation in feet referenced to Mean Sea Level (MSL) measured on September 7, 1990

Note: Contours may be influenced by irrigation practices and/or site construction activities.

N

0 40 Scale in Feet

C-4 20.20
20.20
C-5 20.21
C-6 20.06
C-3 20.15
C-2 20.01
C-1 19.91
20.00
C-7 19.73
19.80
19.60
C-8 19.50
HESPERIAN BOULEVARD
19.40
C-9 19.37
C-11 19.36
19.20
C-10 19.14

PLATE 3

POTENTIOMETRIC MAP
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

GeoStrategies Inc.

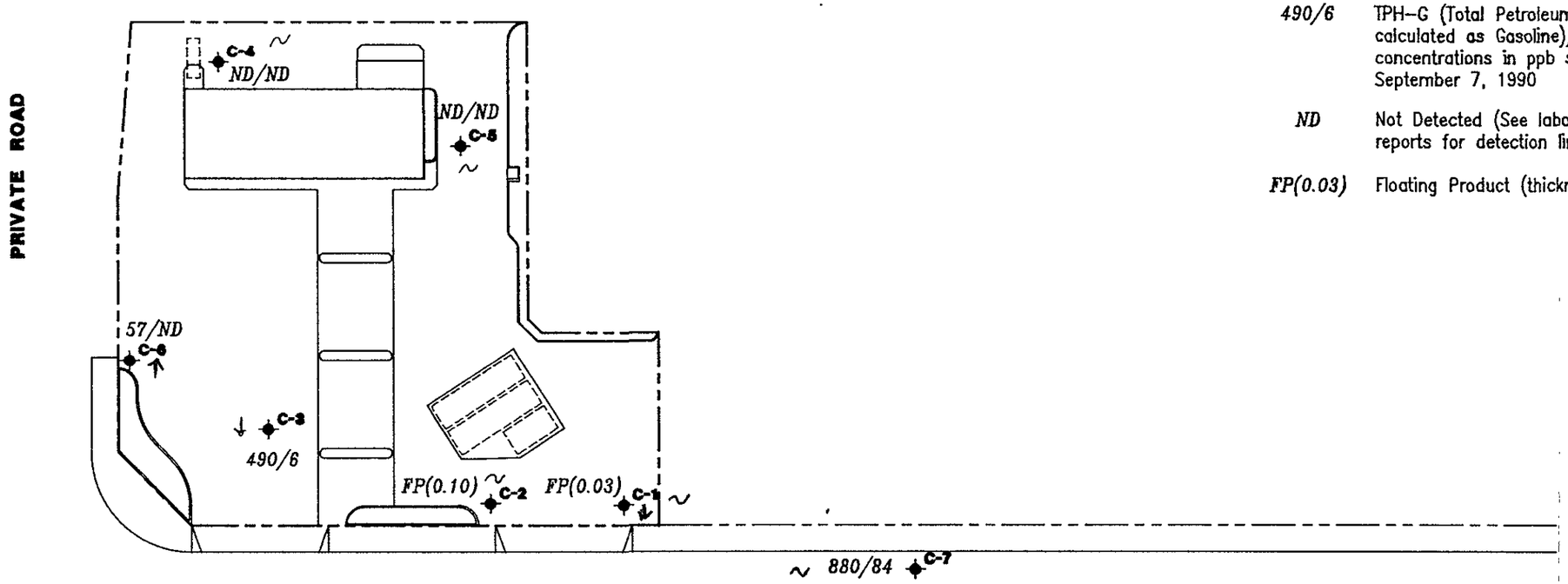
GSI

JOB NUMBER 7259

REVIEWED BY RG/CEG

DATE 10/90

REVISED DATE



EXPLANATION

- ✦ Ground–water monitoring well
- *490/6* TPH–G (Total Petroleum Hydrocarbons calculated as Gasoline)/Benzene concentrations in ppb sampled on September 7, 1990
- *ND* Not Detected (See laboratory reports for detection limits)
- *FP(0.03)* Floating Product (thickness in feet)

1st tested
C6 → C-8 Installed 12/89
C-9 → C-11 1st tested 9/90

N

0 40 Scale in Feet

PLATE 4

TPH–G/BENZENE CONCENTRATION MAP
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

DATE 10/90

REVISED DATE

GeoStrategies Inc.

GSI

JOB NUMBER 7259

REVIEWED BY RG/CEG

APPENDIX A

FIELD METHODS AND PROCEDURES

FIELD METHODS AND PROCEDURES

EXPLORATION DRILLING

Mobilization

Prior to any drilling activities, GeoStrategies Inc. (GSI) will verify that necessary drilling permits have been secured.

Utility locations will be located and drilling will be conducted so as not to disrupt activities at a project site. GSI will obtain and review available public data on subsurface geology and if warranted, the location of wells within a half-mile of the project site will be identified. Drillers will be notified in advance so that drilling equipment can be inspected prior to performing work.

Drilling

The subsurface investigations are typically performed to assess the lateral and vertical extent of petroleum hydrocarbons present in soils and groundwater. Drilling methods will be selected to optimize field data requirements as well as be compatible with known or suspected subsurface geologic conditions.

Monitoring wells are installed using a truck-mounted hollow-stem auger drill rig or mud-rotary drill rig. Typically, the hollow-stem rig is used for wells up to 100 feet, if subsurface conditions are favorable. Wells greater than 100-feet deep are typically drilled using mud-rotary techniques. When mud rotary drilling is used, an electric log will be performed for additional lithological information. Also during mud rotary drilling, precautions will be taken to prevent mud from circulating contaminants by using a conductor casing to seal off contaminated zones. Samples will be collected for lithologic logging by continuous chip, and where needed by drive sample or core as specified by the supervising geologist.

Soil Sampling

Shallow soil borings will be drilled using a truck-mounted hollow-stem auger drilling rig, unless site conditions favor a different drilling method. Drilling and sampling methods will be consistent with ASTM Method D-1452-80. The auger size will be a minimum 6-inch nominal outside-diameter (O.D). No drilling fluids will be used during this drilling method. The augers and other tools used in the bore hole will be steam cleaned before use and between borings to minimize the possibilities of cross-contamination between borings.

Soil samples are typically collected at 5-foot intervals as a minimum from ground surface to total depth of boring. Additional soil samples will be collected based on significant lithologic changes and/or potential chemical content. Soil samples from each sampling interval will be lithologically described by a GSI geologist (Figure 1). Soil colors will be described using the Munsell Color Chart. Rock units will be logged using appropriate lithologic terms, and colors described by the G.S.A. Rock Color Chart.

Head-space analyses will be performed to check for the evidence of volatile organic compounds. Head-space analyses will be performed using an organic vapor analyzer; either an OVA, HNU, or OVM. Organic vapor concentrations will be recorded on the GSI field log of boring (Figure 1). The selection of soil samples for chemical analysis are typically based on the following criteria:

1) Soil discoloration
2) Soil odors
3) Visual confirmation of chemical in soil
4) Depth with respect to underground tanks (or existing grade)
5) Depth with respect to ground water
6) OVA reading

Soil samples (full brass liners) selected for chemical analysis are immediately covered with aluminum foil and the liner ends are capped to prevent volatilization. The samples are labeled and entered onto a Chain-of-Custody form, and placed in a cooler on blue ice for transport to a State-certified analytical laboratory.

Soil cuttings are stockpiled on-site. Soils are sampled and analyzed for site-specific chemical parameters. Disposition of soils is dependent of chemical analytical results of the samples.

Soil Sampling - cont.

Soil borings not converted to monitoring wells will be backfilled (sealed) to ground surface using either a neat cement or cement-bentonite grout mixture. Backfilling will be tremied by continuously pumping grout from the bottom to the top of the boring where depth exceeds 20' or as required by local permit requirements.

All field and office work, including exploratory boring logs, are prepared under the direction of a registered geologist.

Monitoring Well Installation

Monitoring well casing and screen will be constructed of Schedule 40, flush-joint threaded polyvinylchloride (PVC). The well screen will be factory mill-slotted unless additional open area is required (eg. conversion to an extraction well in a low-yield aquifer). The screen length will be placed adjacent to the aquifer material to a minimum of 2-feet above encountered water. No screen shall be placed in a borehole that potentially creates hydraulic interconnection of two or more aquifer units. Screen slot size and well sand pack will be compatible with encountered aquifer materials, as confirmed by sieve analysis.

Monitoring wells will be completed below grade (Figure 2) unless special conditions exist that require above-grade completion design. In the event a monitoring well is required in an aquifer unit beneath an existing aquifer, the upper aquifer will be sealed off by installing a steel conductor casing with an annular neat cement or cement-bentonite grout seal. This seal will be continuously tremie pumped from the bottom of the annulus to ground surface.

The monitoring well sand pack will be placed adjacent to the entire screened interval and will extend a recommended minimum distance of 2-feet above the top of the screen. No sand pack will be placed that interconnects two or more aquifer units. A minimum 2-foot bentonite pellet or bentonite slurry seal will be placed above the sand pack. Sand pack, bentonite, and cement seal levels will be confirmed by sounding the annulus with a calibrated weighted tape. The remaining annular space above the bentonite seal will be grouted with a bentonite-cement mixture and will be tremie-pumped from the bottom of the annular space to the ground surface. The bentonite content of the grout will not exceed 5 percent by weight. A field log of boring and a field well completion form will be prepared by GSI for each well installed.

Decontamination of drilling equipment before drilling and between wells will consist of steam cleaning, and/or Alconox wash.

Well Development

All newly installed wells will be properly developed within 48 hours of completion. No well will be developed until the well seal has set a minimum of 12 hours. Development procedures will include one or more of the methods described below:

Bailing

Bailing will be used to remove suspended sediments and drilling fluids from the well, where applicable. The bailer will be raised and lowered through the column of water in the well so as to create a gentle surging action in the screened interval. This technique may be used in conjunction with other techniques, such as pumping, and may be used alone if the well is of low yield.

Pumping

Pumping will be used in conjunction with bailing or surging. The pump will be operated in such a manner as to gently surge the entire screened interval of the well. This may involve operating the pump with a packer type mechanism attached and slowly raising and lowering the pump, or by cycling the pump off and on to allow water to move in and out of the screened interval. Care will be used not to overpump a well.

Surging

Surging will be performed on wells that are screened in known or suspected high yield formations and/or on larger diameter (recovery) wells. A surge block will be raised and lowered through the entire screened interval, forcing water in and out of the well screen and sand pack. Pumping or air lifting will be used in conjunction with this method of development to remove any sediment brought into the well during surging.

Air Lifting

Air lifting will be used to remove sediment from wells as an alternative to pumping under certain conditions. When appropriate, a surge block designed for use with air lifting will be used to agitate the entire screened interval and water will be lifted out of the well using forced air. When air lifting is performed, the air source will be either nitrogen or filtered air and the procedure will be performed gently to prevent any damage to the well screen or casing and to insure that discharged water is contained.

Well Development - cont.

All well developing equipment will be thoroughly decontaminated prior to development using a steam cleaner and/or Alconox detergent wash and clean water rinse. During development procedures, field parameters (temperature, specific conductance and pH) will be monitored and recorded on well development forms (Figure 3). Equilibration requirements consist of a minimum of three readings with the following accuracy standards:

pH	± 0.1 pH units
Specific Conductance	± 10% of full scale reading
Temperature	± 0.5 degrees Celsius

The wells will be developed until water is visibly clear and free of sediment, and well purging parameters stabilized. A minimum of 8 to 10 well volumes will be purged from each well, if feasible. If well purging parameters have not stabilized before 10 casing volumes have been removed, well development will continue until purging parameters have stabilized and formation water is being drawn into the well. The adequacy of well development will be judged by the field technician performing the well development and based on known formation conditions.

Well Surveying

Monitoring wells will be surveyed to obtain top of box elevations to the nearest ±0.01 foot. Water level measurements will be recorded to the nearest ±0.01 foot and referenced to Mean Sea Level (MSL). If additional wells are required, then existing and newly installed wells are surveyed relative to MSL.

GROUND-WATER SAMPLING AND ANALYSIS

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by Gettler-Ryan Inc. (G-R) for ground-water sampling and monitoring follow specific Quality Assurance/Quality Control (QA/QC) guidelines. Quality Assurance objectives have been established by G-R to develop and implement procedures for obtaining and evaluating water quality and field data in an accurate, precise, and complete manner so that sampling procedures and field measurements provide information that is comparable and representative of actual field conditions. Quality Control (QC) is maintained by G-R by using specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. It is the goal of G-R to provide data that are accurate, precise, complete, comparable, and representative. The definitions for accuracy, precision, completeness, comparability, and representativeness are as follows:

- Accuracy - the degree of agreement of a measurement with an accepted referenced or true value.

- Precision - a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of the standard deviation.

- Completeness - the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.

- Comparability - expresses the confidence with which one data set can be compared to another.

- Representativeness - a sample or group of samples that reflects the characteristics of the media at the sampling point. It also includes how well the sampling point represents the actual parameter variations which are under study.

As part of the G-R QA/QC program, applicable federal, state, and local reference guidance documents are followed. The procedures outlined in these regulations, manuals, handbooks, guidance documents, and journals are incorporated into the G-R sampling procedures to assure that; (1) ground-water samples are properly collected, (2) ground-water samples are identified, preserved, and transported in a manner such that they are representative of field conditions, and (3) chemical analysis of samples are accurate and reproducible.

Guidance and Reference Documents Used to Collect Groundwater Samples

These documents are used to verify G-R sampling procedures and are consistent with current regulatory guidance. If site specific work and sampling plans are required, those plans will be developed from these documents, and newly received applicable documents.

U.S.E.P.A. - 330/9-51-002	NEIC Manual for Groundwater/Subsurface Investigation at Hazardous Waste Sites
U.S.E.P.A. - 530/SW611	Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities (August, 1977)
U.S.E.P.A. - 600/4-79-020	Methods for Chemical Analysis of Water and Wastes (1983)
U.S.E.P.A. - 600/4-82-029	Handbook for Sampling and Sample Preservation of Water and Wastewater (1982)
U.S.E.P.A. - 600/4-82-057	Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater (July, 1982)
U.S.E.P.A. - SW-846#, 3rd Edition	Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (November, 1986)
40 CFR 136.3e,Table II (Code of Federal Regulations)	Required Containers, Preservation Techniques, and Holding Times
Resources Conservation and Recover Act (OSWER 9950.1)	Groundwater Monitoring Technical Enforcement Guidance Document (September, 1986)
California Regional Water Quality Control Board (Central Valley Region)	A Compilation of Water Quality Goals (September, 1988); Updates (October, 1988)
California Regional Water Quality Control Board (North Coast, San Francisco Bay, and Central Valley)	Regional Board Staff Recommendations for Initial Evaluations and Investigation of Underground Tanks: Tri-Regional Recommendations (June, 1988)

Guidance and Reference Documents Used to Collect Groundwater Samples (cont.)

Regional Water Quality Control Board (Central Valley Region)	Memorandum: Disposal, Treatment, and Refuse of Soils Contaminated with Petroleum Fractions (August, 1986)
State of California Department of Health Services	Hazardous Waste Testing Laboratory Certification List (March, 1987)
State of California Water Resources Control Board	Leaking Underground Fuel Tank (LUFT) Field Manual (May, 1988), and LUFT Field Manual Revision (April, 1989)
State of California Water Resources Control Board	Title 23, (Register #85.#33-8-17-85), Subchapter 16: Underground Tank Regulations; Article 3, Sections 2632 and 2634; Article 4, Sections 2645, 2646, 2647, and 2648; Article 7, Sections 2670, 2671, and 2672 (October, 1986: including 1988 Amendments)
Alameda County Water District	Groundwater Protection Program: Guidelines for Groundwater and Soil Investigations at Leaking Underground Fuel Tank Sites (November, 1988)
American Public Health Association	Standard Methods for the Examination of Water and Wastewaters, 16th Edition
Analytical Chemistry (journal)	Principles of Environmental Analysis, Volume 55, Pages 2212-2218 (December, 1983)
Napa County	Napa County Underground Storage Tank Program: Guidelines for Site Investigations; February 1989.
Santa Clara Valley Water District	Guidelines for Preparing or Reviewing Sampling Plans for Soil and Groundwater Investigation of Fuel Contamination Sites (January, 1989)

Guidance and Reference Documents Used to Collect Groundwater Samples (cont.)

Santa Clara Valley Water District	Investigation and Remediation at Fuel Leak sites: Guidelines for Investigation and Technical Report Preparation (March 1989)
Santa Clara Valley Water District	Revised Well Standards for Santa Clara County (July 18, 1989)
American Petroleum Institute	Groundwater Monitoring & Sample Bias; API Publication 4367, Environmental Affairs Department, June 1983
American Petroleum Institute	A Guide to the Assessment and Remediation of Underground Petroleum Releases; API Publication 1628, February 1989
American Petroleum Institute	Literature Summary: Hydrocarbon Solubilities and Attenuations Mechanisms, API Publication 4414, August 1985
Site Specific (as needed)	General and specific regulatory documents as required.

Because ground-water samples collected by G-R are analyzed to the parts per billion (ppb) range for many compounds, extreme care is exercised to prevent contamination of samples. When volatile or semi-volatile organic compounds are included for analysis, G-R sampling crew members will adhere to the following precautions in the field:

1. A clean pair of new, disposable gloves are worn for each well being sampled.

2. When possible, samples are collected from known or suspected wells that are least contaminated (i.e. background) followed by wells in increasing order of contamination.

3. Ambient conditions are continually monitored to maintain sample integrity.

When known or potential organic compounds are being sampled for, the following additional precautions are taken:

1. All sample bottles and equipment are kept away from fuels and solvents. When possible, gasoline (used in generators) is stored away from bailers, sample bottles, purging pumps, etc.

2. Bailers are made of Teflon or Stainless Steel. Other materials such as plastic may contaminate samples with phthalate esters which interfere with many Gas Chromatography (GC) analyses.

3. Volatile organic ground-water samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples): sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the neck of the bottle; the Teflon side of the septum (in cap) is positioned against the meniscus, and the cap screwed on tightly; the sample is inverted and the bottle lightly tapped. The absence of an air bubble indicates a successful seal; if a bubble is evident, the cap is removed, more sample is added, and the bottle is resealed.

4. Extra Teflon seals are brought into the field in case seals are difficult to handle and/or are dropped. Dropped seals are considered contaminated and are not used. When replacing seals or if seals become flipped, care is taken to assure that the Teflon seal faces down.

Sample analysis methods, containers, preservatives and holding times are shown on Table 1.

Laboratory and field handling procedures of samples are monitored by including QC samples for analysis with every submitted sample lot from a project site. QC samples may include any combination of the following:

A. Trip Blank: Used for purgeable organic compounds only; QC samples are collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic-free water. Trip blanks are sent to the project site, and travel with project site samples. Trip blanks are not opened, and are returned from a project site with the project site samples for analysis.

B. Field Blank: Prepared in the field using organic-free water. These QC samples accompany project site samples to the laboratory and are analyzed for specific chemical parameters unique to the project site where they were prepared.

C. Duplicates: Duplicated samples are collected "second samples" from a selected well and project site. They are collected as either split samples or second-run samples collected from the same well.

D. Equipment Blank: Periodic QC sample collected from field equipment rinsate to verify decontamination procedures.

The number and types of QC samples are determined as follows:

A. Up to 2 wells - Trip Blank Only

B. 2 to 5 Wells - 1 Field Blank and 1 Trip Blank

C. 5 to 10 Wells - 1 Field blank, 1 Trip Blank, and 1 Duplicate

D. More than 10 Wells - 1 Field Blank, 1 Trip Blank, and 1 Duplicate per each 12 wells

E. If sampling extends beyond one day, quality control samples will be collected for each day.

Additional QC is performed through ongoing and random reviews of duplicate samples to evaluate the precision of the field sampling procedures and analytical laboratory. Precision of QC data is accomplished by calculating the Relative Percent Difference (RPD). The RPD is evaluated to assess whether values are within an acceptable range (typically ± 20% of duplicate sample).

SAMPLE COLLECTION

This section describes the routine procedures followed by G-R while collecting ground-water samples for chemical analysis. These procedures include decontamination, water-level measurements, well purging, physical parameter measurements, sample collection, sample preservation, sample handling, and sample documentation. Critical sampling objectives for G-R are to:

1. Collect ground-water samples that are representative of the sampled matrix and,

2. Maintain sample integrity from the time of sample collection to receipt by the analytical laboratory.

Sample analyses methods, containers, preservation, and holding times are presented in Table 1.

Decontamination Procedures

All physical parameter measuring and sampling equipment are decontaminated prior to sample collection using Alconox or equivalent detergent followed by steam cleaning with deionized water. Any sampling equipment surfaces or parts that might absorb specific contaminants, such as plastic pump valves, impellers, etc., are cleaned in the same manner.

Sample bottles, bottle caps, and septa used for sampling volatile organics are thoroughly cleaned and prepared in the laboratory. Sample bottles, bottle caps, and septa are protected from all potential chemical contact before actual usage at a sample location.

During field sampling, equipment placed in a well are decontaminated before purging or sampling the next well. The equipment are decontaminated by cleaning with Alconox or equivalent detergent followed by steam cleaning with deionized water.

Water-Level Measurements

Prior to purging and sampling a well, the static-water levels are measured in all wells at a project site using an electric sounder and/or calibrated portable oil-water interface probe (Figure 4). Both static water-level and separate-phase product thickness are measured to the nearest ±0.01 foot. The presence of separate-phase product is confirmed using a clean, acrylic or polyvinylchloride (PVC) bailer, measured to the nearest ±0.01 foot with a decimal scale tape.

Water-Level Measurements (continued)

The monofilament line used to lower the bailer is replaced between wells with new line to preclude the possibility of cross-contamination. Field observations (e.g. well integrity, product color, turbidity, water color, odors, etc.) are noted on the G-R Well Sampling Field Data Sheet shown in Figure 4. Before and after each use, the electric sounder, interface probe and bailer are decontaminated by washing with Alconox or equivalent detergent followed by rinsing with deionized water to prevent cross-contamination.

As mentioned previously, water-levels are measured in wells with known or suspected lowest dissolved chemical concentrations to the highest dissolved concentrations.

Well Purging

Before sampling occurs, well casing storage water and interstitial water in the artificial sand pack will be purged using (1) a positive displacement bladder pump constructed of inert, non-wetting, Teflon and stainless steel, (2) a pneumatic-airlift pumping system, (3) a centrifigal pumping system, or (4) a Teflon or Stainless steel bailer (Figure 5). Methods of purging will be assessed based on well size, location, accessibility, and known chemical conditions. Individual well purge volumes are calculated from borehole volumes which take into account the sand packed interval in the well annular space. As a general rule, a minimum of 3 and a maximum of 10 borehole volumes will be purged. Wells which dewater or demonstrate slow recharge periods (i.e. low-yield wells) during purging activities may be sampled after fewer purging cycles. If a low-yield (low recovery) well is to be sampled, sampling will not take place until at least 80 percent of the previously measured water column has been replaced by recharge, or as per local requirements. Physical parameter measurements (temperature, pH, and specific conductance) are closely monitored throughout the well purging process and are used by the G-R sampling crew as indicators for assessing sufficient purging. Purging is continued until all three physical parameters have stabilized. Specific conductance (conductivity) meters are read to the nearest ± 10 umhos/cm, and are calibrated daily. pH meters are read to the nearest ± 0.1 pH units and are calibrated daily. Temperature is read to the nearest 0.1 degree F. Calibration of physical parameter meters will follow manufacturers specifications. Monitoring wells will be purged according to the protocol presented in Figure 5. Collected field data during purging activities will be entered on the G-R Well Sampling Field Data Sheet shown in Figure 4. Copies of the G-R Field Data Sheets will be reviewed by the G-R Sampling Manager for accuracy and completeness.

DOCUMENTATION

Sample Container Labels

Each sample container will be labeled by an adhesive label, noted in permanent ink immediately after the sample is collected. Label information will include:

Sample point designation (i.e. well number or code)

Sampler's identification

Project number

Date and time of collection

Type of preservation used

Well Sampling Data Forms

In the field, the G-R sampling crew will record the following information on the Well Sampling Data Sheet for each sample collected:

Project number

Client

Location

Source (i.e. well number)

Time and date

Well accessibility and integrity

Pertinent well data (e.g. depth, product thickness, static water-level, pH, specific conductance, temperature)

Calculated and actual purge volumes

Chain-of-Custody

A Chain-of-Custody record (Figure 6) shall be completed and accompany every sample and every shipment of samples to the analytical laboratory in order to establish the documentation necessary to trace sample possession from time of collections. The record will contain the following information:

- Sample or station number or sample identification (ID)
- Signature of collector, sampler, or recorder
- Date and time of collection
- Place of collection
- Sample type
- Signatures of persons involved in chain of possession
- Inclusive dates of possession

Samples shall always be accompanied by a Chain-of-Custody record. When transferring the samples, the individual relinquishing and receiving the samples will sign, date, and note the time on the Chain-of-Custody record. G-R will be responsible for notifying the laboratory coordinator when and how many samples will be sent to the laboratory for analysis, and what types of analyses shall be performed.

TABLE 1

SAMPLE ANALYSIS METHODS, CONTAINERS, PRESERVATIONS, AND HOLDING TIMES

Parameter	Analytical Method	Reporting Units	Container	Preservation	Maximum Holding Time
Total Petroleum Hydrocarbons (Gasoline)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon	cool, 4 C HCl to pH<2	14 days (maximum)
Benzene Toluene Ethylbenzene Xylenes (BTEX	EPA 8020	mg/l ug/l	50 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	7 days (w/o preservative) 14 days (w preservative)
Oil & Grease	SM 503E	mg/l ug/l	1 l glass, Teflon lined septum	H2SO4 or HCl to pH<2	28 days (maximum)
Total Petroleum Hydrocarbons (Diesel)	EPA 8015 (modified)	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Halogented Volatile Organics (chlorinated solvents)	8010	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C	14 days (maximum)
Non chlorinated solvents	8020	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	14 days (maximum)
Volatile Organics	8240	mg/l ug/l	40 ml. vial glass, Teflon lined septum	cool, 4 C HCl to pH<2	14 days (maximum)
Semi-Volatile Organics	8270	mg/l ug/l	1 l amber glass, Teflon lined septum	cool, 4 C	7 days extract 40 days (maximum to analyze)
Specific Conductance (Field test)		umhos/cm			
pH (Field test)		pH units			
Temperature (Field test)		Deg F			

GeoStrategies Inc.

FIELD EXPLORATORY BORING LOG

FIGURE 1

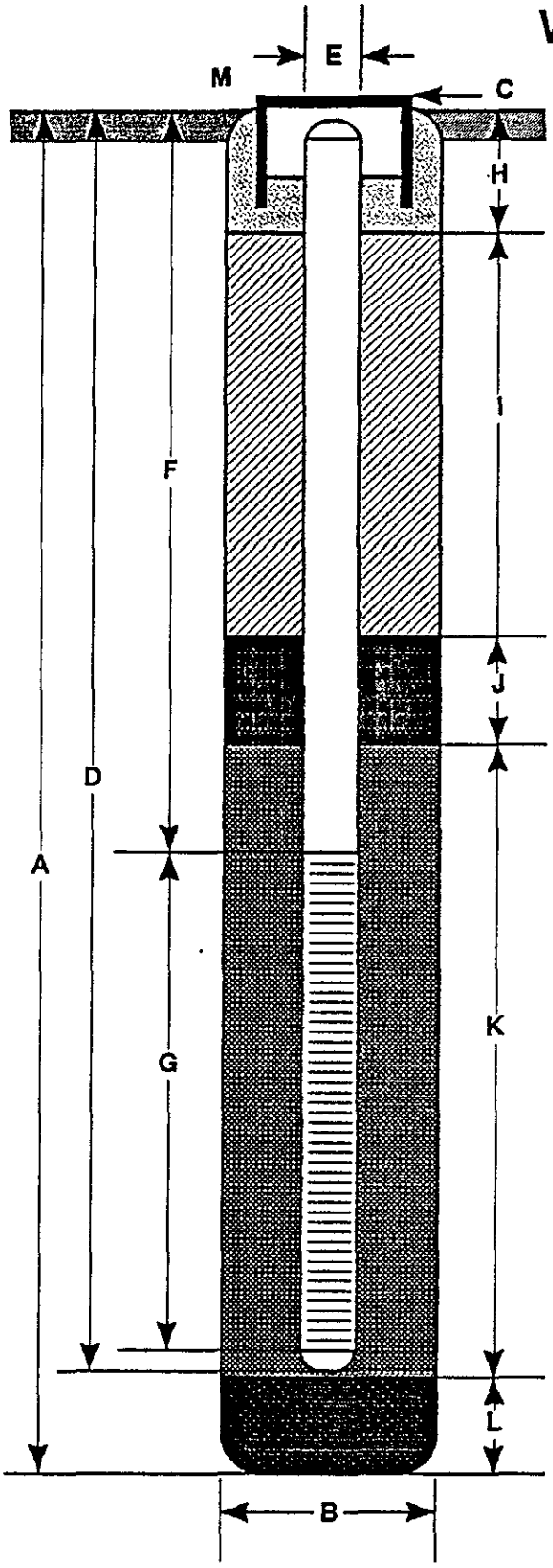
Field location of boring:	Project No.:	Date:	Boring No:
	Client:		
	Location:		
	City:		Sheet
	Logged by:	Driller:	of
Drilling method:	Casing installation data:		
Hole diameter:	Top of Box Elevation:		Datum:

								Water Level				
PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Time				
								Date				
								Description				

Remarks:

WELL CONSTRUCTION DETAIL

FIGURE 2



A Total Depth of Boring _____ ft.

B Diameter of Boring _____ in.
Drilling Method _____

C Top of Box Elevation _____ ft.
☐ Referenced to Mean Sea Level
☐ Referenced to Project Datum

D Casing Length _____ ft.
Material _____

E Casing Diameter _____ in.

F Depth to Top Perforations _____ ft.

G Perforated Length _____ ft.
Perforated Interval from _____ to _____ ft.
Perforation Type _____
Perforation Size _____ in.

H Surface Seal from _____ to _____ ft.
Seal Material _____

I Backfill from _____ to _____ ft.
Backfill Material _____

J Seal from _____ to _____ ft.
Seal Material _____

K Gravel Pack from _____ to _____ ft.
Pack Material _____

L Bottom Seal _____ ft.
Seal Material _____

M _____

Note: Depths measured from initial ground surface

GSI GeoStrategies Inc.

Well Construction Detail

WELL NO.

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE

WELL DEVELOPMENT FORM FIGURE 3

Page_____ of_____

(to be filled out in office)

Client_____ SS#_____ Job#_____

Name_____ Location_____

Well#_____ Screened Interval_____ Depth_____

Aquifer Material_____ Installation Date _____

Drilling Method_____ Borehole Diameter_____

Comments regarding well installation:_____

(to be filled out in the field) Name_____

Date_____ Development Method_____

Total Depth_____ - Depth to liquid_____ = WaterColumn_____

Product thickness_____

_____ x _____ x _____ x 0.0408 = _____gals
Water Column Diameter (in.) #Vol

Purge Start_____ Stop_____ Rate_____ gpm

Gallons	Time	Clarity	Temp.	pH	Conductivity
0					

Total gallons removed_____ Development stop time_____

Depth to liquid _____at_____(time)

Odor of water_____ Water discharged to_____

Comments_____

GETTLER–RYAN INC.

General and Environmental Contractors

WELL SAMPLING FIELD DATA SHEET

FIGURE 4

COMPANY _____ JOB # _____

LOCATION _____ DATE _____

CITY _____ TIME _____

Well ID. _____ Well Condition _____

Well Diameter _____ in. Hydrocarbon Thickness _____ ft.

Total Depth _____ ft.

Volume Factor (VF)			
	2" = 0.17	6" = 1.50	12" = 5.80
	3" = 0.38	8" = 2.60	
	4" = 0.66	10" = 4.10	

Depth to Liquid- _____ ft.

(# of casing volumes) _____ x _____ x(VF) _____ = (Estimated Purge Volume) _____ gal.

Purging Equipment _____

Sampling Equipment _____

Starting Time _____ Purging Flow Rate _____ gpm.

(Estimated Purge Volume) _____ gal. / (Purging Flow Rate) _____ gpm. = (Anticipated Purging Time) _____ min.

Time	pH	Conductivity	Temperature	Volume

Did well dewater? _____ If yes, time _____ Volume _____

Sampling Time _____ Weather Conditions _____

Analysis _____ Bottles Used _____

Chain of Custody Number _____

COMMENTS _____

FIGURE 5

Monitoring Well Sampling Protocol Schematic

Sampling Crew Reviews Project Sampling Requirements/Schedule

↓

Field Decontamination and Instrumentation Calibration

↓

Check Integrity of Well (Inspect for Well Damage)

↓

Measure and Record Depth to Water and Total Well Depth (Electric Well Sounder)

↓

Check for Floating Product (Oil/Water Interface Probe)

Floating Product Present

↓

Confirm Product Thickness (Acrylic or PVC Bailer)

↓

Collect Free-Product Sample

↓

Dissolved Product Sample Not Required

↓

Record Data on Field Data Form

Floating Product Not Present

↓

Purge Volume Calculation

$V = \pi (r/12)^2 h(\_\% \text{ vol})(7.48) = \_\_\_ / \text{gallons}$

V = Purge volume (gallons)

$\pi = 3.14159$

h = Height of Water Column (feet)

r = Borehole radius (inches)

↓

Evacuate water from well equal to the calculated purge volume while monitoring groundwater stabilization indicator parameters (pH, conductivity, temperature) at intervals of one casing volume.

Well Dewaters after One Purge Volume (Low yield well)

↓

Well Recharges to 80% of Initial Measured Water Column Height in Feet within 24 hrs. of Evacuation.

↓

Measure Groundwater Stability Indicator Parameters (pH, Temperature, Conductivity)

↓

Collect Sample and Complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Well Readily Recovers

↓

Record Groundwater Stability Indicator Parameters from each Additional Purge Volume

Stability indicated when the following Criteria are met:

pH :	± 0.1 pH units
Conductivity:	± 10%
Temperature:	1.0 degrees F

Groundwater Stability Achieved

↓

Collect Sample and Complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Groundwater Stability Not Achieved

↓

Continue Purging Until Stability is Achieved

↓

Collect Sample and complete Chain-of-Custody

↓

Preserve Sample According to Required Chemical Analysis

↓

Transport to Analytical Laboratory

Gettler - Ryan Inc. ENVIRONMENTAL DIVISION

Chain of Custody
FIGURE 6

COMPANY _____ JOB NO. _____

JOB LOCATION _____

CITY _____ PHONE NO. _____

AUTHORIZED _____ DATE _____ P.O. NO. _____

SAMPLE ID	NO. OF CONTAINERS	SAMPLE MATRIX	DATE/TIME SAMPLED	ANALYSIS REQUIRED	SAMPLE CONDITION LAB ID

RELINQUISHED BY: _____ RECEIVED BY: _____

RELINQUISHED BY: _____ RECEIVED BY: _____

RELINQUISHED BY: _____ RECEIVED BY LAB: _____

DESIGNATED LABORATORY: _____ DHS #: _____

REMARKS: _____

DATE COMPLETED _____ FOREMAN _____

APPENDIX B
EXPLORATORY BORING LOGS
WELL CONSTRUCTION DETAILS

MAJOR DIVISIONS					TYPICAL NAMES
COARSE-GRAINED SOILS MORE THAN HALF IS COARSER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW		WELL GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
			GP		POORLY GRADED GRAVELS WITH OR WITHOUT SAND, LITTLE OR NO FINES
		GRAVELS WITH OVER 15% FINES	GM		SILTY GRAVELS, SILTY GRAVELS WITH SAND
			GC		CLAYEY GRAVELS, CLAYEY GRAVELS WITH SAND
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW		WELL GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
			SP		POORLY GRADED SANDS WITH OR WITHOUT GRAVEL, LITTLE OR NO FINES
		SANDS WITH OVER 15% FINES	SM		SILTY SANDS WITH OR WITHOUT GRAVEL
			SC		CLAYEY SANDS WITH OR WITHOUT GRAVEL
FINE-GRAINED SOILS MORE THAN HALF IS FINER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML		INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTS WITH SANDS AND GRAVELS
			CL		INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY CLAYS WITH SANDS AND GRAVELS, LEAN CLAYS
			OL		ORGANIC SILTS OR CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH		INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS, FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH		ORGANIC SILTS OR CLAYS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT		PEAT AND OTHER HIGHLY ORGANIC SOILS

Perm	- Permeability
Consol	- Consolidation
LL	- Liquid Limit (%)
PI	- Plastic Index (%)
G_s	- Specific Gravity
MA	- Particle Size Analysis
2.5 YR 6/2	- Soil Color according to Munsell Soil Color Charts (1975 Edition)
5 GY 5/2	- GSA Rock Color Chart

☒	- No Soil Sample Recoverd
■	- "Undisturbed" Sample
⊠	- Bulk or Classification Sample
▽	- First Encountered Ground Water Level
▼	- Piezometric Ground Water Level
Penetration	- Sample drive hammer weight - 140 pounds falling 30 inches. Blows required to drive sampler 1 foot are indicated on the logs

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Unified Soil Classification - ASTM D 2488-85 and Key to Test Data

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 11/27/89	Boring No: C-6
	Client: Chevron Service Station #0504		
	Location: 15900 Hesperian Boulevard		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation: 36.89	Datum: MSL	

								Water Level				
FID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Time				
								Date				
								Description				
								PAVEMENT SECTION - 3.0 feet				
				1								
				2								
				3								
				4								
2.6	100	S&H						SILT (ML) - dark yellow brown (10YR 4/4), medium stiff,				
	100	push	C-6	5				moist; voids; low plasticity; no chemical odor.				
	100		5.5									
				6								
				7								
				8								
				9								
0	100	S&H						COLOR CHANGE to very dark gray (7.5YR 3/0); at 9.0				
	100	push	C-6	10				feet; rootlets; no chemical odor.				
	100		10.5									
				11								
				12								
				13								
				14								
0	4	S&H						COLOR CHANGE to dark yellow brown (10YR 4/4); at				
	5		C-6	15		▽		14.0 feet, stiff, moist; no chemical odor.				
	8		15.5									
				16								
				17								
				18				SILTY CLAY (CL) - very dark gray (10YR 3/0), medium				
				19				stiff, saturated; 35-40% silt; medium plasticity; no chemical odor.				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	RWP CEG 12/92	11/89		

Field location of boring:

(See Plate 2)

Project No.:	7259	Date:	11/27/89
Client:	Chevron Service Station #0504		
Location:	15900 Hesperian Boulevard		
City:	San Lorenzo, California		
Logged by:	R.S.Y.	Driller:	Bayland

Boring No: C-6

Sheet 2 of 2

Casing installation data:

Drilling method: Hollow-Stem Auger

Hole diameter: 8-Inches

Top of Box Elevation: Datum:

Water Level					
Time					
Date					

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
6.2	2	S&H		20				
	3		C-6					
	5		20.5					
				21				
				22				
				23				
				24				
1.3	6	S&H						very stiff, caliche stringers; trace fine sand; no chemical
	11		C-6	25				odor.
	13		25.5					
				26				
								Bottom of sample 25.5 feet.
				27				Bottom of boring at 25.5 feet.
				28				
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

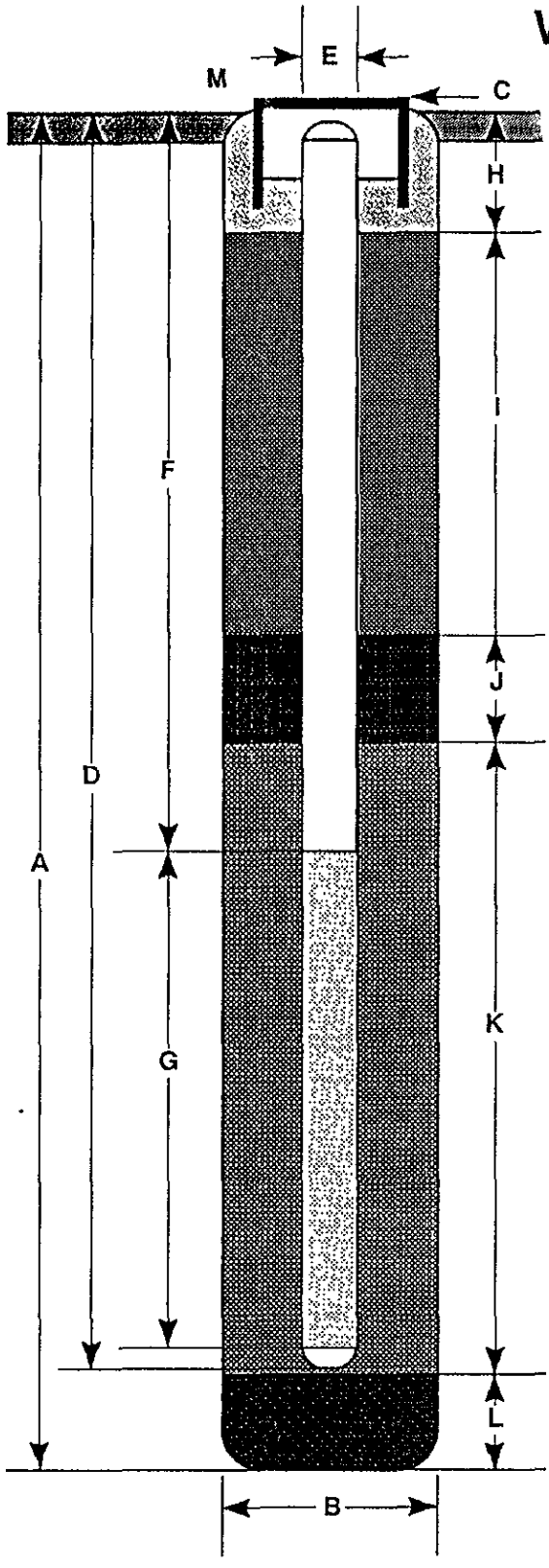
GeoStrategies Inc.

Log of Boring

BORING NO. C-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 12/92	11/89		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 25.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow-Stem Auger

C Top of Box Elevation 36.89 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 25 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 5 ft.

G Perforated Length 20 ft.
Perforated Interval from 5 to 25 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete Grout

I Backfill from 1.5 to 3 ft.
Backfill Material Cement Grout

J Seal from 3 to 4 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 4 to 25 ft.
Pack Material Lonestar 2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Native Soil

M Christy box with locking well cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
C-6

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CMP CEG 12/92	11/89		

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 11/28/89	Boring No.: C-7
	Client: Chevron Service Station #0504		
	Location: 15900 Hesperian Boulevard		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation: 32.75	Datum: MSL	

								Water Level				
								Time				
								Date				
PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description				
								PAVEMENT SECTION - 3.5 feet				
				1								
				2								
				3								
				4				FILL - Sand (SP) - trench backfill; loose, moist.				
				5								
0		S&H										
		push	C-7	6								
	150		6.5									
				7				SILT (ML) - olive gray (5Y 4/2), medium stiff, moist; rootlets; voids; low plasticity; low dry strength; trace fine sand; no chemical odor.				
				8								
				9								
4.5	100	S&H										
	150	push	C-7	10				SILTY CLAY (CL) - very dark gray (7.5YR 3/0), medium stiff, moist; trace fine sand; medium plasticity; weak chemical odor.				
	150		10.5									
				11								
				12								
				13								
				14				COLOR CHANGE to dark gray (7.5YR 4/1); at 14.0 feet, saturated; caliche stringers; moderate chemical odor.				
	3	S&H				▽						
	4		C-7	15								
15.4	9		15.5									
				16								
				17								
				18								
				19								

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CWP CEG 12/02	11/89		

Field location of boring:

(See Plate 2)

Project No.:	7259	Date: 11/28/89	Boring No: C-7
Client:	Chevron Service Station #0504		
Location:	15900 Hesperian Boulevard		
City:	San Lorenzo, California		Sheet 2 of 2
Logged by:	R.S.Y.	Driller: Bayland	

Casing installation data:

Drilling method: Hollow-Stem Auger

Hole diameter: 8-Inches

Top of Box Elevation: Datum:

Water Level				
Time				
Date				

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
0	5	S&H		20				
	10		C-7					
	13		20.5					very stiff; decrease silt to 10%; no chemical odor.
				21				
				22				
				23				
				24				color change to yellow brown (10YR 4/1); at 24.0 feet,
0	6	S&H						stiff.
	6		C-7	25				
	8		25.5					
				26				Bottom of sample at 25.5 feet.
								Bottom of boring at 25.5 feet.
				27				
				28				
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

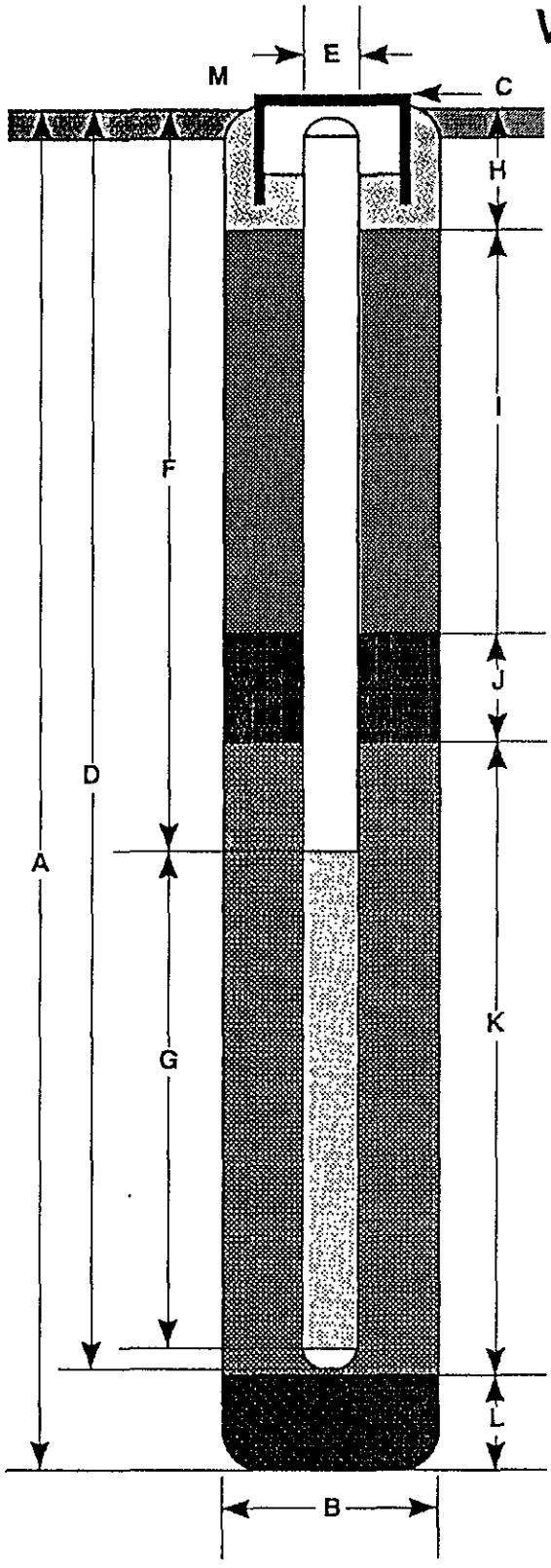
GeoStrategies Inc.

Log of Boring

BORING NO. C-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CAP CEG 12/92	11/89		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 25.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow-Stem Auger

C Top of Box Elevation 32.75 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 25 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 8 ft.

G Perforated Length 17 ft.
Perforated Interval from 8 to 25 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete Grout

I Backfill from 1.5 to 6 ft.
Backfill Material Cement Grout

J Seal from 6 to 7 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 7 to 25 ft.
Pack Material Lonestar 2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Native Soil

M Christy box with locking well cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO. C-7

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	RG/CEG 12/92	11/89		

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 11/27/89	Boring No: C-8
	Client: Chevron Service Station #0504		
	Location: 15900 Hesperian Boulevard		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation: 33.82	Datum: MSL	

Water Level								
Time								
Date								

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				1				PAVEMENT SECTION - 3.0 feet
				2				
				3				
				4				
25.5	100	S&H		5				SILT (ML) - olive (5Y 4/3), medium stiff, moist; trace fine sand; low plasticity; no chemical odor.
	100	push	C-8					
	100		5.5	6				
				7				
				8				
				9				
6.2	150	S&H		10				COLOR CHANGE to very dark gray (7.5YR 3/0); at 9.0 feet; weak chemical odor.
	250	push	C-8					
	250		10.5	11				
				12				
				13		▽		
				14				SILTY CLAY (CL) - dark gray (5Y 4/1), stiff, moist, low plasticity; caliche stringers; strong chemical odor.
195	3	S&H		15				
	5		C-8					
	7		15.5	16				
				17				
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CWP CEG 12/92	11/89		

Field location of boring:	Project No.: 7259	Date: 11/27/89	Boring No:
(See Plate 2)	Client: Chevron Service Station #0504		C-8
	Location: 15900 Hesperian Boulevard		
	City: San Lorenzo, California		Sheet 2 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow-Stem Auger	Casing installation data:		
Hole diameter: 8-Inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
6	3	S&H		20				COLOR CHANGE to olive (5Y 4/3); at 19.0 feet; no chemical odor.
	6		C-8					
	8		21.5	21				
				22				
				23				
				24				COLOR CHANGE to yellow brown (10YR 5/6); at 24.0 feet; 25% very fine sand; no chemical odor.
0	7	S&H						
	10		C-8	25				
	13		25.5	26				
				27				Bottom of sample at 25.5 feet. Bottom of boring at 25.5. feet.
				28				
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

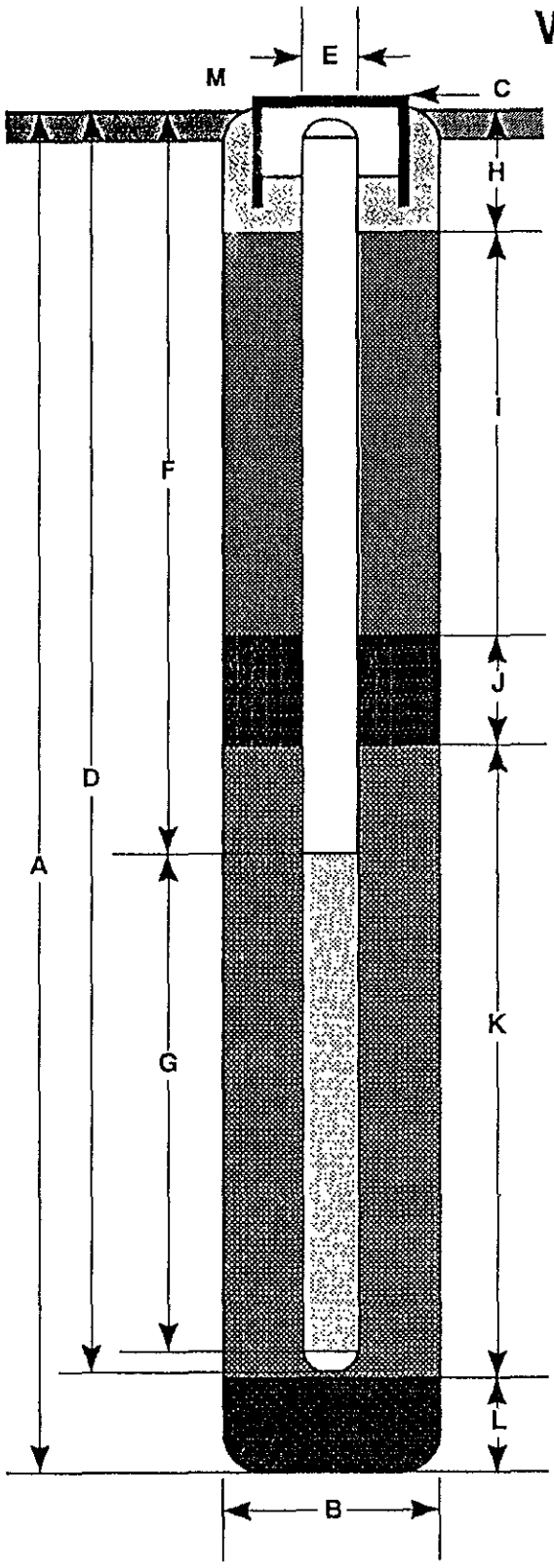
GeoStrategies Inc.

Log of Boring

BORING NO. C-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 12/92	11/89		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 25.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow-Stem Auger

C Top of Box Elevation 33.82 ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 25 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 5 ft.

G Perforated Length 20 ft.
Perforated Interval from 5 to 20 ft.
Perforation Type Machine Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete Grout

I Backfill from 1.5 to 3 ft.
Backfill Material Cement Grout

J Seal from 3 to 4 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 4 to 25 ft.
Pack Material Lonestar 2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Native Soil

M Christy box with locking well cap and lock.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.
C-8

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 12/92	11/89		

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 08/28/90	Boring No.: C-9
	Client: Chevron Service Station #0504		
	Location: 15900 Heperian		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Baylan 1	
	Casing installation data:		
Drilling method: Hollow Stem Auger			
Hole diameter: 8-inches	Top of Box Elevation: 33.43'		Datum: MSL

Water Level	15	15.5
Time	10:35	11:20
Date	08/28/90	08/28/90

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION - 2.5 feet thick
				2				
				3				SAND (SP) - dark grayish brown (10YR 3/2), medium dense, damp, 70% very fine sand; 10% silt and sand
				4				
	175	S&H						
	175	push	C-9-	5				no chemical odor
0	175		5.5					
				6				increase silt at 5.5 feet
				7				
				8				
				9				CLAY (CL) - black (7.5YR 2/0), stiff, moist, trace fine sand, medium plasticity, trace organics; no chemical odor
	200	S&H						
	200	push	C-9-	10				
0	200		10.5					
				11				
				12				gravel at 12 feet
				13				CLAYEY GRAVEL with SAND (GC) - dark yellowish brown (10YR 4/4), loose, saturated, 60% well rounded gravel; 35% medium coarse sand; 15% clay; no chemical odor
				14				
	3	S&H						
	2		C-9-	15		▽		
0	2		15.5			▼		
				16				
				17				SILT (ML) - yellowish brown (10YR 5/4), soft, saturated, rootholes, black organics fragments, trace sand; no chemical odor
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-9

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 08/12/91	8/90		

Field location of boring:	Project No.: 7259	Date: 08/28/90	Boring No:
(See Plate 2)	Client: Chevron Service Station #0504		C-9
	Location: 15900 Hesperian		
	City: San Lorenzo, California		Sheet 2
	Logged by: R.S.Y.	Driller: Bayland	of 2
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation:	Datum:	

	Water Level			
	Time			
	Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
	4	S&H		20				
	7		C-9-					CLAYEY SILT (ML) - olive (5Y 5/4), very stiff, moist, 40%
0	10		20.5					clay; 60% silt; black organic nodules; no chemical odor
				21				
				22				
				23				
				24				
	6	S&H		25				
	8		C-9-					
0	8		25.5					Bottom of Borehole at 25.5 feet
				26				Bottom of Sample at 25.5 feet
				27				08/28/90
				28				
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

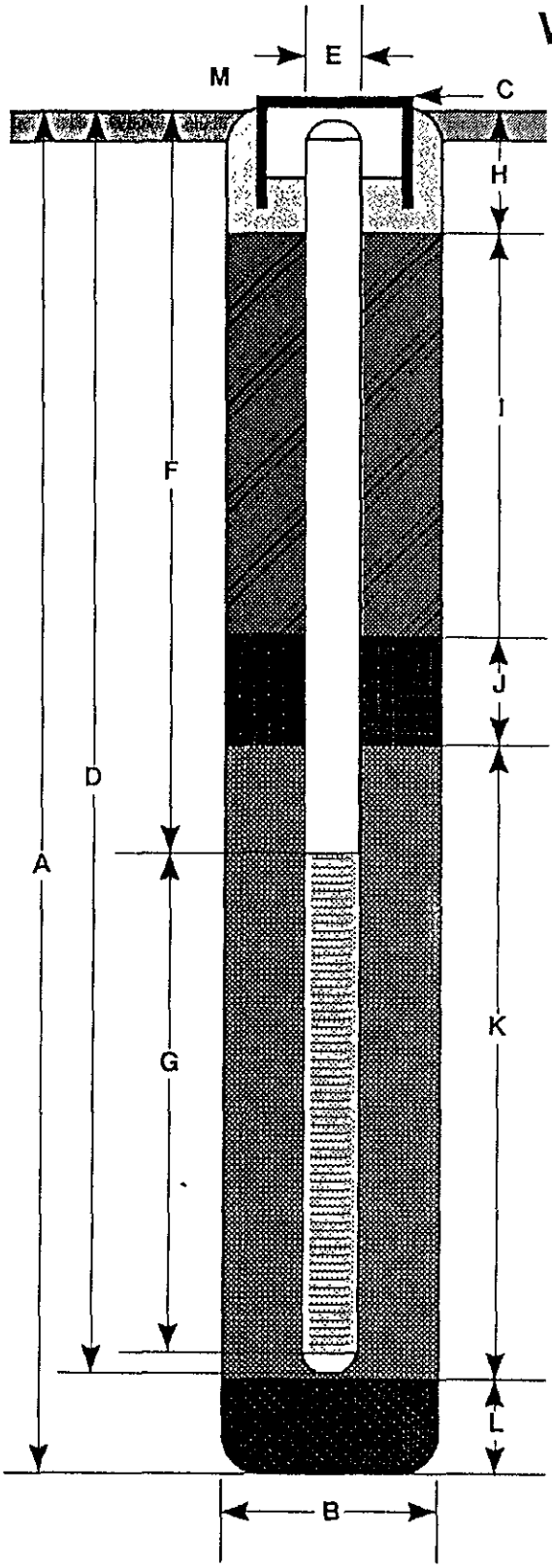
GeoStrategies Inc.

Log of Boring

BORING NO. C-9

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 12/92	8/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 25.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 25 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 12 ft.

G Perforated Length 13 ft.
Perforated Interval from 12 to 25 ft.
Perforation Type Factory Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 8 ft.
Backfill Material Cement Grout

J Seal from 8 to 10 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 10 to 25 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Native Material

M Traffic-rated box with locking well cap.

Note: Depths measured from initial ground surface.

GeoStrategies Inc.

Well Construction Detail

WELL NO.

C-9

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	RMP CEG 12/92	08/90		

Field location of boring:	Project No.: 7259	Date: 10/28/90	Boring No:
(See Plate 2)	Client: Chevron Service Station #0504		C-10
	Location: 15900 Hesperian		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation: 31.63'		Datum: MSL

Water Level	15'	
Time	14:30	
Date	08/28/90	

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				PAVEMENT SECTION-9 inches thick
				2				SILT (ML) - dark olive gray (5Y 3/2), medium stiff, moist, trace organics; no chemical odor
				3				
				4				
	150	S&H		5				COLOR CHANGE at 4.0' to dark gray (7.5 YR 4/0), voids, caliche stringers, low plasticity; no chemical odor
	150	push	C-10-					
	150		5.5					
				6				
				7				
				8				
				9				CLAY (CL) - black (7.5 YR 2/0), stiff, moist, medium plasticity, roots, trace fine sand, voids; no chemical odor
	225	S&H						
	225	push	C-10-	10				
0	250		10.5					
				11				
				12				
				13				
				14		▽		
	2	S&H						CLAYEY SILT (ML) - dark brown (10YR 3/3), stiff, saturated, 20-25% clay; 75% silt; roots, voids, water occurring in voids, low plasticity; no chemical odor
	4		C-10-	15				
0	5		15.5					
				16				
				17				
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-10

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 1262	10/90		

Field location of boring:

(See Plate 2)

Project No.: 7259	Date: 08/28/90	Boring No: C-10	
Client: Chevron Service Station #0504			
Location: 15900 Hesperian			
City: San Lorenzo, California		Sheet 2 of 2	
Logged by: R.S.Y.	Driller: Bayland		

Casing installation data:

Drilling method: Hollow Stem Auger

Hole diameter.

Top of Box Elevation: 31.63' Datum: MSL

Water Level			
Time			
Date			

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
	4	S&H		20				shell fragments, medium plasticity
	5		C-10-					no chemical odor
0	5		20.5					
				21				
				22				
				23				CLAYEY SILT (ML) - dark grayish brown (10YR 4/2), stiff, moist, 35% clay, low plasticity, iron staining, organic fragments; no chemical odor
				24				
	4	S&H		25				
	6		C-10-					
0	8		25.5					
				26				Bottom of Sample at 25.5 feet
				27				Bottom of Borehole at 25.5 feet
								08/28/90
				28				
				29				
				30				
				31				
				32				
				33				
				34				
				35				
				36				
				37				
				38				
				39				

Remarks:

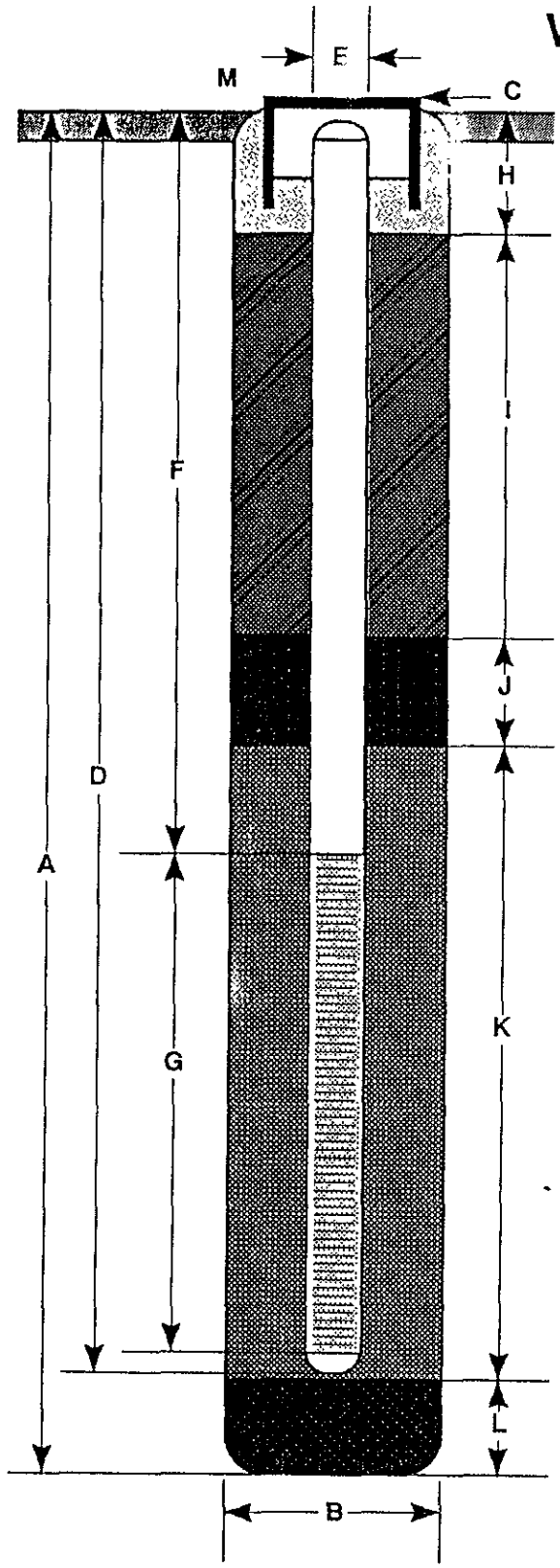
GeoStrategies Inc.

Log of Boring

BORING NO. **C-10**

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEG 12/92	8/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring: 25.5 ft.

B Diameter of Boring: 8 in.
Drilling Method: Hollow Stem Auger

C Top of Box Elevation: ____ ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length: 25 ft.
Material: Schedule 40 PVC

E Casing Diameter: 2 in.

F Depth to Top Perforations: 12 ft.

G Perforated Length: 13 ft.
Perforated Interval from 12 to 25 ft.
Perforation Type: Factory Slot
Perforation Size: 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material: Concrete

I Backfill from 1.5 to 8 ft.
Backfill Material: Cement Grout

J Seal from 8 to 10 ft.
Seal Material: Bentonite Pellets

K Gravel Pack from 10 to 25 ft.
Pack Material: Lonestar #2/12 Sand

L Bottom Seal: 0.5 ft.
Seal Material: Native Material

M Traffic-rated box with locking well cap.

Note: Depths measured from initial ground surface.

GSI GeoStrategies Inc.

Well Construction Detail

WELL NO. C-10

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CEUPCEG 12/62	08/90		

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 08/28/90	Boring No: C-11
	Client: Chevron Service Station #0504		
	Location: 15900 Hesperian		
	City: San Lorenzo, California		Sheet 1 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation: 31.58'	Datum: MSL	

Water Level	15.5								
Time	12:00								
Date	08/28/90								

PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description
				0				
				1				
				2				PAVEMENT SECTION-2.5 feet thick
				3				
				4				
	150	S&H		5				
	150	push	C-11-					SILT (ML) - very dark gray (10YR 2/1), medium stiff,
0	150		5.5	6				moist, trace fine sand, low plasticity, organic fragments; no chemical odor
				7				
				8				
				9				
	200	S&H		10				CLAY (CL) - black (7.5 YR 2/0) stiff, moist, 10% fine sand,
	200	push	C-11-					medium to high plasticity; no chemical odor
0	200		10.5	11				
				12				
				13				
				14				
	5	S&H		15				CLAYEY SILT (ML) - olive gray (5Y 4/2), very stiff,
0	6		C-11-			▽		saturated, low plasticity, trace caliche stringers; no
	10		15.5	16				chemical odor
				17				
				18				
				19				

Remarks:

GeoStrategies Inc.

Log of Boring

BORING NO. C-11

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	RMP CEG 12/92	8/90		

Field location of boring: (See Plate 2)	Project No.: 7259	Date: 08/28/9[illegible]	Boring No. C-11
	Client: Chevron Service Station #0504		
	Location: 15900 Hesperian		
	City: San Lorenzo, California		Sheet 2 of 2
	Logged by: R.S.Y.	Driller: Bayland	
Drilling method: Hollow Stem Auger	Casing installation data:		
Hole diameter: 8-inches	Top of Box Elevation: 31.58'		Datum: MSL

								Water Level				
								Time				
								Date				
PID (ppm)	Blows/ft. or Pressure (psi)	Type of Sample	Sample Number	Depth (ft.)	Sample	Well Detail	Soil Group Symbol (USCS)	Description				
	3	S&H										
	5		C-11-	20				COLOR CHANGE to olive (5Y 5/3), voids, water				
0	10		20.5					occurring in voids, no sample recovery; no chemical odor				
				21								
				22								
				23								
				24								
	6	S&H						COLOR CHANGE to yellowish brown (10YR 5/4); no				
	8		C-11-	25				chemical odor				
0	9		25.5									
				26				Bottom of Borehole at 25.5 feet				
				27				Bottom of Sample at 25.5 feet				
								08/28/90				
				28								
				29								
				30								
				31								
				32								
				33								
				34								
				35								
				36								
				37								
				38								
				39								

Remarks:

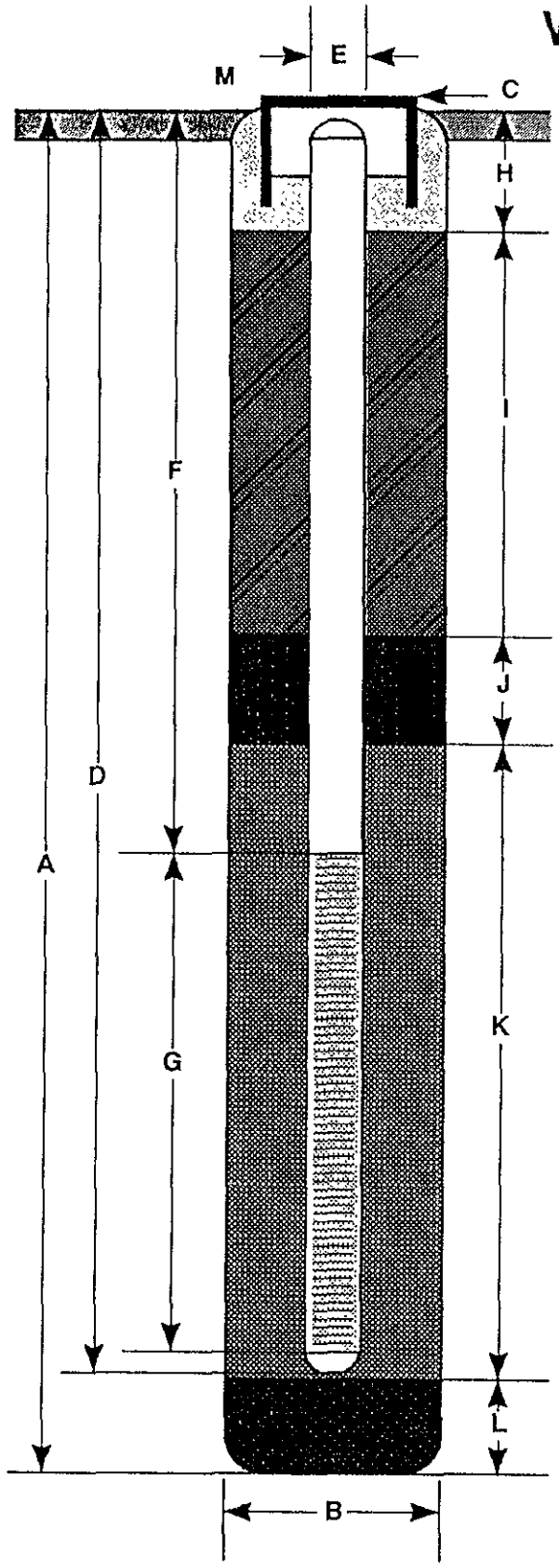
GeoStrategies Inc.

Log of Boring

BORING NO. C-11

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7258	[illegible]	8/90		

WELL CONSTRUCTION DETAIL



A Total Depth of Boring 25.5 ft.

B Diameter of Boring 8 in.
Drilling Method Hollow Stem Auger

C Top of Box Elevation ft.
[X] Referenced to Mean Sea Level
[ ] Referenced to Project Datum

D Casing Length 25 ft.
Material Schedule 40 PVC

E Casing Diameter 2 in.

F Depth to Top Perforations 12 ft.

G Perforated Length 13 ft.
Perforated Interval from 12 to 25 ft.
Perforation Type Factory Slot
Perforation Size 0.020 in.

H Surface Seal from 0 to 1.5 ft.
Seal Material Concrete

I Backfill from 1.5 to 8 ft.
Backfill Material Cement Grout

J Seal from 8 to 10 ft.
Seal Material Bentonite Pellets

K Gravel Pack from 10 to 25 ft.
Pack Material Lonestar #2/12 Sand

L Bottom Seal 0.5 ft.
Seal Material Native Material

M Traffic-rated box with locking well cap.

Note: Depths measured from initial ground surface.

GSI GeoStrategies Inc.

Well Construction Detail

WELL NO.
C-11

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7259	CMP 8/11/92	08/90		

APPENDIX C
SOIL ANALYTICAL REPORTS

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

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10320
CLIENT: Geo Strategies Inc.
CLIENT JOB NO.: 7259

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/08/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10320- 1	C-6-10.5	11/29/89	12/06/89
10320- 2	C-6-15.5	11/29/89	12/06/89
10320- 3	C-6-20.5	11/29/89	12/06/89
10320- 4	C-7-10.5	11/29/89	12/06/89
10320- 5	C-7-15.5	11/29/89	12/06/89
10320- 6	C-7-20.5	11/29/89	12/06/89
10320- 7	C-8-10.5	11/29/89	12/06/89
10320- 8	C-8-15.5	11/29/89	12/06/89
10320- 9	C-8-20.5	11/29/89	12/06/89
10320-10	C-6-5.5	11/29/89	/ /

Laboratory Number:	10320 1	10320 2	10320 3	10320 4	10320 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	ND<1	ND<1	3.7	ND<1
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
TOLUENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
ETHYL BENZENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
XYLENES:	ND<0.05	ND<0.05	ND<0.05	0.05	ND<0.05

Laboratory Number:	10320 6	10320 7	10320 8	10320 9	10320 10
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	4.0	ND<1	37	ND<1	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	0.11	ND<0.05	ND<0.05	ND<0.05	NA
TOLUENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	NA
ETHYL BENZENE:	0.05	ND<0.05	0.14	ND<0.05	NA
XYLENES:	0.11	ND<0.05	0.24	ND<0.05	NA

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

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10320
CLIENT: Geo Strategies Inc.
CLIENT JOB NO.: 7259

DATE RECEIVED: 11/30/89
DATE REPORTED: 12/08/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10320-11	C-6-25.5	11/29/89	/ /
10320-12	C-7-5.5	11/29/89	/ /
10320-13	C-7-25.5	11/29/89	/ /
10320-14	C-8-5.5	11/29/89	/ /
10320-15	C-8-25.5	11/29/89	/ /

Laboratory Number:	10320 11	10320 12	10320 13	10320 14	10320 15
ANALYTE LIST	Amounts/Quantitation Limits (mg/kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	NA	NA	NA	NA	NA
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	NA	NA	NA	NA	NA
TOLUENE:	NA	NA	NA	NA	NA
ETHYL BENZENE:	NA	NA	NA	NA	NA
XYLENES:	NA	NA	NA	NA	NA

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

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

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

QA/QC INFORMATION
SET: 10320

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

mg/kg = part per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD NA
Minimum Detection Limit in Soil: 20mg/kg

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg
Daily Standard run at 200mg/L; RPD Diesel = NA
MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Daily Standard run at 2mg/L; RPD Gasoline = <15%
MS/MSD Average Recovery = 89%: Duplicate RPD = 3%

8020/BTXE
Minimum Quantitation Limit in Soil: 0.05mg/kg
Daily Standard run at 20ug/L; RPD = <15%
MS/MSD Average Recovery = 93%: Duplicate RPD = 1%

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: #0504
Consultant Release Number:
Consultant Project Number: 7259
Consultant Name: Uzo Stategies Inc.
Address: 2140 W. Winton Ave. Hayward
Fax Number: 783-1089 Phone 783-7500
Project Contact (Name): Jerry Mitchell
(Phone): 415-352-4800

Chevron Contact (Name): John Ranotel
(Phone):
Laboratory Name: Superior Analytical Lab.
Contract Number: 2472450
Samples Collected by (Name): Randall Young
Collection Date: 11/27/89 11/28/89
Signature: Randall Young

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803				Remarks
C-6-10.5	10320-1	1	S	G	11:30		✓	X			X							
C-6-15.5	2	1	S	G	11:40		✓	X			X							
C-6-20.5	3	1	S	G	11:43		✓	X			X							
C-7-10.5	4	1	S	G	10:10		✓	X			X							
C-7-15.5	5	1	S	G	10:20		✓	X			X							
C-7-20.5	6	1	S	G	10:30		✓	X			X							
C-8-10.5	7	1	S	G	10:10		✓	X			X							
C-8-15.5	8	1	S	G	10:15		✓	X			X							
C-8-20.5	9	1	S	G	10:20		✓	X			X							

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Randall Young	GSI	11/29/89 16:00		CR	11:05	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
				EXPRESS IT	11/30 1348	5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
	EXPRESS IT	11/30/89		Superior Lab	11/30 3:15pm	

Printed in U.S.A.

Chain-of-Custody Record

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

Chevron Facility Number #0504
Consultant Release Number ____ Consultant Project Number 7259
Consultant Name Geostrategies Inc.
Address 2140 W. Winton Ave, Hayward
Fax Number 783-1089 phone 783-7500
Project Contact (Name) Jerry Mitchell
(Phone) 415 352-4800

Chevron Contact (Name) John Randall
(Phone) ____
Laboratory Name Superior Analytical Laboratory
Contract Number 247450
Samples Collected by (Name) Randall Young
Collection Date 4/27/89, 11/28/89
Signature Randall Young

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Analyses To Be Performed: Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240./Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	HOLD			Remarks
C-6-5.5	10320-10	1	S	G	11:20		✓								X			
C-6-25.5	11	1	S	G	11:45		✓								X			
C-7-6.5	12	1	S	G	05:45		✓								X			
C-7-25.5	13	1	S	G	10:40		✓								X			
C-8-5.5	14	1	S	G	10:00		✓								X			
C-8-25.5	15	1	S	G	10:25		✓								X			

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Randall Young	GSI	11/29/89 16:00	J Mebra	G-R	11:05	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
			[illegible]	EXPRESS-IT	11/30 13:??	5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
			Onyx A Noogin Superior Lab		11/30 3:15pm	

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#9259

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 81471
CLIENT: Gettler Ryan Co.
CLIENT JOB NO.: 7259

DATE RECEIVED: 08/30/90
DATE REPORTED: 09/06/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
81471- 1	C-9-10.5	08/28/90	09/04/90
81471- 2	C-9-15.5	08/28/90	09/04/90
81471- 3	C-10-10.5	08/28/90	09/04/90
81471- 4	C-10-15.5	08/28/90	09/04/90
81471- 5	C-11-10.5	08/28/90	09/04/90
81471- 6	C-11-15.5	08/28/90	09/04/90

Laboratory Number:	81471 1	81471 2	81471 3	81471 4	81471 5
ANALYTE LIST	Amounts/Quantitation Limits (mg/Kg)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	ND<1	ND<1	ND<1	ND<1	ND<1
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
TOLUENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
ETHYL BENZENE:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05
XYLENES:	ND<0.05	ND<0.05	ND<0.05	ND<0.05	ND<0.05

Laboratory Number:	81471 6
ANALYTE LIST	Amounts/Quantitation Limits (mg/Kg)
OIL AND GREASE:	NA
TPH/GASOLINE RANGE:	ND<1
TPH/DIESEL RANGE:	NA
BENZENE:	ND<0.05
TOLUENE:	ND<0.05
ETHYL BENZENE:	ND<0.05
XYLENES:	ND<0.05

SUPERIOR ANALYTICAL LABORATORIES, INC.

825 ARNOLD, STE. 114 • MARTINEZ, CALIFORNIA 94553 • (415) 229-1512

DOHS #319
DOHS #220

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

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

QA/QC INFORMATION
SET: 81471

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

Mg/Kg = part per million (ppm)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
Duplicate RPD NA
Minimum Detection Limit in Soil: 20mg/kg

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Soil: 10mg/kg
Daily Standard run at 200mg/L; %Diff Diesel = NA
MS/MSD Average Recovery = NA: Duplicate RPD = NA

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Soil: 1mg/kg
Daily Standard run at 2mg/L; %Diff Gasoline = 4
MS/MSD Average Recovery = 96%: Duplicate RPD = 5

8020/BTXE
Minimum Quantitation Limit in Soil: 0.05mg/kg
Daily Standard run at 20ug/L; %Diff = <15%
MS/MSD Average Recovery = 99%: Duplicate RPD = <2

Richard Srna, Ph.D.
Laboratory Director

8/47/

Chain-of-Custody Record

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

Chevron Facility Number 0504
Consultant Release Number
Consultant Project Number 7259
Consultant Name GeoHlen-Ryan Inc
Address 2150 W. Winton Ave, Hayward
Fax Number 783-1089
Project Contact (Name) Jerry Mitchell
(Phone) 352-4800

Chevron Contact (Name) Nancy Vukelich
(Phone)
Laboratory Name Superior Analytical Labs
Contract Number 2472450
Samples Collected by (Name) Randy Young
Collection Date 8/28/90
Signature Randell Young

Sample Number	Lab Number	Number of Containers	Matrix S = Soil A = Air W = Water C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803				Remarks
								Analyses To Be Performed										
C-9-10.5		1	S	G			✓	✓			✓							
C-9-15.5		1	S	G			✓	✓			✓							
C-10-10.5		1	S	G			✓	✓			✓							
C-10-15.5		1	S	G			✓	✓			✓							
C-11-10.5		1	S	G			✓	✓			✓							
C-11-15.5		1	S	G			✓	✓			✓							

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Randall Young	GSI	8/30/90 9:30	John L. Carpenter	EXPRESS IT	8/30 1045	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
		N/A				5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
			Dorena Sma		8/30/90	

Printed in U.S.A.

MS 5136 (6 89)

APPENDIX D
GETTLER-RYAN INC. GROUND-WATER SAMPLING REPORTS

gettler — ryan inc.

January 5, 1990

GROUNDWATER SAMPLING REPORT

Chevron U.S.A. Inc.
Post Office Box 5004
San Ramon, California 94583-0804

Referenced Site: Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

Sampling Date: December 8, 1989

This report presents the results of the groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on December 8, 1989 at the referenced location. The site is occupied by an operating service station located on the northeast corner of Hesperian Boulevard and Post Office Road. The service station has underground storage tanks containing regular leaded, unleaded and super unleaded gasoline products, and waste oil.

There are currently six groundwater monitoring wells on site and two off site at the locations shown on the attached site map. Prior to sampling, all monitoring wells were inspected for total well depth, water levels, and presence of separate phase hydrocarbons using an electronic interface probe. A clean acrylic bailer was used to visually confirm the presence and thickness of separate phase hydrocarbons. Groundwater depths ranged from 12.12 to 15.95 feet below grade. Separate phase hydrocarbons were observed in wells C-1 and C-2.

The wells were then purged and sampled. Standard sampling procedure calls for a minimum of four case volumes to be purged from each well. Each well was purged while pH, temperature, and conductivity measurements were monitored for stability. The purge water was drummed for proper disposal. Details of the final well purging results are presented on the attached Table of Monitoring Data.

Samples were collected, using Teflon bailers, in properly cleaned and laboratory prepared containers. All sampling equipment was thoroughly cleaned after each well was sampled and steam cleaned upon completion of work at the site. A trip blank, supplied by the laboratory, was included and analyzed to assess quality control. Analytical results for the trip blank are included in the Certified Analytical Report (CAR's). The samples were labeled, stored on blue ice, and transported to the laboratory for analysis. Chain of custody records were established noting sample identification numbers, time, date, and custody signatures.

2150 west winton avenue • hayward, california 94545-1210 • (415) 783-7500

The samples were analyzed at Superior Analytical Laboratory, located at 1385 Fairfax Street, Suite D., San Francisco, California. The laboratory is assigned a California DHS-HMTL Certification number of 220. The results are presented as a Certified Analytical Report, a copy of which is attached to this report.

Tom Paulson
Sampling Manager

attachments

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-1	C-2	C-3 CD-3	C-4	C-5	C-6
Casing Diameter (inches)	3	3	3	3	3	2
Total Well Depth (feet)	----	----	19.4	20.4	19.3	24.7
Depth to Water (feet)	13.14 **	13.44 **	14.44	14.69	14.22	15.95
Free Hydrocarbons (feet)	0.01	0.15	sheen	none	none	none
Reason Not Sampled	free product	free product	----	----	----	----
Calculated 4 Case Vol.(gal.)	----	----	7.5	8.6	7.8	5.9
Did Well Dewater?	----	----	no	no	no	no
Volume Evacuated (gal.)	----	----	9	10	10	15
Purging Device	----	----	Bailer	Bailer	Bailer	Bailer
Sampling Device	----	----	Bailer	Bailer	Bailer	Bailer
Time	----	----	10:58	12:12	12:48	11:37
Temperature (F)*	----	----	64.5	69.0	70.1	69.4
pH*	----	----	7.15	6.86	6.84	7.00
Conductivity (umhos/cm)*	----	----	379	1337	1175	1278

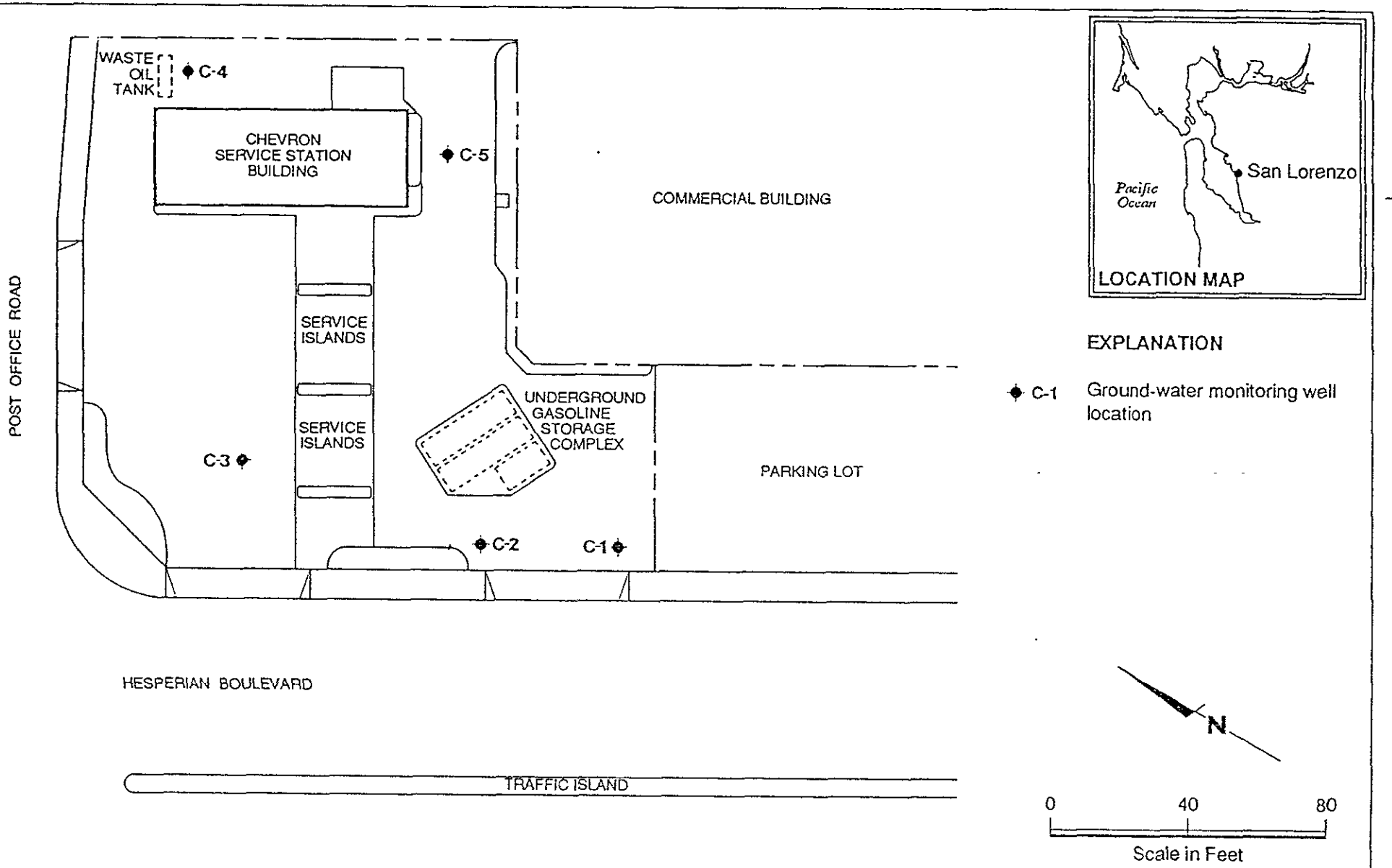
* Indicates Stabilized Value

** Not corrected for separate phase hydrocarbons

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-7	C-8
Casing Diameter (inches)	2	2
Total Well Depth (feet)	25.2	24.5
Depth to Water (feet)	12.12	13.45
Free Hydrocarbons (feet)	none	none
Reason Not Sampled	----	----
Calculated 4 Case Vol.(gal.)	8.9	7.5
Did Well Dewater?	no	no
Volume Evacuated (gal.)	22	19
Purging Device	Bailer	Bailer
Sampling Device	Bailer	Bailer
Time	09:42	08:41
Temperature (F)*	68.7	69.6
pH*	6.89	6.86
Conductivity (umhos/cm)*	1270	1427

* Indicates Stabilized Value



GeoStrategies Inc.

Site Plan
Chevron Service Station #0504
15900 Hesperian Boulevard
San Lorenzo, California

PLATE
1

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
259		10/89		

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

GETTLER-RYAN INC.
GENERAL CONTRACTORS

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10338
CLIENT: Chevron USA
CLIENT JOB NO.: 3259

DATE RECEIVED: 12/11/89
DATE REPORTED: 12/18/89

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10338- 1	C-3	12/08/89	12/15/89
10338- 2	C-4	12/08/89	12/15/89
10338- 3	C-5	12/08/89	12/15/89
10338- 4	C-6	12/08/89	12/15/89
10338- 5	C-7	12/08/89	12/15/89
10338- 6	C-8	12/08/89	12/15/89
10338- 7	CD-3	12/08/89	12/16/89
10338- 8	TRIP	12/08/89	12/16/89

Laboratory Number:	10338 1	10338 2	10338 3	10338 4	10338 5
ANALYTE LIST	Amounts/Quantitation Limits (ug/l)				
OIL AND GREASE:	NA	ND<5000	NA	NA	NA
TPH/GASOLINE RANGE:	680	ND<500	ND<500	ND<500	1700
TPH/DIESEL RANGE:	NA	ND<1000	NA	NA	NA
BENZENE:	6	ND<0.5	ND<0.5	ND<0.5	32
TOLUENE:	1	ND<0.5	ND<0.5	ND<0.5	12
ETHYL BENZENE:	31	ND<0.5	ND<0.5	ND<0.5	17
XYLENES:	58	ND<0.5	ND<0.5	ND<0.5	150

Laboratory Number:	10338 6	10338 7	10338 8
ANALYTE LIST	Amounts/Quantitation Limits (ug/l)		
OIL AND GREASE:	NA	NA	NA
TPH/GASOLINE RANGE:	4800	710	ND<500
TPH/DIESEL RANGE:	NA	NA	NA
BENZENE:	62	6	ND<0.5
TOLUENE:	11	1	ND<0.5
ETHYL BENZENE:	95	32	ND<0.5
XYLENES:	180	61	ND<0.5

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

GETTLER-RYAN INC.
GENERAL CONTRACTORS

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

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

QA/QC INFORMATION
SET: 10338

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

ug/L = part per billion (ppb)

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

Modified EPA Method 8015 for Extractable Hydrocarbons:
Minimum Quantitation Limit for Diesel in Water: 1000ug/L
Daily Standard run at 200mg/L; RPD Diesel =<15%
MS/MSD Average Recovery =95%: Duplicate RPD =14%

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 500ug/L
Daily Standard run at 2mg/L; RPD Gasoline = <15%
MS/MSD Average Recovery = 95%: Duplicate RPD = 0%

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; RPD = <15%
MS/MSD Average Recovery = 104%: Duplicate RPD = <7%

Richard Srna, Ph.D.
Laboratory Director

10558 JH

Chain-of-Custody Record

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

Chevron Facility Number: 0504
Consultant Release Number: 2451960
Consultant Project Number: 3259
Consultant Name: Gettler Ryan Inc
Address: 1992 National Ave, Hayward
Fax Number: 415 783-1089
Project Contact (Name): Jerry Mitchell
(Phone): 415 783-7500

Chevron Contact (Name): John Randall
(Phone):
Laboratory Name: Superior Analytical
Contract Number: 247450
Samples Collected by (Name): Phil Dye
Collection Date: 12-8-89
Signature: Phillip J. Dye

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803	Total Petro Hydrocarbs as Waste Oil			Remarks
#1 C-3		3	water	well	10:58	HCL	Y	✓			✓							
#2 C-4		~~5~~ 3			12:12			✓			✓				✓			
#3 C-5		3			12:48			✓			✓							
#4 C-6		3			11:37			✓			✓							
#5 C-7	KW 12-12	~~5~~ 2			09:42			✓			✓							
#6 C-8		3			08:41			✓			✓							
#7 CD-3		3			—			✓			✓							
#8 Trip		1	✓	✓	—	✓		✓			✓							

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	Turn Around Time (Circle Choice)
Phillip J. Dye	G/R	12-8/1255		G/R	12-8-89 12:48	24 Hrs
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time	48 Hrs
	G/R	12-8/89 1:45pm				5 Days
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time	10 Days
					12/8/89 1:50	Need results no later than 12/15/89

Printed in U.S.A.

gettler — ryan inc.

September 18, 1990

GROUNDWATER SAMPLING REPORT

Chevron U.S.A. Inc.
Post Office Box 5004
San Ramon, California 94583-0804

Referenced Site: Chevron Service Station #0504
15900 Hesperian Blvd./Post Office Road
San Lorenzo, California

Sampling Date: September 7, 1990

This report presents the results of the groundwater sampling and analytical program conducted by Gettler-Ryan Inc. on September 7, 1990 at the referenced location. The site is occupied by an operating service station located on the northeast corner of Hesperian Boulevard and Post Office Road. The service station has underground storage tanks containing regular leaded, unleaded and super unleaded gasoline products.

There are currently six groundwater monitoring wells on site and five wells off site at the locations shown on the attached site map. Wells C-7 through C-11 were developed on September 5, 1990. Prior to sampling, all wells were inspected for total well depth, water levels, and presence of separate phase hydrocarbons using an electronic interface probe. A clean acrylic bailer was used to visually confirm the presence and thickness of separate phase hydrocarbon. Groundwater depths ranged from 12.22 to 16.83 feet below grade. Separate phase hydrocarbons were observed in wells C-1 and C-2.

The wells were then purged and sampled. The purge water was contained in drums for proper disposal. Standard sampling procedure calls for a minimum of four case volumes to be purged from each well. Each well was purged while pH, temperature, and conductivity measurements were monitored for stability. Details of the final well purging results are presented on the attached Table of Monitoring Data. In cases where a well dewatered or less than four case volumes were purged, groundwater samples were obtained after the physical parameters had stabilized. Under such circumstances the sample may not represent actual formation water due to low flow conditions.

Samples were collected, using Teflon bailers, in properly cleaned and laboratory prepared containers. All sampling equipment was thoroughly cleaned after each well was sampled and steam cleaned upon completion of work at the site. The samples were labeled, stored on blue ice, and transported to the laboratory for analysis. A trip blank, supplied by the laboratory, was included and analyzed to assess quality control. A duplicate sample (CD-3), was submitted without well designation to assess laboratory performance. Analytical results for the trip blank are included in the Certified Analytical Report (CAR's). Chain of custody records were established noting sample identification numbers, time, date, and custody signatures.

2150 west winton avenue • hayward, california 94545-1210 • (415) 783-7500

The samples were analyzed by Superior Analytical Laboratory Inc., located at 1555 Burke, Unit 1, San Francisco, California. The laboratory is assigned a California DHS-HMTL Certification number of 220. The results are presented as a Certified Analytical Report, a copy of which is attached to this report.

Tom Paulson
Sampling Manager

attachments

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-1	C-2	C-3 CD-3	C-4	C-5	C-6
Casing Diameter (inches)	3	3	3	3	3	2
Total Well Depth (feet)	----	----	19.6	20.4	19.6	24.6
Depth to Water (feet)	14.04**	14.28**	15.31	15.58	15.10	16.83
Free Hydrocarbons (feet)	0.03	0.10	none	none	none	none
Reason Not Sampled	free product	free product	----	----	----	----
Calculated 4 Case Vol.(gal.)	----	----	6.4	7.2	6.8	5.2
Did Well Dewater?	----	----	no	no	no	no
Volume Evacuated (gal.)	----	----	8.0	9.0	9.0	7.0
Purging Device	----	----	Bailer	Bailer	Bailer	Bailer
Sampling Device	----	----	Bailer	Bailer	Bailer	Bailer
Time	----	----	10:24	08:45	09:24	09:59
Temperature (F)*	----	----	63.6	70.2	69.4	69.1
pH*	----	----	7.34	7.05	7.06	7.06
Conductivity (umhos/cm)*	----	----	288	1380	1273	1295

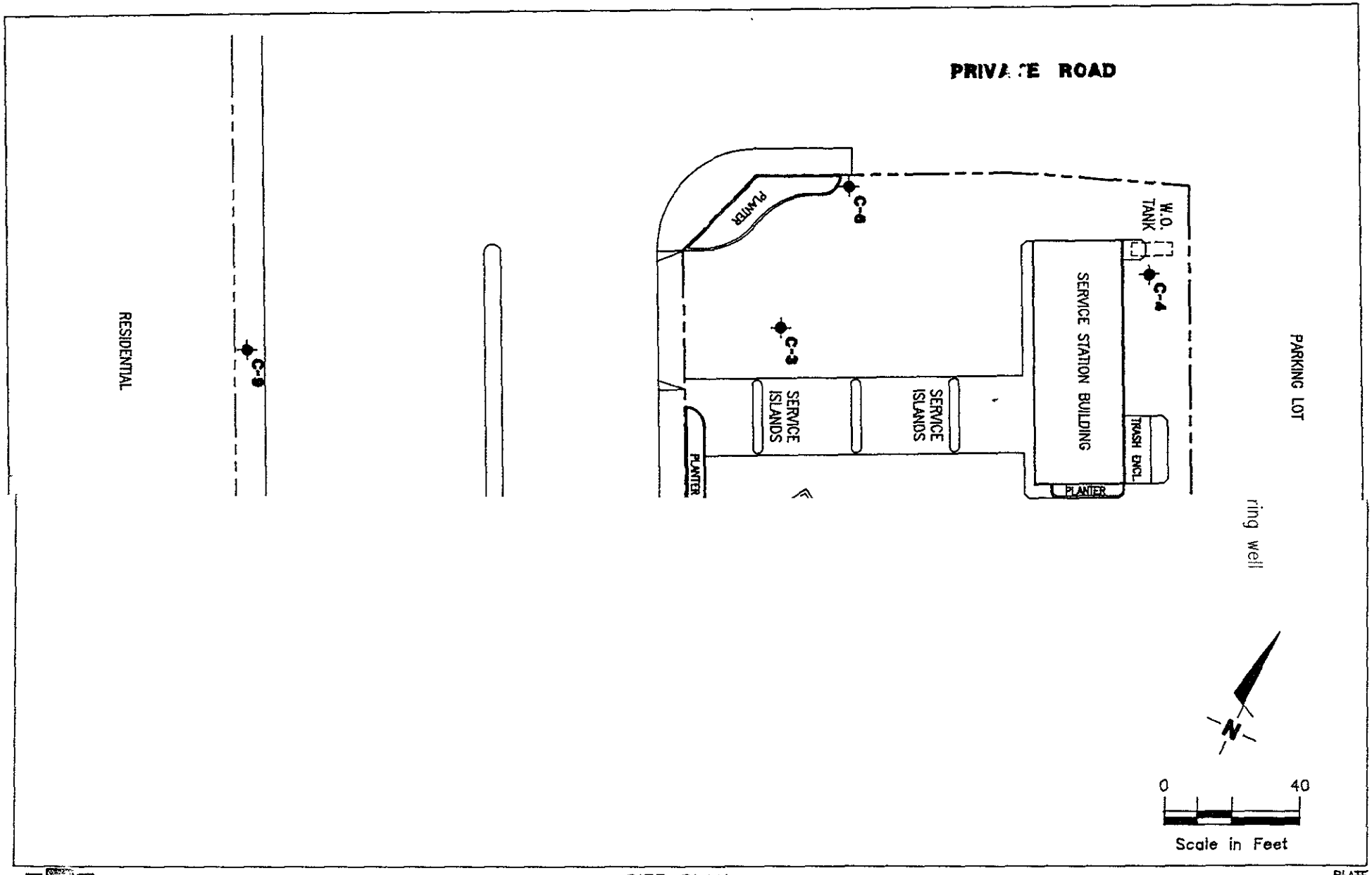
* Indicates Stabilized Value

** Not corrected for presence of free product

TABLE OF MONITORING DATA
GROUNDWATER WELL SAMPLING REPORT

WELL I.D.	C-7	C-8	C-9	C-10	C-11
Casing Diameter (inches)	2	2	2	3	2
Total Well Depth (feet)	25.2	25.3	25.1	25.1	25.0
Depth to Water (feet)	13.02	14.32	14.06	12.49	12.22
Free Hydrocarbons (feet)	none	none	none	none	none
Reason Not Sampled	----	----	----	----	----
Calculated 4 Case Vol.(gal.)	8.3	7.6	7.5	8.6	8.7
Did Well Dewater?	no	no	no	no	no
Volume Evacuated (gal.)	10.5	9.5	9.5	10.8	11.0
Purging Device	Bailer	Bailer	Bailer	Bailer	Bailer
Sampling Device	Bailer	Bailer	Bailer	Bailer	Bailer
Time	08:51	11:31	09:34	10:14	10:57
Temperature (F)*	67.2	68.9	60.1	67.8	66.0
pH*	7.08	6.97	8.17	7.13	7.19
Conductivity (umhos/cm)*	1128	1192	210	1189	1147

* Indicates Stabilized Value



GeoStrategies Inc.

SITE PLAN
Chevron Service Station #0504
15900 Hesperian Blvd.
San Lorenzo, California

PLATE
2

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
7259	RG/CEG	9/90	

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10980
CLIENT: Chevron USA
CLIENT JOB NO.: 3259

DATE RECEIVED: 09/07/90
DATE REPORTED: 09/14/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10980- 1	c-3	09/07/90	09/11/90
10980- 2	c-4	09/07/90	09/11/90
10980- 3	c-5	09/07/90	09/11/90
10980- 4	c-6	09/07/90	09/11/90
10980- 5	c-7	09/07/90	09/11/90
10980- 6	c-8	09/07/90	09/11/90
10980- 7	c-9	09/07/90	09/11/90
10980- 8	c-10	09/07/90	09/11/90
10980- 9	c-11	09/07/90	09/11/90
10980-10	cd-3	09/07/90	09/11/90

Laboratory Number:	10980 1	10980 2	10980 3	10980 4	10980 5
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	ND<5000	NA	NA	NA
TPH/GASOLINE RANGE:	490	ND<50	ND<50	57	880
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	6	ND<0.5	ND<0.5	ND<0.5	84
TOLUENE:	ND<0.5	ND<0.5	ND<0.5	ND<0.5	23
ETHYL BENZENE:	41	ND<0.5	ND<0.5	0.6	46
XYLENES:	120	ND<0.5	ND<0.5	4	180

Laboratory Number:	10980 6	10980 7	10980 8	10980 9	10980 10
ANALYTE LIST	Amounts/Quantitation Limits (ug/L)				
OIL AND GREASE:	NA	NA	NA	NA	NA
TPH/GASOLINE RANGE:	3700	ND<50	ND<50	ND<50	460
TPH/DIESEL RANGE:	NA	NA	NA	NA	NA
BENZENE:	170	ND<0.5	ND<0.5	ND<0.5	6
TOLUENE:	31	ND<0.5	ND<0.5	ND<0.5	ND<0.5
ETHYL BENZENE:	180	ND<0.5	ND<0.5	ND<0.5	40
XYLENES:	270	ND<0.5	ND<0.5	ND<0.5	110

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

CERTIFICATE OF ANALYSIS

LABORATORY NO.: 10980
CLIENT: Chevron USA
CLIENT JOB NO.: 3259

DATE RECEIVED: 09/07/90
DATE REPORTED: 09/14/90

Lab Number	Customer Sample Identification	Date Sampled	Date Analyzed
10980-11	trip blank	09/07/90	09/11/90

Laboratory Number: 10980
11

ANALYTE LIST	Amounts/Quantitation Limits (ug/L)
OIL AND GREASE:	NA
TPH/GASOLINE RANGE:	ND<50
TPH/DIESEL RANGE:	NA
BENZENE:	ND<0.5
TOLUENE:	ND<0.5
ETHYL BENZENE:	ND<0.5
XYLENES:	ND<0.5

SUPERIOR ANALYTICAL LABORATORY, INC.
1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

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

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

QA/QC INFORMATION
SET: 10980

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

ug/L = part per billion (ppb)

OIL AND GREASE ANALYSIS By Standard Methods Method 503E:
MS/MSD Average Recovery = 63% Duplicate RPD = 6%
Minimum Detection Limit in Water: 5000ug/L

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

8015/5030 Total Purgable Petroleum Hydrocarbons:
Minimum Quantitation Limit for Gasoline in Water: 50ug/L
Daily Standard run at 2mg/L; %Diff Gasoline = <15%
MS/MSD Average Recovery = 95%: Duplicate RPD = 5%

8020/BTXE
Minimum Quantitation Limit in Water: 0.50ug/L
Daily Standard run at 20ug/L; %Diff 8020 = <15%
MS/MSD Average Recovery = 100%: Duplicate RPD = 4%

Richard Srna, Ph.D.
Laboratory Director

Chain-of-Custody Record

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

Chevron Facility Number: 0504
Consultant Release Number:
Consultant Project Number: 3259
Consultant Name: Getter-Ryan Inc
Address: 2150 W Winton Ave / Hayward, CA
Fax Number:
Project Contact (Name): Tom Paulson
(Phone): (415) 783-7500

Chevron Contact (Name): Nancy Vukelich
(Phone):
Laboratory Name: Superior Lab
Contract Number: 2472450
Samples Collected by (Name): Guadalupe Sanchez + John Turczyski
Collection Date: 9-7-90
Signature: Guadalupe Sanch

Sample Number	Lab Number	Number of Containers	Matrix S = Soil W = Water A = Air C = Charcoal	Type G = Grab C = Composite	Time	Sample Preservation	Iced	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline	Modified EPA 8015 Total Petro. Hydrocarb. as Gasoline + Diesel	503 Oil and Grease	Arom. Volatiles - BTXE Soil: 8020/Wtr.: 602	Arom. Volatiles - BTXE Soil: 8240/Wtr.: 624	Total Lead DHS-Luft	EDB DHS-AB 1803				Remarks
C-3		3	W		10:24	HCl	Yes	✓			✓							TH (Gas) BTXE & Total Oil + Grease
C-4		5			8:45			✓		✓	✓							
C-5		3 as			9:24			✓			✓							
C-6					9:59			✓			✓							
C-7					8:51			✓			✓							
C-8					11:31			✓			✓							
C-9					9:34			✓			✓							
C-10					10:14			✓			✓							
C-11					10:57			✓			✓							
CD-3					—			✓			✓							
trip blank		2			—			✓			✓							

Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Guadalupe Sanch	Getter Ryan	9-7-90/13:52			
Relinquished By (Signature)	Organization	Date/Time	Received By (Signature)	Organization	Date/Time
Relinquished By (Signature)	Organization	Date/Time	Received For Laboratory By (Signature)		Date/Time
			M.D. McCullen		9/7/90 13:50

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