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CAMBRIA

November 7, 2003

Don Hwang
Hazardous Materials Specialist
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Alameda County
NOV 10 2003
Environmental Health

Re: **Agency Response and Utility Conduit Investigation Work Plan**
Former Shell Service Station/Current KFC Restaurant
2800 Telegraph Avenue
Oakland, California
Incident #97093398
Fuel Leak Case No. RO0000009

Dear Mr. Hwang:

Cambria Environmental Technology, Inc. (Cambria) has prepared this submittal on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). This document was prepared to respond to the Alameda County Health Care Services (ACHCS) letter dated September 3, 2003.

The technical comments provided in the ACHCS letter involved the following requests and questions:

- Request for re-initiation of quarterly monitoring, including the five fuel oxygenates and two lead scavengers and inclusion of rose diagrams for cumulative groundwater gradients in future monitoring reports.
- Apparent increase in concentrations in offsite well S-8 during the March 2001 sample event.
- Determination of the extent that utility conduits may have diverted the plume; include cross section(s).
- Request for copies of missing boring logs S-4 through S-7.
- Request for information on depth to water measurements from monitoring events prior to May 1992.

Oakland, CA
San Ramon, CA
Sonoma, CA

Cambria Environmental Technology, Inc.

270 Perkins Street
P.O. Box 259
Sonoma, CA 95476
Tel (707) 935-4850
Fax (707) 935-6649

Resumption of Monitoring Program: The groundwater monitoring wells were re-developed in September 2003 and sampled shortly thereafter. Monitoring wells S-1, S-4, S-5, S-6, S-8, S-10 and SR-1 were analyzed for: total petroleum hydrocarbons as gasoline (TPHg); benzene, toluene, ethylbenzene and xylenes (BTEX); methyl tertiary butyl ether [MTBE], tertiary amyl methyl ether [TAME], ethyl tertiary butyl ether [ETBE], di-isobpropyl ether [DIPE] and tertiary butyl alcohol [TBA]; ethylene dibromide [EDB] and ethylene dichloride [EDC]. The groundwater monitoring report for the third quarter 2003 was submitted to the ACHCS on November 4, 2003.

- No fuel oxygenates or lead scavengers were reported in any sample at or above their respective detection limits.

- The rose diagram (Figure 2) shows that the groundwater flow direction at this site has been to the south-southwest for virtually every sample event since 1989, regardless of the season or depth to water measurements.

Evaluation of Concentration Trends: The ACHCS letter stated that the March 2001 data for well S-8 was markedly increased from the previous sample event in November of 2000. To assist with evaluating concentration trends for this well, Cambria plotted the TPHg and benzene concentrations and the depth to water level measurements over time (Graph 1). This graph shows that the concentrations from the March 2001 event are in the same range as historical concentrations that correlate with similar depth to water measurements. Also, the data from September 2003 show a decline in concentrations since the March 1991 event.

Evaluation of Utility Conduits: Cambria performed a utility survey near this site during the first quarter of 2001 that identified the storm drain, water main and sanitary sewer lines as being deep enough to seasonally intersect groundwater. The depths of these utilities are approximately 7, 8 and 9 feet below grade (fbg), respectively (Figures 3 and 4).

The rose diagram presented on Figure 2 shows that the historical flow direction has been consistent regardless of the season or depth to water. This indicates that flow through utility conduits did not effect the flow direction. However, seasonal contact with the utility trenches may have had an effect on seasonal migration of contaminants (e.g. during high water table season, impacted groundwater could have extended further), resulting in pulses of elevated contaminant concentrations. A cross section of the site conditions in the direction of groundwater flow is presented on Figure 3. Because the potential for migration of contaminants from the site via subsurface utilities cannot be ruled out, assessment of these conduits is recommended in the work plan presented herein.

Logs for Wells S-4 through S-7: Cambria obtained copies of Shell's archive files in an effort to

locate copies of the logs for monitoring wells S-4 through S-7. No copies of these logs were present in Shell's files. Some well construction and lithologic data are available based on information included within historical document texts or previously prepared cross sections. Copies of this data are included in Appendix A.

Depth-to-Water Data Prior to May 1992: While reviewing Shell's archive files for this case, copies of historical depth-to-water level measurements for the site wells were obtained for most of the known events. Copies of the available data tables are included in Appendix B.

UTILITY CONDUIT INVESTIGATION WORK PLAN

Technical Rationale for Proposed Scope of Work

- Historically, separate phase hydrocarbons (SPH) were present on the southwest corner of the subject site in well S-3.

- A storm drain drop inlet is located near the location of well S-3 (Figure 4).

- Although the current groundwater concentrations in the remaining site wells (S-1 and SR-1) are below the reporting limits, there is a potential for migration of contaminants to have occurred via utility trenches in Telegraph Avenue. Because the concentration trends at well S-6 have not paralleled those in S-8, the proposed investigation is focused on transport via the storm drain drop inlet out into Telegraph Avenue intersecting the deeper utility trenches.

- To assess whether significant concentrations of petroleum hydrocarbos remain at the southwest corner of the site and whether migration of these contaminants is occurring along utility trenches and thus impacting the groundwater at well S-8, Cambria proposes installing eight soil borings for collection of soil and groundwater samples.

Work Tasks

Permits: An appropriate permit for drilling will be obtained from the ACHCS. Also, for work in Telegraph Avenue, an encroachment permit will need to be obtained.

Site Safety Plan: Cambria will prepare a Site Safety Plan for field work. The Site Safety Plan will address traffic control.

Utility Clearance: Cambria will mark proposed boring locations and the locations will be cleared through Underground Service Alert prior to initiating field work. Further, a representative from

each utility purveyor will need to be contacted because the scope of work involves sampling as near as possible to the utilities. The scope proposed herein may or may not be acceptable to the various utility purveyors.

Site Investigation: Eight soil borings (HB-1 through HB-8) are proposed at the locations shown on Figure 4. HB-1, 2 and 3 are positioned around the former location of well S-3, which contained SPH, and the location of SR-1, which is currently below reporting limits. HB-4, 5, and 6 are positioned west of the site, between a shallow storm drain drop inlet on the curb and shallow and deeper utility trenches within Telegraph Avenue. HB-7 and 8 are positioned nearer to well S-8 to assess concentrations near utilities downgradient of the former Shell station.

Each of the borings will be drilled by hand augering. If possible, HB-1 through HB-3 will be extened to approximately 15 fbg to assess lithology and contaminant concentrations in soil and groundwater. The remaining borings will be extended as deep as possible (given their proximity to utilities) in an attempt to obtain a groundwater sample from each location, but will be no deeper than 15 fbg.

A Cambria geologist will supervise the activities and log the soils encountered to the total depth of each boring. Soil samples will be retained at a minimum of 5-foot intervals, and also from soils areas with noted hydrocarbon impact, or significant changes in lithology. The soil will be collected in brass or stainless steel sample tubes and will be covered on both ends with Teflon sheets and plastic end caps. Groundwater samples will be collected with clean disposable bailers and transferred into vials containing hydrochloric acid preservative with no head space. Soil and groundwater samples will be labeled, entered onto a chain-of-custody record and placed into a cooler with ice for transport to a State of California certified laboratory for analyses.

Chemical Analyses: As requested by the ACHCS, all soil samples will be analyzed for TPHg, BTEX, MTBE, EDB and EDC by EPA Method 8260B. The groundwater samples will be analyzed for these same constituents, plus the other four fuel oxygenates (DIPE, TAME, ETBE and TBA).

Report Preparation: Following the receipt of analytical results from the laboratory, Cambria will prepare a written report which will include field procedures, laboratory results, boring logs, and conclusions and recommendations.

Certification

All of the activities proposed herein will be performed under the direct supervision of a California registered geologist or professional engineer.

Schedule

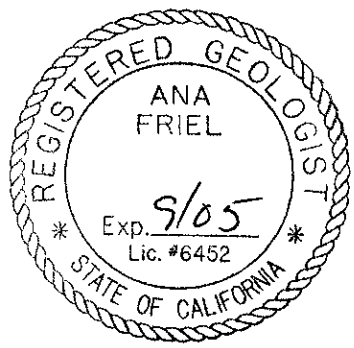
Cambria is prepared to begin work upon written approval of this work plan by ACHCS and receipt of an appropriate drilling and encroachment permits. The report of findings will be submitted within 45 days of receipt of all analytical data from these activities.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Ana Friel at (707) 442-2700 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc

Ana Friel, RG
Senior Project Geologist
RG# 6452



Attachments

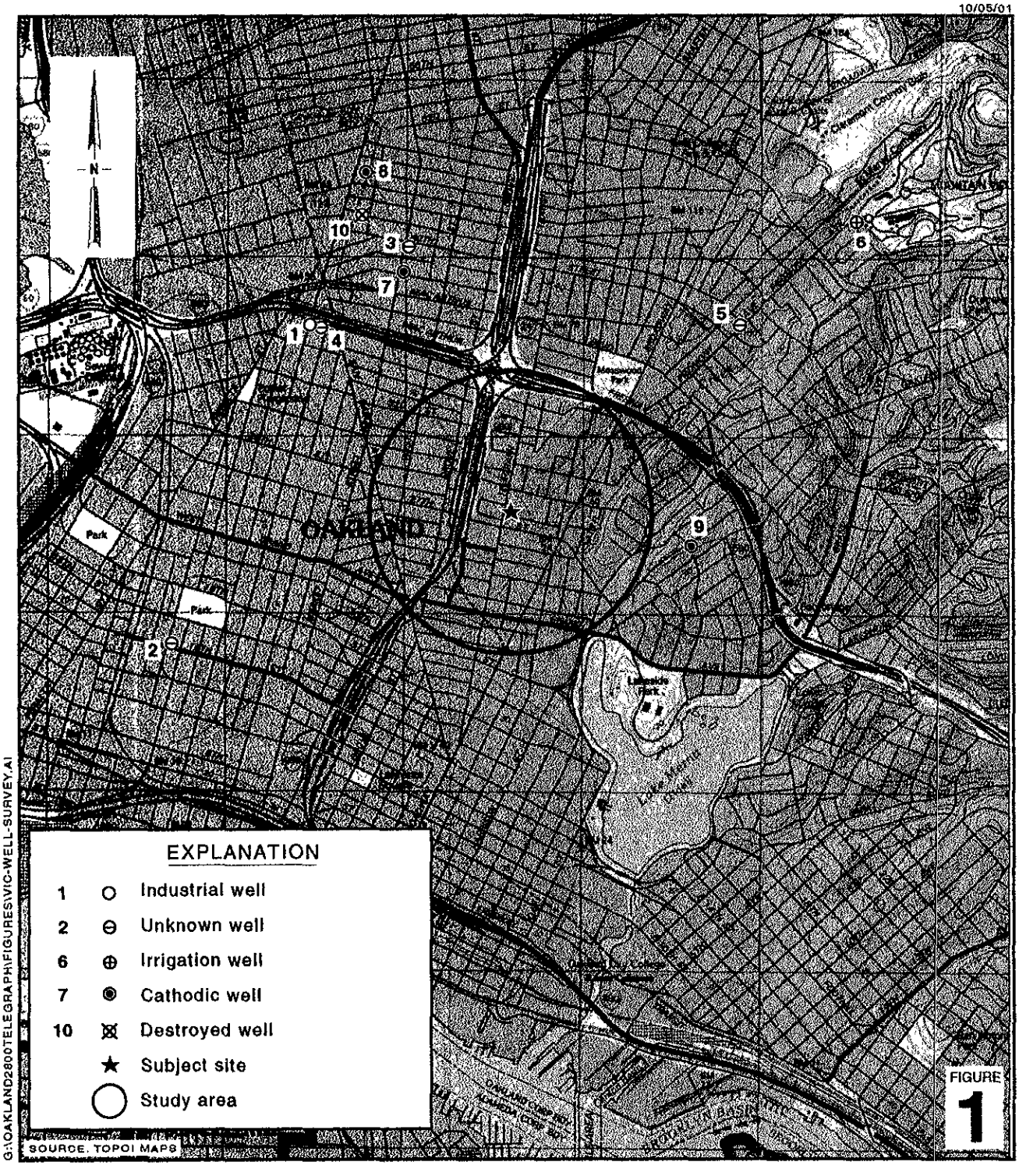
Figure 1 Site Vicinity/Well Location Map
Figure 2 Groundwater Contour/Chemical Concentration Map – 3Q03
Figure 3 Geologic Cross Section A-A'
Figure 4 Utilities and Proposed Boring Locations

Graph 1 S-8: TPHg, Benzene and Depth to Water vs. Time

Appendix A Historical References for Well Construction (S-4 through S-7)
Appendix B Historical Depth to Water Level Data Tables – Prior to May 1992

cc: Karen Petryna, Equiva Services LLC, P.O. Box 7869, Burbank, California 94510-7869
Harmon Management Corp., 199 First Street #212, Los Altos, CA 94022-2767

10/05/01



G:\OAKLAND2800TELEGRAPH\FIGURES\VIC-WELL-SURVEY.AI

0 1/4 1/2 1 2

SCALE : 1" = 1/2 MILE

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2800 Telegraph Avenue
Oakland, California
Incident #97093398

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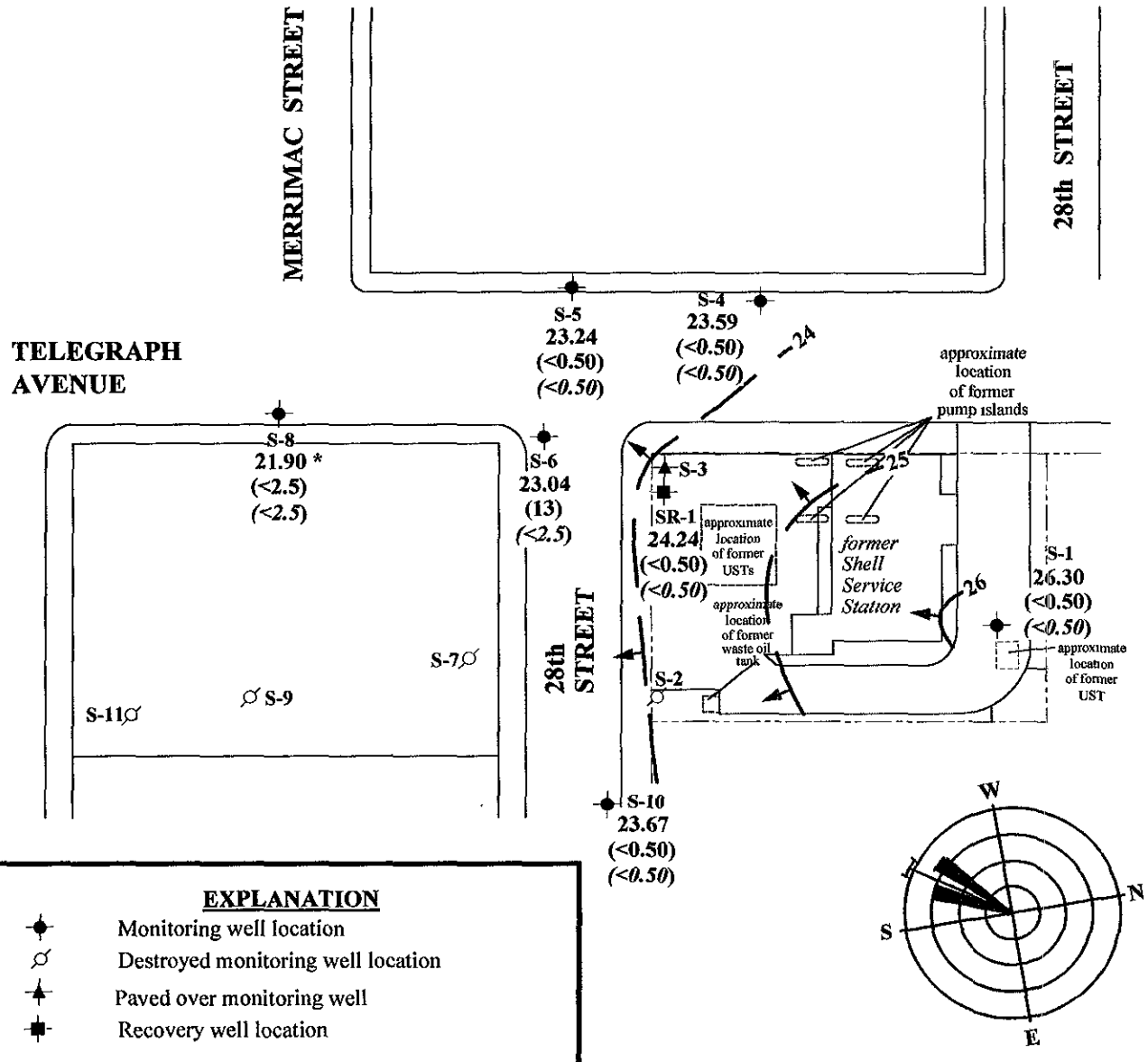
Site Vicinity / Well Location Map

(1/2 Mile Radius)



Groundwater Flow Direction
2Q89 to 3Q03

EXPLANATION

- Monitoring well location
- Destroyed monitoring well location
- Paved over monitoring well
- Recovery well location
- Groundwater elevation contour in feet referenced to mean sea level (ft msl). Arrows indicate approximate groundwater flow direction.
- **24.24** Groundwater elevation in ft msl
- **(<0.50)** Benzene concentration in parts per billion (ppb)
- ***(<0.50)*** MTBE concentration in ppb
- * Well gauged and sampled on October 3, 2003 and therefore not used in contouring.

Approximate hydraulic gradient = 0.016

Scale (ft)

0 30 60 120

FIGURE 2

1507

Base map taken from Weiss Associates Site Map

Former Shell Service Station/ Current KFC Restaurant

2800 Telegraph Avenue
Oakland, California

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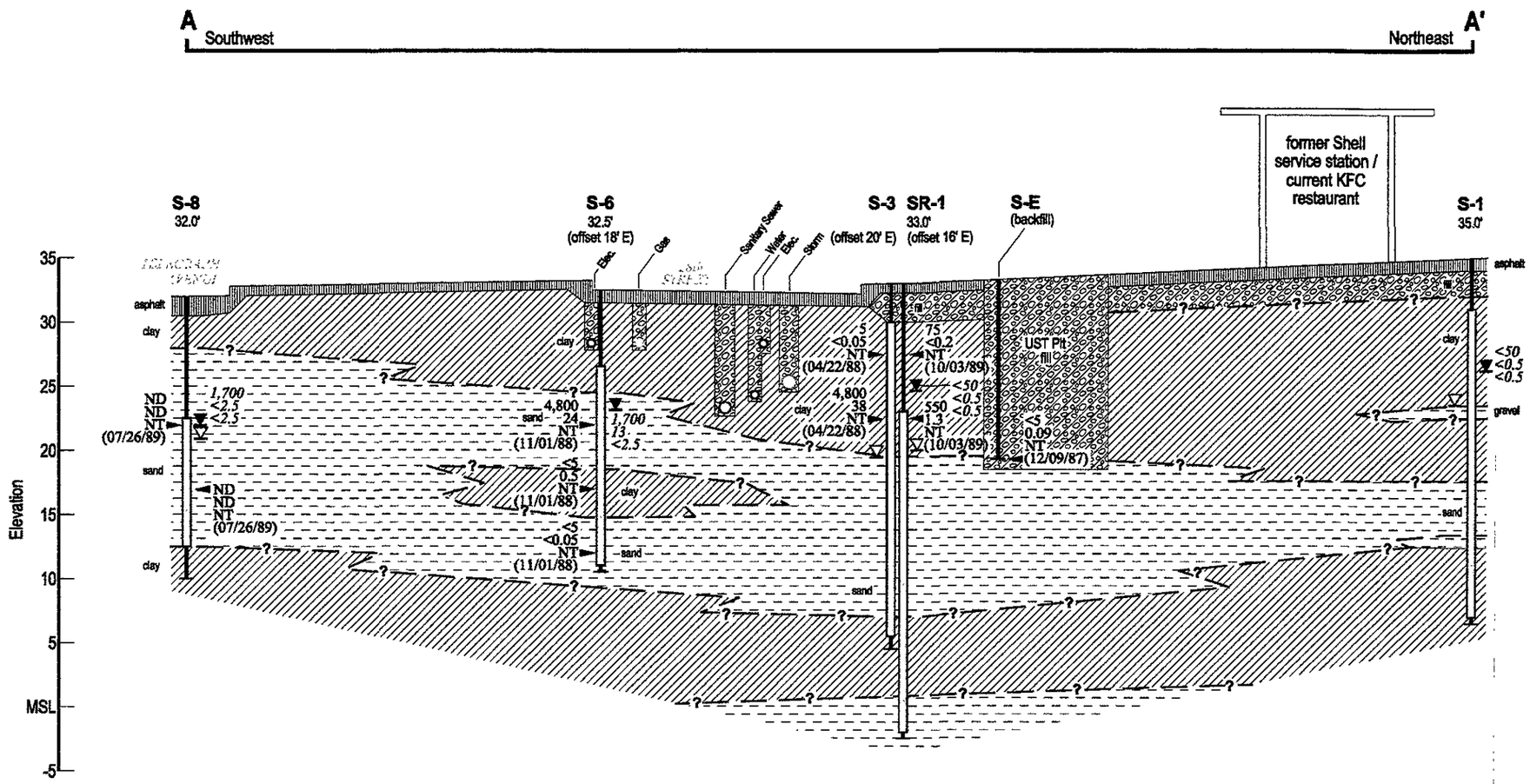
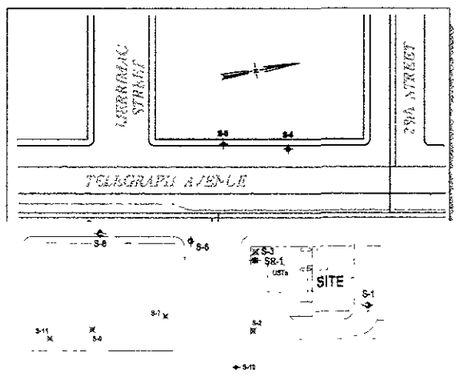
Groundwater Contour/Chemical Concentration Map

September 29, 2003

11/04/03





EXPLANATION

- = Moderate Permeability Soils - Silts and Clays
- = High Permeability Soils - Sands and Gravels
- = Fill (Tank Pit)

Approximate sample location

Hydrocarbon concentrations in Soil, in parts per million

Analyte not detected

Analyte not tested

Well ID — Well Designation
Elev. — Top of Casing Elevation

Groundwater Monitoring Well

Well Screen Interval

Bottom of boring

Initial Groundwater level

Depth to Groundwater on 09/29/03

TPH-g Benzene MTBE — Hydrocarbon concentrations in Groundwater, in parts per billion on 09/29/03

10
Scale (ft)
0 30

FIGURE
3

Former Shell Service Station / Current KFC Restaurant
2800 Telegraph Avenue
Oakland, California

Geologic Cross Section A-A'

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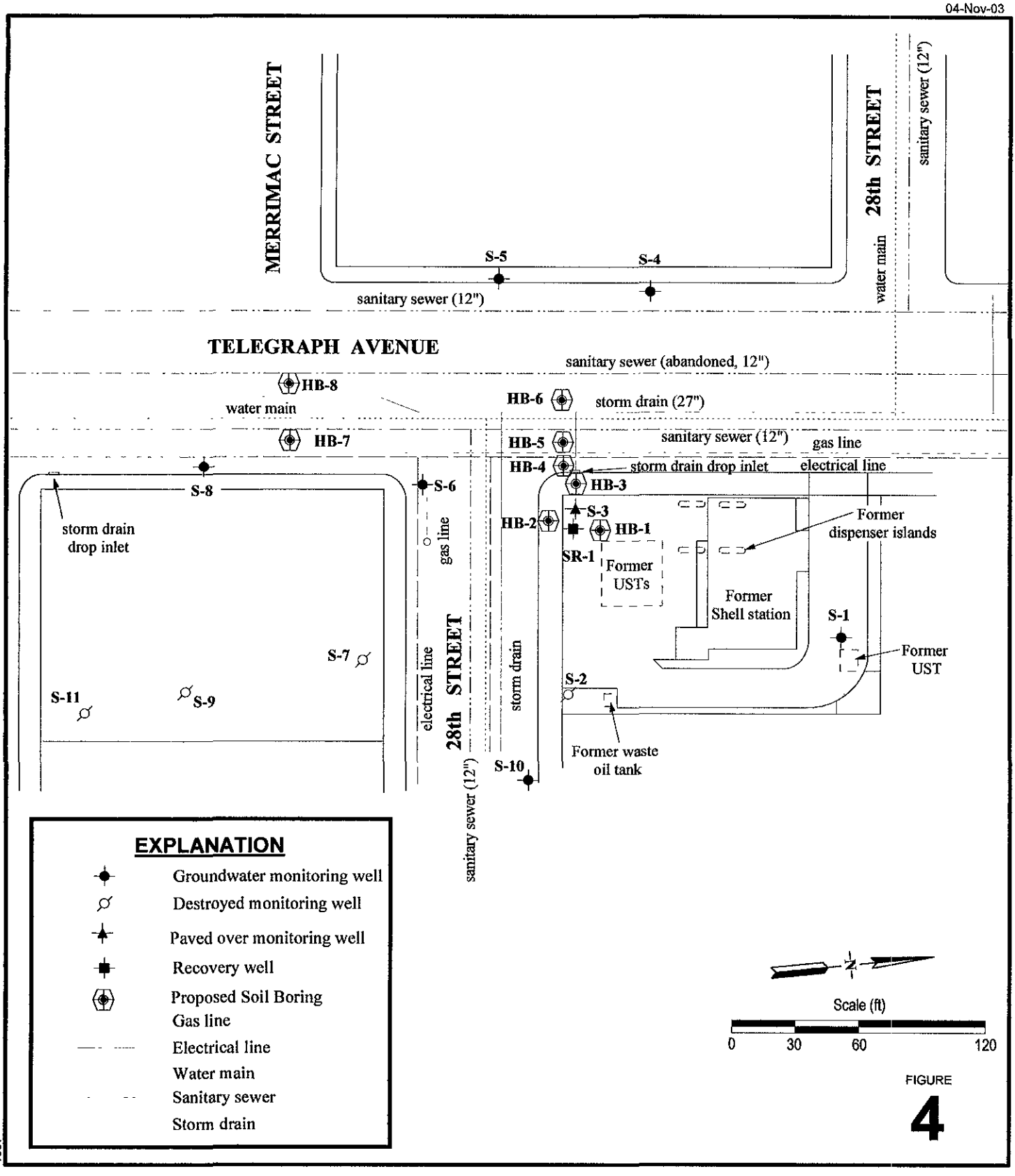
G:\OAKLAND 2800 TELEGRAPH\FIGURES\X-SECTION-A.DWG

04-Nov-03



FIGURE

4

1507

Former Shell Service Station/
Current KFC Restaurant
2800 Telegraph Avenue
Oakland, California

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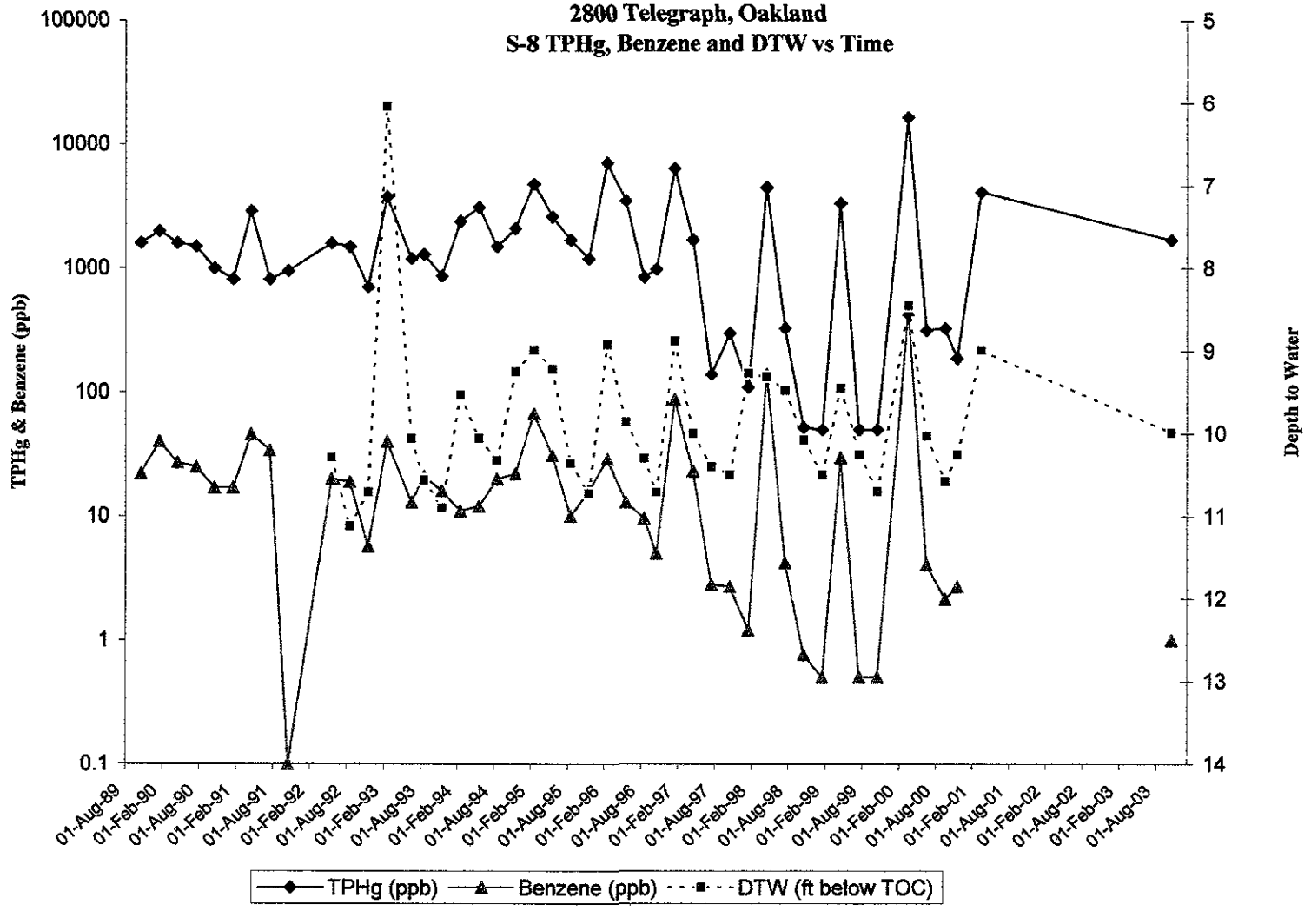
Utilities and Proposed
Boring Locations

Graph 1
Former Shell Service Station/Current KFC Restaurant
2800 Telegraph, Oakland
S-8 TPHg, Benzene and DTW vs Time



APPENDIX A

Historical References for Well Construction

(S-4 through S-7)

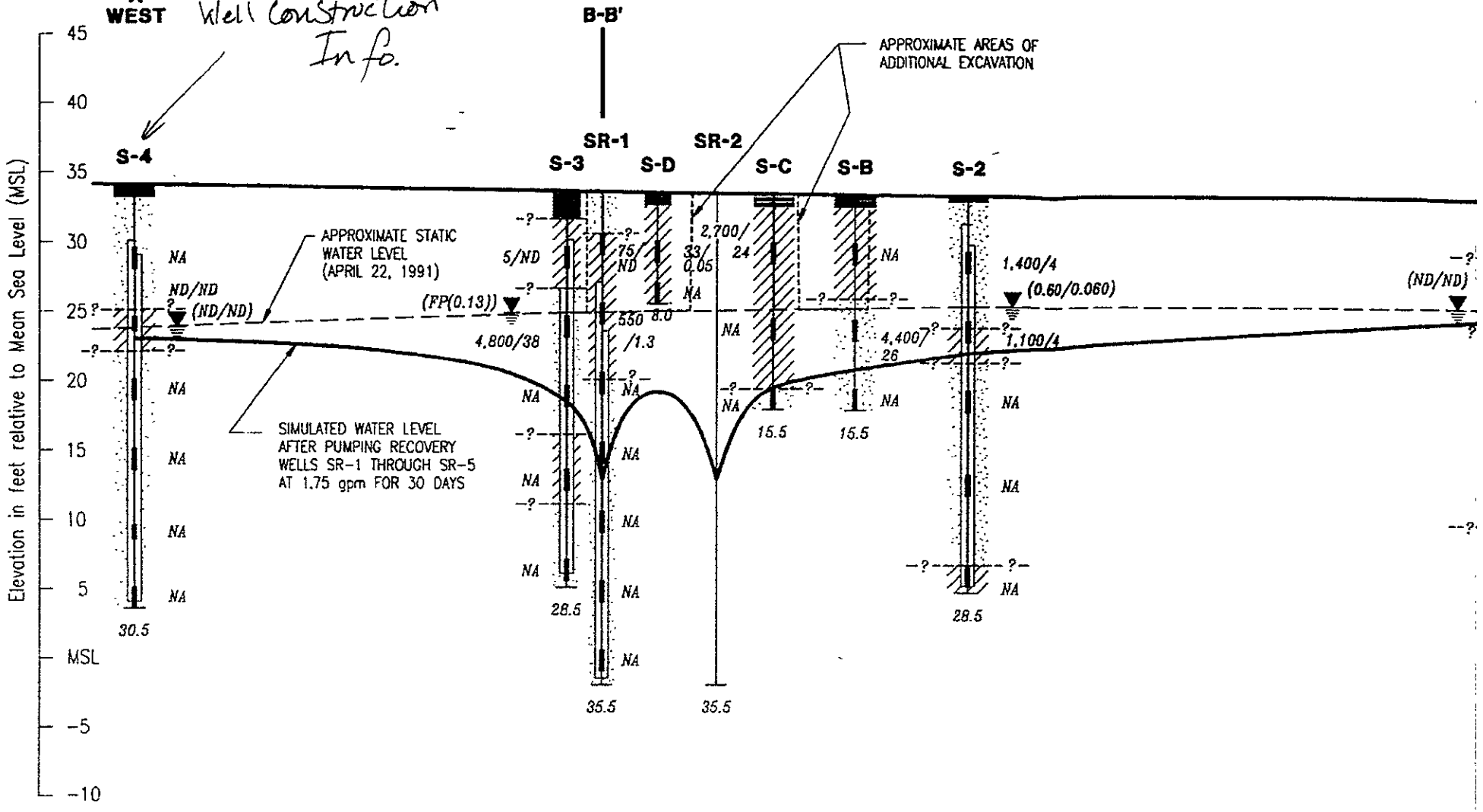
TABLE 1

FIELD MONITORING DATA

WELL NO.	MONITORING DATE	CASING DIA. (IN)	TOTAL WELL DEPTH (FT)	WELL ELEV. (FT)	DEPTH TO WATER (FT)	PRODUCT THICKNESS (FT)	STATIC WATER ELEV. (FT)	PURGED WELL VOLUMES	pH	TEMPERATURE (F)	CONDUCTIVITY (uMHOS/cm)
S-1	04-Oct-91	3	27.8	35.31	10.48	----	24.83	5	6.26	66.6	367
S-2	04-Oct-91	3	25.5	33.91	10.47	----	23.44	2	6.90	68.2	483
S-3	04-Oct-91	3	----	33.56	10.22	0.11	23.43	----	----	----	----
S-4	04-Oct-91	3	28.9	34.08	11.14	----	22.94	3	7.38	71.7	326
S-5	04-Oct-91	3	30.6	33.42	10.66	----	22.76	5	6.96	70.5	86
S-6	04-Oct-91	3	22.1	32.59	10.21	----	22.38	2	7.24	71.6	545
S-7	04-Oct-91	3	30.7	33.33	12.00	----	21.33	5	6.32	71.3	557
S-8	04-Oct-91	3	19.2	31.97	10.87	----	21.10	5	6.71	72.9	412
S-9	04-Oct-91	3	30.0	31.86	11.24	----	20.62	5	6.28	69.6	523
S-10	04-Oct-91	3	24.3	32.95	9.89	----	23.06	2	7.20	68.8	706
S-11	04-Oct-91	3	19.2	30.78	10.79	----	19.99	5	6.06	69.4	439
SR-1	04-Oct-91	6	34.4	----	10.06	----	----	----	----	----	----

Notes:
1. Static water elevations referenced to Mean Sea Level (MSL).
2. Physical parameter measurements represent stabilized values.
3. Static water-levels corrected for floating product (conversion factor = 0.80).
4. Recovery Well SR-1 was monitored, but not sampled.

Lithologic & Well Construction Info.



NOTES

1. General stratigraphic relationships are displayed. Additional horizontal and vertical variations may exist.
2. Soil boring S-B was drilled through the corner of the former underground tank site.
3. *FP(0.01)* Floating Product (measured thickness in feet)

SCALE
HORIZ: 1" = 30'
VERT: 1" = 10'

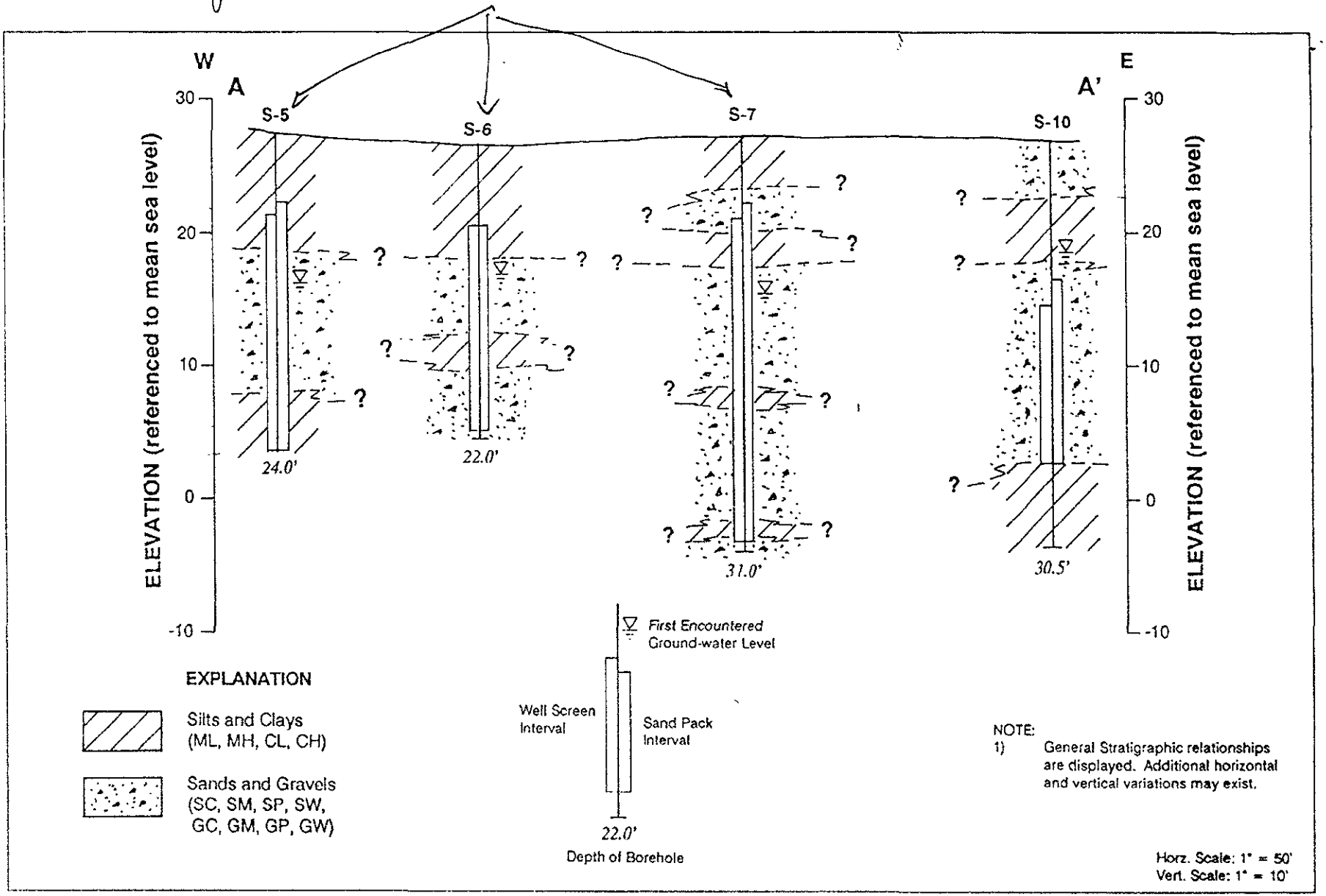
LEGEND

Sands and Grav (SC, SM, SP, GW

Silts and Clays (ML, CL, ML-CL)

FIG 2 - GSI Report dated Nov. 12, 1991

Lithologic & well Construction Info

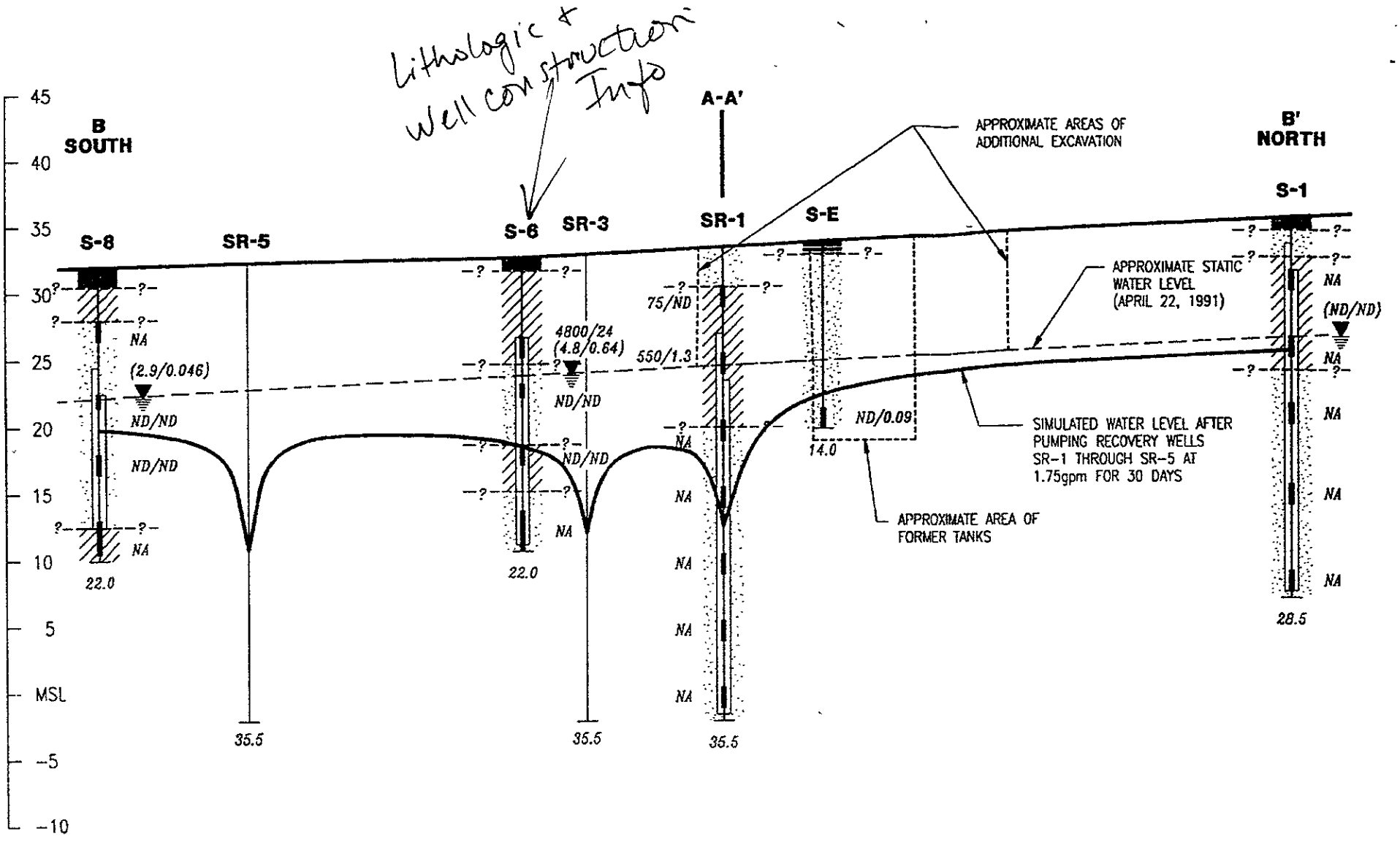


GeoStrategies Inc.

Cross-Section A-A'
Former Shell Service Station
2800 Telegraph Avenue
Oakland, California

PLATE
2

JOB NUMBER	REVIEWED BY RG/CEG	DATE	REVISED DATE	REVISED DATE
7610	CEG 12/62	9/89		



NOTES

1. General stratigraphic relationships are displayed. Additional horizontal and vertical variations may exist.
2. Soil boring S-B was drilled through the corner of the former underground tank site.
3. *FP(0.01)* Floating Product (measured thickness in feet)

SCALE
HORIZ: 1" = 30'
VERT: 1" = 10'

LEGEND

- Sands and Gravels (SC, SM, SP, GW)
- Silts and Clays (ML, CL, ML-CL)

FIG 3
GSI Rpt Nov 12, 1991

APPENDIX B

Historical Depth to Water Level Data Tables

Prior to May 1992

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
09-Nov-89	R/W		10.02	0.00						
07-Dec-89	R/W		N/A							
21-Dec-89	R/W		10.03	0.00						
04-Jan-90	R/W		10.27	0.00						
01-Feb-90	R/W		8.28	0.00						
15-Feb-90	R/W		8.32	0.00						
01-Mar-90	R/W		7.42	0.00						
16-Aug-88	S1		14.33	0.00						
30-Aug-88	S1		10.48	0.00						
13-Sep-88	S1		10.66	0.00						
27-Sep-88	S1		10.86	0.00						
11-Oct-88	S1		10.82	0.00						
25-Oct-88	S1		10.85	0.00						
08-Nov-88	S1		10.69	0.00						
22-Nov-88	S1		9.65	0.00						
06-Dec-88	S1		N/A							
20-Dec-88	S1		N/A							
03-Jan-89	S1		N/A							
17-Jan-89	S1		9.10	0.00						
31-Jan-89	S1		N/A							
14-Feb-89	S1		N/A							
28-Feb-89	S1		9.56	0.00						
16-Mar-89	S1		8.49	0.00						
30-Mar-89	S1		9.30	0.00						
13-Apr-89	S1		9.07	0.00						
27-Apr-89	S1		9.30	0.00						
11-May-89	S1		9.53	0.00						
25-May-89	S1		9.69	0.00						
08-Jun-89	S1		9.79	0.00						
22-Jun-89	S1		9.91	0.00						
06-Jul-89	S1		10.07	0.00						
20-Jul-89	S1		9.75	0.00						
03-Aug-89	S1		9.88	0.00						
17-Aug-89	S1		10.16	0.00						
31-Aug-89	S1		10.02	0.00						
14-Sep-89	S1		10.42	0.00						
28-Sep-89	S1		10.02	0.00						
12-Oct-89	S1		10.18	0.00						
26-Oct-89	S1		8.93	0.00						
09-Nov-89	S1		10.15	0.00						
07-Dec-89	S1		9.70	0.00						
21-Dec-89	S1		10.44	0.00						
04-Jan-90	S1		9.82	0.00						
01-Feb-90	S1		9.17	0.00						
15-Feb-90	S1		9.25	0.00						

Depth-to-Water Measurements

AUG 88 - MAR 90

SHELL OIL COMPANY | OAKLAND - 2800 TELEGRAPH/28TH | JOB 5610

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
01-Mar-90	S1	9.16	(1.00)	.00						
16-Aug-88	S2		14.18	0.00						
30-Aug-88	S2		10.27	0.00						
13-Sep-88	S2		10.29	0.00						
27-Sep-88	S2		10.50	0.00						
11-Oct-88	S2		10.52	0.00						
25-Oct-88	S2		10.48	0.00						
08-Nov-88	S2		10.39	0.00						
22-Nov-88	S2		9.43	0.00						
06-Dec-88	S2		N/A							
20-Dec-88	S2		N/A							
03-Jan-89	S2		N/A							
17-Jan-89	S2	8.65	(1.00)	0.02						
31-Jan-89	S2		N/A							
14-Feb-89	S2		N/A							
28-Feb-89	S2		9.10	0.00						
16-Mar-89	S2		7.74	0.00						
30-Mar-89	S2		7.49	0.00						
13-Apr-89	S2		8.54	0.00						
27-Apr-89	S2		8.99	0.00						
11-May-89	S2		9.35	0.00						
25-May-89	S2		9.63	0.00						
08-Jun-89	S2		9.73	0.00						
22-Jun-89	S2		9.74	0.00						
06-Jul-89	S2		9.97	0.00						
20-Jul-89	S2		9.52	0.00						
03-Aug-89	S2		9.75	0.00						
17-Aug-89	S2		9.97	0.00						
31-Aug-89	S2		10.03	0.00						
14-Sep-89	S2		10.30	0.00						
28-Sep-89	S2		9.95	0.00						
12-Oct-89	S2		10.09	0.00						
26-Oct-89	S2		9.10	0.00						
09-Nov-89	S2		9.93	0.00						
07-Dec-89	S2		9.65	0.00						
21-Dec-89	S2		10.24	0.00						
04-Jan-90	S2		9.92	0.00						
01-Feb-90	S2		8.95	0.00						
15-Feb-90	S2		9.03	0.00						
01-Mar-90	S2		8.96	0.00						
16-Aug-88	S3		14.04	0.00						
30-Aug-88	S3		10.19	0.00						
13-Sep-88	S3	10.28	(1.00)	0.04						
27-Sep-88	S3	10.35	(1.00)	0.08						
11-Oct-88	S3	10.39	(1.00)	0.10						

SHELL OIL COMPANY OAKLAND - 2850 TELEGRAPH/28TH JOB 5610

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
25-Oct-88	S3	10.32	(1.00)	0.12						
08-Nov-88	S3	10.33	(1.00)	.00						
22-Nov-88	S3	9.50	(1.00)	0.03						
06-Dec-88	S3	8.79	(1.00)	.00						
20-Dec-88	S3	9.65	(1.00)	0.03						
03-Jan-89	S3	8.27	(1.00)	0.01						
17-Jan-89	S3		N/A							
31-Jan-89	S3		N/A							
14-Feb-89	S3		N/A							
28-Feb-89	S3	9.17	(1.00)	.00						
16-Mar-89	S3	8.18	(1.00)	.00						
30-Mar-89	S3		7.62	0.00						
13-Apr-89	S3	8.47	(1.00)	.00						
27-Apr-89	S3	8.92	(1.00)	.00						
11-May-89	S3	9.22	(1.00)	0.01						
25-May-89	S3	9.48	(1.00)	.00						
08-Jun-89	S3	9.60	(1.00)	0.01						
22-Jun-89	S3	9.61	(1.00)	0.01						
06-Jul-89	S3		9.79	0.00						
20-Jul-89	S3		9.50	0.00						
03-Aug-89	S3	9.30	(1.00)	0.03						
17-Aug-89	S3	9.83	(1.00)	0.03						
31-Aug-89	S3	9.88	(1.00)	0.12						
14-Sep-89	S3	10.05	(1.00)	0.18						
28-Sep-89	S3	9.77	(1.00)	0.08						
12-Oct-89	S3	9.94	10.04	0.10						
26-Oct-89	S3	8.99	9.01	0.02						
09-Nov-89	S3	9.76	9.83	0.07						
07-Dec-89	S3	9.55	9.58	0.03	2.00					
21-Dec-89	S3	10.06	10.08	0.02						
04-Jan-90	S3		9.83	0.00						
01-Feb-90	S3	8.85	(1.00)	.00						
15-Feb-90	S3	8.85	(1.00)	.00						
01-Mar-90	S3		8.77	0.00						
22-Nov-88	S4		10.80	0.00						
06-Dec-88	S4		10.63	0.00						
20-Dec-88	S4		10.76	0.00						
03-Jan-89	S4		10.18	0.00						
17-Jan-89	S4		10.31	0.00						
31-Jan-89	S4		10.49	0.00						
14-Feb-89	S4		10.35	0.00						
28-Feb-89	S4		10.42	0.00						
16-Mar-89	S4		10.25	0.00						
30-Mar-89	S4		9.60	0.00						
13-Apr-89	S4		10.25	0.00						

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	ENP	C.ELEV
27-Apr-89	S4		10.23	0.00						
11-May-89	S4		10.50	0.00						
25-May-89	S4		10.59	0.00						
08-Jun-89	S4		10.68	0.00						
22-Jun-89	S4		10.76	0.00						
06-Jul-89	S4		10.84	0.00						
20-Jul-89	S4		10.84	0.00						
03-Aug-89	S4		10.95	0.00						
17-Aug-89	S4		11.06	0.00						
31-Aug-89	S4		11.05	0.00						
14-Sep-89	S4		9.96	0.00						
28-Sep-89	S4		10.95	0.00						
12-Oct-89	S4		11.03	0.00						
26-Oct-89	S4		10.80	0.00						
09-Nov-89	S4		10.88	0.00						
07-Dec-89	S4		10.88	0.00						
21-Dec-89	S4		11.02	0.00						
04-Jan-90	S4		10.95	0.00						
01-Feb-90	S4		10.37	0.00						
15-Feb-90	S4		10.45	0.00						
01-Mar-90	S4		10.39	0.00						
22-Nov-88	S5		10.30	0.00						
06-Dec-88	S5		10.23	0.00						
20-Dec-88	S5		10.10	0.00						
03-Jan-89	S5		9.97	0.00						
17-Jan-89	S5		10.10	0.00						
31-Jan-89	S5		10.18	0.00						
14-Feb-89	S5		10.00	0.00						
28-Feb-89	S5		10.16	0.00						
16-Mar-89	S5		9.81	0.00						
30-Mar-89	S5		9.71	0.00						
13-Apr-89	S5		10.00	0.00						
27-Apr-89	S5		10.13	0.00						
11-May-89	S5		10.20	0.00						
25-May-89	S5		10.25	0.00						
08-Jun-89	S5		10.33	0.00						
22-Jun-89	S5		10.35	0.00						
06-Jul-89	S5		10.42	0.00						
20-Jul-89	S5		10.40	0.00						
03-Aug-89	S5		10.49	0.00						
17-Aug-89	S5		10.58	0.00						
31-Aug-89	S5		10.57	0.00						
14-Sep-89	S5		10.61	0.00						
28-Sep-89	S5		10.50	0.00						
12-Oct-89	S5		10.57	0.00						

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
26-Oct-89	S5		10.24	0.00						
09-Nov-89	S5		10.46	0.00						
07-Dec-89	S5		10.40	0.00						
21-Dec-89	S5		10.58	0.00						
04-Jan-90	S5		10.51	0.00						
01-Feb-90	S5		10.12	0.00						
15-Feb-90	S5		10.17	0.00						
01-Mar-90	S5		10.13	0.00						
22-Nov-88	S6		9.51	0.00						
06-Dec-88	S6		8.71	0.00						
20-Dec-88	S6		9.45	0.00						
03-Jan-89	S6		8.37	0.00						
17-Jan-89	S6		8.70	0.00						
31-Jan-89	S6		9.34	0.00						
14-Feb-89	S6		8.70	0.00						
28-Feb-89	S6		9.12	0.00						
16-Mar-89	S6		8.16	0.00						
30-Mar-89	S6		7.84	0.00						
13-Apr-89	S6		9.64	0.00						
27-Apr-89	S6		8.97	0.00						
11-May-89	S6		9.21	0.00						
25-May-89	S6		9.39	0.00						
08-Jun-89	S6		9.54	0.00						
22-Jun-89	S6		9.47	0.00						
06-Jul-89	S6		9.63	0.00						
20-Jul-89	S6		9.25	0.00						
03-Aug-89	S6		9.40	0.00						
17-Aug-89	S6		10.68	0.00						
31-Aug-89	S6		9.83	0.00						
14-Sep-89	S6		9.96	0.00						
28-Sep-89	S6		9.76	0.00						
12-Oct-89	S6		9.86	0.00						
26-Oct-89	S6		9.04	0.00						
09-Nov-89	S6		9.70	0.00						
07-Dec-89	S6		9.53	0.00						
21-Dec-89	S6		9.89	0.00						
04-Jan-90	S6		9.76	0.00						
01-Feb-90	S6		8.98	0.00						
15-Feb-90	S6		9.05	0.00						
01-Mar-90	S6		8.95	0.00						
22-Nov-88	S7		11.20	0.00						
06-Dec-88	S7		10.56	0.00						
20-Dec-88	S7		11.00	0.00						
03-Jan-89	S7		9.90	0.00						
17-Jan-89	S7		10.40	0.00						

SHELL OIL COMPANY OAKLAND - 2800 TELEGRAPH/28TH JOB 5610

DATE	WELL	DTH	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
31-Jan-89	S7		10.84	0.00						
14-Feb-89	S7		10.21	0.00						
28-Feb-89	S7		10.83	0.00						
16-Mar-89	S7		9.64	0.00						
30-Mar-89	S7		9.07	0.00						
13-Apr-89	S7		10.24	0.00						
27-Apr-89	S7		10.68	0.00						
11-May-89	S7		10.97	0.00						
25-May-89	S7		11.19	0.00						
08-Jun-89	S7		11.29	0.00						
22-Jun-89	S7		11.15	0.00						
06-Jul-89	S7		11.47	0.00						
20-Jul-89	S7		10.77	0.00						
03-Aug-89	S7		11.04	0.00						
17-Aug-89	S7		11.22	0.00						
31-Aug-89	S7		11.65	0.00						
14-Sep-89	S7		11.81	0.00						
28-Sep-89	S7		11.54	0.00						
12-Oct-89	S7		11.49	0.00						
26-Oct-89	S7		10.75	0.00						
09-Nov-89	S7		11.41	0.00						
07-Dec-89	S7		N/A							
21-Dec-89	S7		11.48	0.00						
04-Jan-90	S7		N/A							
01-Feb-90	S7		10.71	0.00						
15-Feb-90	S7		10.69	0.00						
01-Mar-90	S7		10.60	0.00						
03-Aug-89	S8		10.22	0.00						
17-Aug-89	S8		10.48	0.00						
31-Aug-89	S8		10.64	0.00						
14-Sep-89	S8		10.71	0.00						
28-Sep-89	S8		10.57	0.00						
12-Oct-89	S8		10.70	0.00						
26-Oct-89	S8		10.09	0.00						
09-Nov-89	S8		10.34	0.00						
07-Dec-89	S8		10.42	0.00						
21-Dec-89	S8		10.59	0.00						
04-Jan-90	S8		10.53	0.00						
01-Feb-90	S8		10.00	0.00						
15-Feb-90	S8		10.06	0.00						
01-Mar-90	S8		10.00	0.00						
03-Aug-89	S9		10.42	0.00						
17-Aug-89	S9		10.48	0.00						
31-Aug-89	S9		10.88	0.00						
14-Sep-89	S9		11.01	0.00						

SHELL OIL COMPANY OAKLAND - 2800 TELEGRAPH/28TH JOB 5610

DATE	WELL	DTK	DTW	HT	BAILED	FLOWMETER	PT-LIQ.	PT-H2O	EMP	C.ELEV
28-Sep-89	S9		10.77	0.00						
12-Oct-89	S9		10.62	0.00						
26-Oct-89	S9		10.12	0.00						
09-Nov-89	S9		10.55	0.00						
07-Dec-89	S9		10.51	0.00						
21-Dec-89	S9		10.68	0.00						
04-Jan-90	S9		10.64	0.00						
01-Feb-90	S9		9.99	0.00						
15-Feb-90	S9		10.04	0.00						
01-Mar-90	S9		9.88	0.00						
03-Aug-89	S10		8.25	0.00						
17-Aug-89	S10		8.00	0.00						
31-Aug-89	S10		9.03	0.00						
14-Sep-89	S10		9.15	0.00						
28-Sep-89	S10		8.81	0.00						
12-Oct-89	S10		8.12	0.00						
26-Oct-89	S10		7.98	0.00						
09-Nov-89	S10		8.85	0.00						
07-Dec-89	S10		8.95	0.00						
21-Dec-89	S10		9.43	0.00						
04-Jan-90	S10		8.93	0.00						
01-Feb-90	S10		8.35	0.00						
15-Feb-90	S10		8.43	0.00						
01-Mar-90	S10		8.49	0.00						
09-Nov-89	S11		10.02	0.00						
01-Feb-90	S11		9.29	0.00						
15-Feb-90	S11		9.47	0.00						
01-Mar-90	S11		9.42	0.00						

Table 1
Monitoring Well Field Measurement Data
Second Quarter 1992

Shell Station: 2800 Telegraph Avenue
Oakland, California
WIC #: 204-5508-2303

Date: 06/08/92
Project Number: 087-22.01

Well Designation	Water Level Field Date	TOB Elevation (ft-MSL)	Depth to Water (feet)	Groundwater Elevation (ft-MSL)	Total Well Depth (Feet)	Floating Product Thickness (feet)	Water Sample Field Date	pH (std. units)	Electrical Conductivity (micromhos/cm)	Temperature (degrees F)	Turbidity (NTU)
S-1	04/30/91	35.31	9.27	26.04	27.8	ND	04/30/91	6.15	427	63.5	NR
S-1	07/12/91	35.31	10.13	25.18	29.0	ND	07/12/91	6.55	536	67.1	NR
S-1	10/04/91	35.31	10.48	24.83	27.8	ND	10/04/91	6.26	367	66.6	NR
S-1	01/29/92	35.31	10.14	25.17	27.8	ND	01/29/92	6.35	457	63.9	>200
S-1	05/04/92	35.31	9.50	25.81	27.9	ND	05/04/92	6.26	483	68.3	>1000
S-2	04/30/91	33.91	9.15	24.76	25.4	ND	04/30/91	6.18	548	65.2	NR
S-2	07/12/91	33.91	10.00	23.91	29.0	ND	07/12/91	6.67	703	68.9	NR
S-2	10/04/91	33.91	10.47	23.44	25.5	ND	10/04/91	6.90	483	66.2	NR
S-2	01/29/92	33.91	9.80	24.11	25.4	ND	01/29/92	6.28	618	60.0	>200
S-2	05/04/92	33.91	9.44	24.47	25.4	ND	05/05/92	6.80	737	67.1	>1000
S-3	04/30/91	33.56	10.04	23.62**	NR	0.13	04/30/91	FP	FP	FP	FP
S-3	07/12/91	33.56	9.90	23.76**	NR	0.13	07/12/91	FP	FP	FP	FP
S-3	10/04/91	33.56	10.22	23.43**	NR	0.11	10/04/91	FP	FP	FP	FP
S-3	01/29/92	33.56	NR	NR	NR	NR	01/29/92	NR	NR	NR	NR
S-3	05/04/92	33.56	9.22	24.35**	24.9	0.01	05/04/92	FP	FP	FP	FP
S-4	04/30/91	34.08	10.36	23.72	29.1	ND	04/30/91	6.38	364	67.2	NR
S-4	07/12/91	34.08	10.82	23.26	30.5	ND	07/12/91	6.51	469	68.9	NR
S-4	10/04/91	34.08	11.14	22.94	28.9	ND	10/04/91	7.38	326	71.7	NR
S-4	01/29/92	34.08	10.81	23.27	28.7	ND	01/29/92	6.59	456	65.8	>200
S-4	05/04/92	34.08	9.96	24.12	29.2	ND	05/04/92	6.61	393	70.5	>1000

TOB = top of well box
ft-MSL = elevation in feet, relative to mean sea level
std. units = standard pH units
micromhos/cm = micromhos per centimeter
degrees F = degrees Fahrenheit
NTU = nephelometric turbidity units
ND = None detected
NR = Not reported; data not available
** = groundwater elevation corrected to include 80 percent of the floating product thickness measured in the well
FP = Floating product; well contained floating product and was not sampled

Depth to Water Measurements
April 91 - May 92

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Table 1
Monitoring Well Field Measurement Data
Second Quarter 1992

Shell Station: 2800 Telegraph Avenue
Oakland, California
WIC #: 204-5508-2303

Date: 06/08/92
Project Number: 067-22.01

Well Designation	Water Level Field Date	TOB Elevation (ft-MSL)	Depth to Water (feet)	Groundwater Elevation (ft-MSL)	Total Well Depth (feet)	Floating Product Thickness (feet)	Water Sample Field Date	pH (std. units)	Electrical Conductivity (micromhos/cm)	Temperature (degrees F)	Turbidity (NTU)
S-5	04/30/91	33.42	10.12	23.30	30.6	ND	04/30/91	6.93	118	67.4	NR
S-5	07/12/91	33.42	10.44	22.98	30.6	ND	07/12/91	6.98	134	68.1	NR
S-5	10/04/91	33.42	10.66	22.76	30.6	ND	10/04/91	6.96	86	70.5	NR
S-5	01/29/92	33.42	10.44	22.98	30.5	ND	01/29/92	7.51	1020	60.3	>200
S-5	05/04/92	33.42	10.27	23.15	30.6	ND	05/04/92	7.16	109	67.1	>1000
S-6	04/30/91	32.59	9.13	23.46	22.1	ND	04/30/91	6.24	593	67.3	NR
S-6	07/12/91	32.59	9.83	22.76	22.2	ND	07/12/91	6.90	628	69.6	NR
S-6	10/04/91	32.59	10.21	22.38	22.1	ND	10/04/91	7.24	545	71.6	NR
S-6	01/29/92	32.59	9.64	22.95	22.1	ND	01/29/92	6.84	668	64.8	>200
S-6	05/04/92	32.59	9.42	23.17	22.2	ND	05/05/92	6.92	632	63.8	>1000
S-7	04/30/91	33.33	10.70	22.63	30.7	ND	04/30/91	6.54	519	67.8	NR
S-7	07/12/91	33.33	11.60	21.73	30.7	ND	07/12/91	6.87	595	68.9	NR
S-7	10/04/91	33.33	12.00	21.33	30.7	ND	10/04/91	6.32	557	71.3	NR
S-7	01/29/92	33.33	11.46	21.87	30.6	ND	01/29/92	7.02	645	70.1	>200
S-7	05/04/92	33.33	11.21	22.12	30.6	ND	05/05/92	6.79	638	67.2	92.8
S-8	04/30/91	31.97	10.00	21.97	19.2	ND	04/30/91	6.48	503	67.7	NR
S-8	07/12/91	31.97	10.53	21.44	19.2	ND	07/12/91	6.97	475	71.0	NR
S-8	10/04/91	31.97	10.87	21.10	19.2	ND	10/04/91	6.71	412	72.9	NR
S-8	01/29/92	31.97	10.50	21.47	19.1	ND	01/29/92	6.74	482	68.7	>200
S-8	05/04/92	31.97	10.29	21.68	19.2	ND	05/05/92	6.95	664	69.5	>1000

TOB = top of well box
ft-MSL = elevation in feet, relative to mean sea level
std. units = standard pH units
micromhos/cm = micromhos per centimeter
degrees F = degrees Fahrenheit
NTU = nephelometric turbidity units
ND = None detected
NR = Not reported; data not available

Table 1
Monitoring Well Field Measurement Data
Second Quarter 1992

Shell Station: 2800 Telegraph Avenue
Oakland, California
WIC #: 204-5508-2303

Date: 06/08/92
Project Number: 087-22.01

Well Designation	Water Level Field Date	TOB Elevation (ft-MSL)	Depth to Water (feet)	Ground-water Elevation (ft-MSL)	Total Well Depth (feet)	Floating Product Thickness (feet)	Water Sample Field Date	pH (std. units)	Electrical Conductivity (micromhos/cm)	Temperature (degrees F)	Turbidity (NTU)
S-9	04/30/91	31.86	9.68	22.18	30.0	ND	04/30/91	6.82	521	65.8	NR
S-9	07/12/91	31.86	10.85	21.01	30.0	ND	07/12/91	6.88	537	68.7	NR
S-9	10/04/91	31.86	11.24	20.62	30.0	ND	10/04/91	6.28	523	69.8	NR
S-9	01/29/92	31.86	10.74	21.12	30.0	ND	01/29/92	6.79	653	61.4	>200
S-9	05/04/92	31.86	10.45	21.41	30.0	ND	05/05/92	7.00	659	61.4	>1000
S-10	04/30/91	32.95	8.33	24.62	24.2	ND	04/30/91	6.79	210	65.7	NR
S-10	07/12/91	32.95	9.72	23.23	24.3	ND	07/12/91	6.88	173	67.9	NR
S-10	10/04/91	32.95	9.89	23.06	24.3	ND	10/04/91	7.20	706	68.8	NR
S-10	01/29/92	32.95	9.45	23.50	24.2	ND	01/29/92	7.10	208	63.0	>200
S-10	05/04/92	32.95	8.54	24.41	24.3	ND	05/05/92	7.67	210	62.3	>1000
S-11	04/30/91	30.78	9.38	21.40	19.2	ND	04/30/91	6.34	426	65.1	NR
S-11	07/12/91	30.78	10.29	20.49	19.2	ND	07/12/91	6.68	439	67.6	NR
S-11	10/04/91	30.78	10.79	19.99	19.2	ND	10/04/91	6.06	439	69.4	NR
S-11	01/29/92	30.78	10.15	20.63	19.1	ND	01/29/92	6.43	495	63.2	>200
S-11	05/04/92	30.78	9.99	20.79	19.1	ND	05/05/92	6.56	467	63.4	>1000
SR-1	04/30/91	NR	8.57	NR	34.7	ND	04/30/91	NA	NA	NA	NA
SR-1	07/12/91	NR	9.67	NR	NR	ND	07/12/91	NA	NA	NA	NA
SR-1	10/04/91	NR	10.06	NR	34.4	ND	10/04/91	NA	NA	NA	NA
SR-1	01/29/92	NR	9.18	NR	34.0	ND	01/29/92	NA	NA	NA	NA
SR-1	05/04/92	NR	9.02	NR	34.1	ND	05/05/92	NA	NA	NA	NA

TOB = top of well box
ft-MSL = elevation in feet, relative to mean sea level
std. units = standard pH units
micromhos/cm = micromhos per centimeter
degrees F = degrees Fahrenheit
NTU = nephelometric turbidity units
ND = None detected
NR = Not reported; data not available
NA = Not analyzed