ExxonMobil
Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611
510 547 8196 Telephone
510 547 8706 Facsimile

Jennifer C. Sedlachek
Project Manager

ExxonMobil

March 8, 2016

Ms. Karel Detterman
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

RE: Former Exxon RAS #73006/720 High Street, Oakland, California.

Dear Ms. Detterman:

Attached for your review and comment is a copy of the letter report entitled ***Well Destruction Report Addendum*** dated March 8, 2016, for the above-referenced site. The report was prepared by Cardno of Petaluma, California, and details activities pertaining to the subject site.

I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge.

If you have any questions or comments, please contact me at 510.547.8196.

Sincerely,

Jennifer C. Sedlachek
Project Manager

Attachment: Cardno's ***Well Destruction Report Addendum,*** dated March 8, 2016

cc: w/ attachment
Mr. Mo Mashoon, Mash Petroleum, Inc.
Mr. James Yoo, Alameda County Public Works Agency, Water Resources Section

w/o attachment
Mr. Scott Perkins, Cardno

March 8, 2016
Cardno 2010C.R37

Cardno

601 N. McDowell Boulevard
Petaluma, CA 94954
USA

Phone: +1 800 382 9105
Fax: +1 707 789 0414
Contractor: #997036

www.cardno.com

Ms. Jennifer C. Sedlachek
ExxonMobil Environmental Services Company
4096 Piedmont Avenue #194
Oakland, California 94611

SUBJECT **Well Destruction Report Addendum**
Former Exxon Service Station 73006
720 High Street, Oakland, California

Ms. Sedlachek:

At the request of ExxonMobil Environmental Services (EMES), on behalf of Exxon Mobil Corporation, Cardno destroyed the wells associated with the environmental investigation at the subject site as detailed in Cardno's *Well Destruction Report,* dated January 27, 2016 (Cardno, 2016). Cardno prepared this well destruction report addendum to further detail efforts to locate the two missing wells (MW4 and MW12) at the site, as requested by the Alameda County Environmental Heath (ACEH) in electronic correspondence dated February 23, 2016 (Appendix A).

SITE DESCRIPTION

Former Exxon Service Station 73006 is located at 720 High Street, Oakland, California (Assessor's Parcel Number 34-2290-6-3) on the southeastern corner of the intersection of High Street and Coliseum Way adjacent to an elevated portion of Interstate Highway 880 (Plate 1). The site is an active Gas and Food-branded station owned and operated by Mash Petroleum, Inc. The locations of select site features are shown on the Generalized Site Plan (Plate 2).

MISSING WELL LOCATIONS

During well destruction activities in January 2016, Cardno attempted to locate wells MW4 and MW12 based on historical map locations. Wells MW4 and MW12 have not been located since 2001. Previous efforts to locate

the wells have been unsuccessful and survey coordinates of the wells are not available in the project file. Wells MW18A/MW18B and MW16A/MW16B were installed as replacement wells for MW4 and MW12, respectively, since wells MW4 and MW12 were not able to be located (ERI, 2009a; ERI 2009b).

Cardno cored a 20-inch hole in the asphalt at the location of well MW12 based on historical maps, and excavated until baserock was located with no indication of a well. Well MW4 was assumed to be located in a planter based on historical maps. After hand digging past a sprinkler line, an asphalt layer was discovered. The asphalt was broken and the dirt below probed for evidence of the well casing. No well was located. Each location was hand cleared in an effort to locate the well casing. In addition, a metal detector was used to locate the wells; however, well locations were not discovered.

Mr. James Yoo of the Alameda County Public Works Agency (ACPWA), stated in electronic correspondence, dated January 6, 2016, that Cardno needed to "make an attempt to find the wells and document the search. Then we can consider the well 'lost'" (Appendix A). On February 23, 2016, Cardno sent supplemental information documenting the well search to Mr. Yoo, including field notes and photographs. Cardno further discussed the well search with Mr. Yoo in a telephone conversation on February 29, 2016. Mr. Yoo provided verbal approval to Cardno that the well location efforts were sufficient and that the wells could be designated as lost. Mr. Yoo stated that he would make the same verbal approval to the ACEH, if requested; however, he did not wish to submit written documentation to Cardno.

CONCLUSIONS

Efforts were made to locate missing wells MW4 and MW12, including the installation of replacement wells. The attempts to locate wells MW4 and MW12 were discussed with Mr. James Yoo of the ACPWA, who verbally indicated that location efforts were sufficient and that the wells would be designated as lost.

RECOMMENDATIONS

Cardno recommends that the ACEH contact ACPWA directly.

CONTACT INFORMATION

The responsible party contact is Ms. Jennifer C. Sedlachek, ExxonMobil Environmental Services Company, 4096 Piedmont Avenue #194, Oakland, California, 94611. The consultant contact is Mr. Scott Perkins, Cardno, 601 North McDowell Boulevard, Petaluma, California, 94952. The agency contact is Ms. Karel Detterman, Alameda County Environmental Health, 1131 Harbor Bay Parkway, Suite 250, California, 94502.

LIMITATIONS

For documents cited that were not generated by Cardno, the data taken from those documents is used "as is" and is assumed to be accurate. Cardno does not guarantee the accuracy of this data and makes no warranties for the referenced work performed nor the inferences or conclusions stated in these documents.

This document and the work performed have been undertaken in good faith, with due diligence and with the expertise, experience, capability, and specialized knowledge necessary to perform the work in a good and workmanlike manner and within all accepted standards pertaining to providers of environmental services in California at the time of investigation. No soil engineering or geotechnical references are implied or should be inferred. The evaluation of the geologic conditions at the site for this investigation is made from a limited number of data points. Subsurface conditions may vary away from these data points.

Please contact Mr. Scott Perkins, Cardno's project manager for this site, at scott.perkins@cardno.com or at (707) 766-2000 with questions or comments regarding this report.

Sincerely,

SCANNED IMAGE

SCANNED IMAGE

PROFESSIONAL GEOLOGIST
DAVID RICHARD DANIELS
No. 8737
EXP. 7/31/17
STATE OF CALIFORNIA

Christine M. Capwell
Senior Technical Editor
for Cardno
707 766 2000
Email: christine.capwell@cardno.com

David R. Daniels
P.G. 8737
for Cardno
707 766 2000
Email: david.daniels@cardno.com

Enclosures:

References

Acronym List

Plate 1	Site Vicinity Map
Plate 2	Generalized Site Plan
Table 1	Well Construction Details
Appendix A	Correspondence

cc: Ms. Karel Detterman, Alameda County Environmental Health, 1131 Harbor Bay Parkway, Suite 250, Alameda, California, 94502-6577

Mr. Mo Mashoon, Mash Petroleum, 428 13th Street, 10th Floor, Oakland, California, 94612

Mr. James Yoo, Alameda County Public Works Agency, Water Resources Section, 399 Elmhurst Street Hayward, California, 94544

REFERENCES

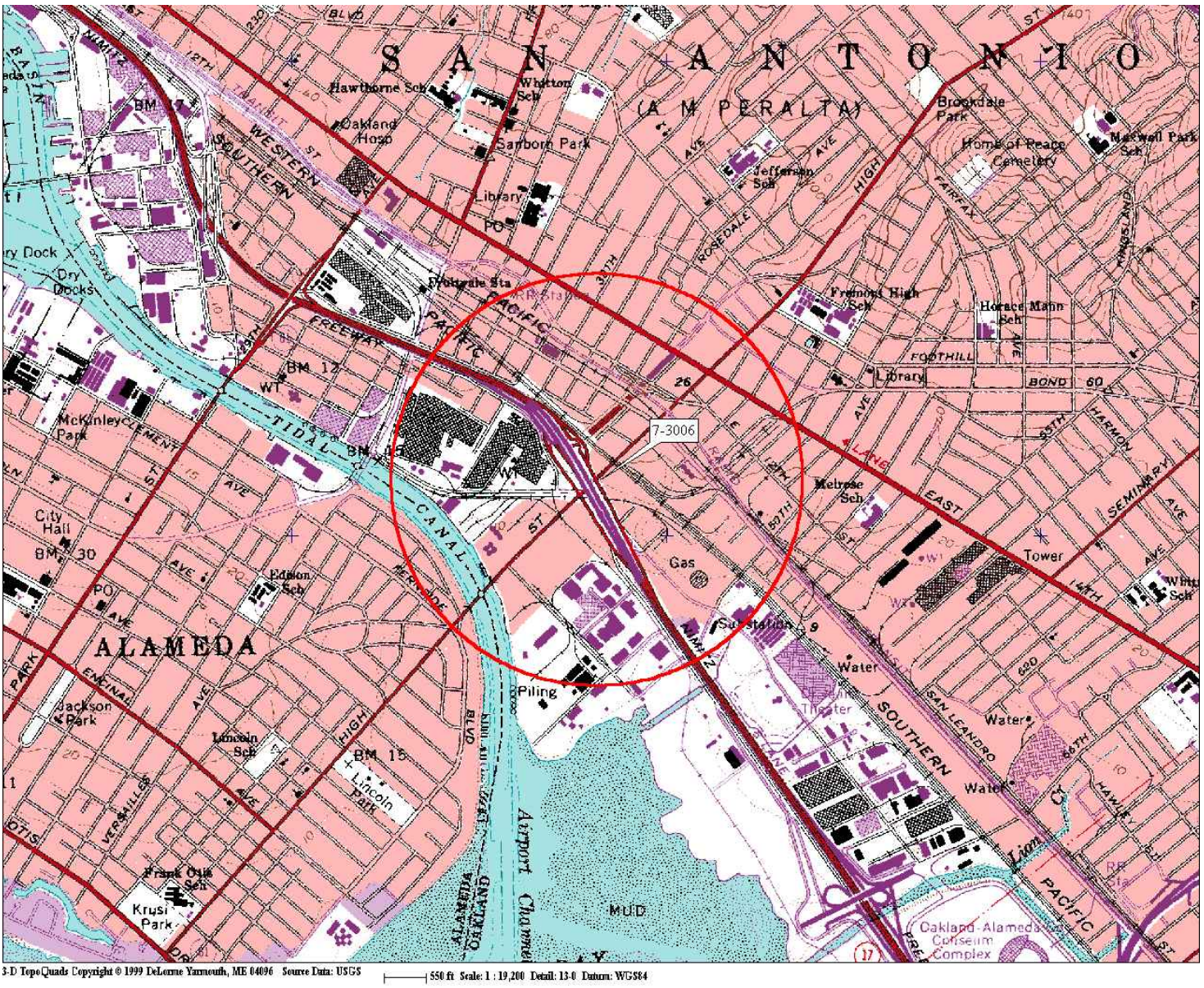
Cardno. January 27, 2016. *Well Destruction Report, Former Exxon Service Station 73006, 720 High Street, Oakland, California.*

Environmental Resolutions, Inc. (ERI). April 27, 2009a. *Work Plan for Well Installation, Former Exxon Service Station 73006, 720 High Street, Oakland California.*

Environmental Resolutions, Inc. (ERI). October 19, 2009b. *Site Assessment Report, Former Exxon Service Station 73006, 720 High Street, Oakland California.*

ACRONYM LIST

µg/L	Micrograms per liter
µs	Microsiemens
1,2-DCA	1,2-dichloroethane
acfm	Actual cubic feet per minute
AS	Air sparge
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, and total xylenes
CEQA	California Environmental Quality Act
cfm	Cubic feet per minute
COC	Chain of Custody
CPT	Cone Penetration (Penetrometer) Test
DIPE	Di-isopropyl ether
DO	Dissolved oxygen
DOT	Department of Transportation
DPE	Dual-phase extraction
DTW	Depth to water
EDB	1,2-dibromoethane
EPA	Environmental Protection Agency
ESL	Environmental screening level
ETBE	Ethyl tertiary butyl ether
FID	Flame-ionization detector
fpm	Feet per minute
GAC	Granular activated carbon
gpd	Gallons per day
gpm	Gallons per minute
GWPTS	Groundwater pump and treat system
HVOC	Halogenated volatile organic compound
J	Estimated value between MDL and PQL (RL)
LEL	Lower explosive limit
LPC	Liquid-phase carbon
LRP	Liquid-ring pump
LUFT	Leaking underground fuel tank
LUST	Leaking underground storage tank
MCL	Maximum contaminant level
MDL	Method detection limit
mg/kg	Milligrams per kilogram
mg/L	Milligrams per liter
mg/m^3	Milligrams per cubic meter
MPE	Multi-phase extraction
MRL	Method reporting limit
msl	Mean sea level
MTBE	Methyl tertiary butyl ether
MTCA	Model Toxics Control Act
NAI	Natural attenuation indicators
NAPL	Non-aqueous phase liquid
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORP	Oxidation-reduction potential
OSHA	Occupational Safety and Health Administration
OVA	Organic vapor analyzer
P&ID	Process & Instrumentation Diagram
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene or perchloroethylene
PID	Photo-ionization detector
PLC	Programmable logic control
POTW	Publicly owned treatment works
ppmv	Parts per million by volume
PQL	Practical quantitation limit
psi	Pounds per square inch
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RBSL	Risk-based screening levels
RCRA	Resource Conservation and Recovery Act
RL	Reporting limit
scfm	Standard cubic feet per minute
SSTL	Site-specific target level
STLC	Soluble threshold limit concentration
SVE	Soil vapor extraction
SVOC	Semi-volatile organic compound
TAME	Tertiary amyl methyl ether
TBA	Tertiary butyl alcohol
TCE	Trichloroethene
TOC	Top of well casing elevation; datum is msl
TOG	Total oil and grease
TPHd	Total petroleum hydrocarbons as diesel
TPHg	Total petroleum hydrocarbons as gasoline
TPHmo	Total petroleum hydrocarbons as motor oil
TPHs	Total petroleum hydrocarbons as stoddard solvent
TRPH	Total recoverable petroleum hydrocarbons
UCL	Upper confidence level
USCS	Unified Soil Classification System
USGS	United States Geologic Survey
UST	Underground storage tank
VCP	Voluntary Cleanup Program
VOC	Volatile organic compound
VPC	Vapor-phase carbon



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS 550 ft Scale: 1 : 19,200 Detail: 13-0 Datum: WGS84

FN 2010

EXPLANATION

1/2-mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3-D TopoQuads

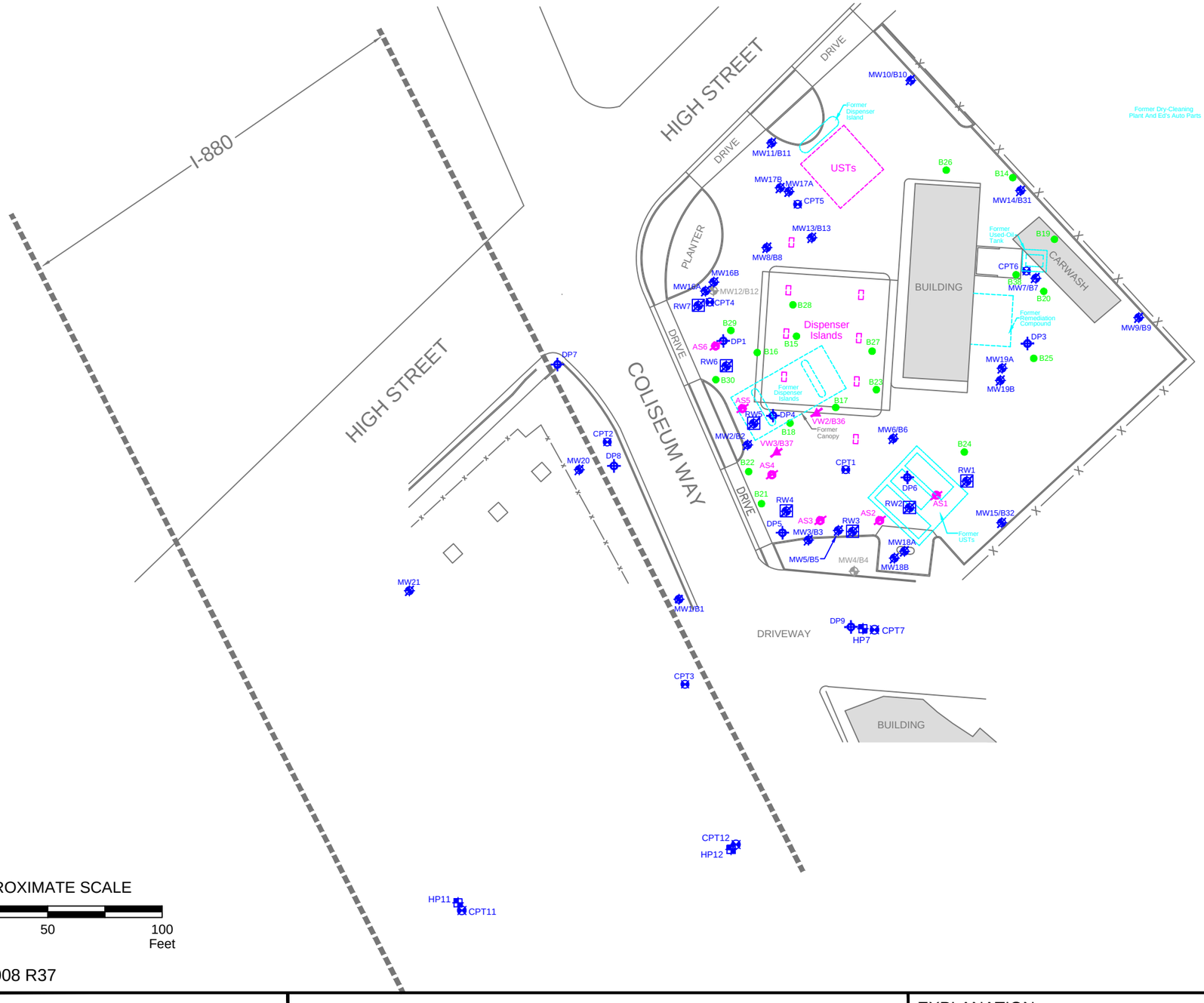
Cardno
Shaping the Future

SITE VICINITY MAP

FORMER EXXON SERVICE STATION 73006
720 High Street
Oakland, California

PROJECT NO.
2010

PLATE
1



APPROXIMATE SCALE

0 50 100 Feet

FN 20100008 R37

Cardno
Shaping the Future

GENERALIZED SITE PLAN

FORMER EXXON SERVICE STATION 73006
720 High Street
Oakland, California

EXPLANATION

- MW21 — Destroyed Groundwater Monitoring Well
- RW7 — Destroyed Recovery Well
- AS6 — Destroyed Air Sparge Well
- VW3/B37 — Destroyed Soil Vapor Extraction Well
- DP9 — Direct-Push Boring
- CPT12 — Cone Penetration Test Boring
- HP12 — Hydropunch Boring
- B38 — Soil Boring/Soil Sample
- MW12/B12 — Well Paved over - Inaccessible

PROJECT NO. 2010

PLATE 2

TABLE 1
WELL CONSTRUCTION DETAILS
Former Exxon Service Station 73006
720 High Street
Oakland, California

Well ID	Well Installation Date	Well Destruction Date	TOC Elevation (feet)	Borehole Diameter (inches)	Total Depth of Boring (feet bgs)	Well Depth (feet bgs)	Casing Diameter (inches)	Well Casing Material	Screened Interval (feet bgs)	Slot Size (inches)	Filter Pack Interval (feet bgs)	Filter Pack Material
MW1	05/21/88	03/26/07	12.79	10	29	29	4	Sch 40 PVC	4-29	---	2-29	---
MW2	09/10/87	01/12/16	13.06	---	36	36	4	---	10-35	---	8-36	---
MW3	09/10/87	01/11/16	13.71	---	36	36	4	---	10-35	---	8-36	---
MW4	09/10/87	Lost	12.77	---	36	36	4	---	10-35	---	8-36	---
MW5	09/10/87	07/18/89	8.38	---	36	36	4	---	8-33	---	6-36	---
MW6	09/10/87	01/11/16	14.23	---	36	36	4	---	10-35	---	8-36	---
MW7	09/10/87	12/21/00	14.84	---	36	36	4	---	10-35	---	8-36	---
MW8	09/10/87	12/21/00	13.45	---	36	36	4	---	10-35	---	8-36	---
MW9	05/12/88	12/21/00	14.64	---	33	33	4	---	7-32	---	6-33	---
MW10	11/27/89	12/21/00	14.05	10	25.5	25	4	Sch 40 PVC	15-25	0.010	13-25	---
MW11	11/27/89	12/21/00	13.55	10	30.5	30	4	Sch 40 PVC	15-30	0.010	14-30	---
MW12	11/28/89	Lost	12.61	10	15.5	15.5	4	Sch 40 PVC	5-15	0.010	4-15.5	---
MW13	11/28/89	12/21/00	14.20	10	15.5	15	4	Sch 40 PVC	5-15	0.010	4-15	---
MW14	10/31/90	01/12/16	15.14	10	18.5	17	4	PVC	7-17	0.010	5.5-17	---
MW15	10/31/90	12/21/00	13.73	10	17	17	4	PVC	7-17	0.010	5.5-17	---
MW16A	08/24/09	01/12/16	13.02	8	14	12.5	2	PVC	7.5-12.5	0.020	6.5-14	#3 Sand
MW16B	08/24/09	01/12/16	13.19	8	24	24	2	PVC	20-24	0.020	18-24	#3 Sand
MW17A	08/25/09	01/12/16	13.99	8	13	13	2	PVC	8-13	0.020	6.5-13	#3 Sand
MW17B	08/25/09	01/12/16	13.92	8	26	26	2	PVC	22-26	0.020	20-26	#3 Sand
MW18A	08/25/09	01/11/16	13.55	8	14	14	2	PVC	9-14	0.020	7-14	#3 Sand
MW18B	08/25/09	01/11/16	13.21	8	31	31	2	PVC	26-31	0.020	24-31	#3 Sand
MW19A	08/26/09	01/11/16	15.05	8	14	14	2	PVC	9-14	0.020	7-14	#3 Sand
MW19B	08/26/09	01/11/16	15.05	8	26	24	2	PVC	20-24	0.020	18-26	#3 Sand
MW20	05/09/14	01/12/16	12.58	10	13.5	13.5	2	PVC	8-13.5	0.020	7-13.5	#3 Sand
MW21	05/09/14	01/12/16	11.82	10	13	13	2	PVC	8-13	0.020	7-13	#3 Sand
VW1	02/11/93	Destroyed	14.01	12	8	7	4	Sch 40 PVC	4-7	0.10	3-7	---
VW2	02/11/93	12/21/00	14.09	12	10	10	4	Sch 40 PVC	5-10	0.10	4-10	---
VW3	02/11/93	12/21/00	13.37	12	8	8	4	Sch 40 PVC	5-8	0.10	4-8	---

TABLE 1
WELL CONSTRUCTION DETAILS
Former Exxon Service Station 73006
720 High Street
Oakland, California

Well ID	Well Installation Date	Well Destruction Date	TOC Elevation (feet)	Borehole Diameter (inches)	Total Depth of Boring (feet bgs)	Well Depth (feet bgs)	Casing Diameter (inches)	Well Casing Material	Screened Interval (feet bgs)	Slot Size (inches)	Filter Pack Interval (feet bgs)	Filter Pack Material
RW1	April 1994	01/13/16	13.76	---	---	---	6	---	---	---	---	---
RW2	April 1994	01/13/16	13.45	---	---	---	6	---	---	---	---	---
RW3	April 1994	01/13/16	13.12	---	---	---	6	---	---	---	---	---
RW4	April 1994	01/18/16	12.65	---	---	---	6	---	---	---	---	---
RW5	April 1994	12/21/00	---	---	---	---	6	---	---	---	---	---
RW6	April 1994	12/21/00	---	---	---	---	6	---	---	---	---	---
RW7	April 1994	12/21/00	---	---	---	---	6	---	---	---	---	---
AS1	April 1994	01/13/16	---	---	---	---	---	---	---	---	---	---
AS2	April 1994	01/14/16	---	---	---	---	---	---	---	---	---	---
AS3	April 1994	01/14/16	---	---	---	---	---	---	---	---	---	---
AS4	April 1994	01/20/16	---	---	---	---	---	---	---	---	---	---
AS5	April 1994	01/18/16	---	---	---	---	---	---	---	---	---	---
AS6	April 1994	01/20/16	---	---	---	---	---	---	---	---	---	---

Notes:

TOC = Top of well casing elevation; datum is mean sea level.

PVC = Polyvinyl chloride.

feet bgs = Feet below ground surface.

--- = Not measured.

APPENDIX A

CORRESPONDENCE

David Daniels

From: Detterman, Karel, Env. Health <Karel.Detterman@acgov.org>
Sent: Tuesday, February 23, 2016 11:38 AM
To: 'Sedlachek, Jennifer C'
Cc: Scott Perkins; David Daniels
Subject: Fuel Leak Case No. RO491 and GeoTracker Global ID T0600100552, EXXON #7-3006, 720 High Street, Oakland, CA 94601

Hello Jennifer:

I reviewed the site's *Well Destruction Report* dated January 27, 2016 prepared on your behalf by Cardno. The report discusses the efforts to locate two missing wells, MW-4 and MW-12 including a discussion with Mr. James Yoo, Alameda County Public Works Agency (ACPWA), but the results of that discussion with ACPWA were not included with the report. Please submit written documentation from ACPWA regarding ACPWA's approval that sufficient effort were made to locate the two missing wells in a *Well Destruction Report Addendum* by the date requested below:

Technical Report Request

Please upload technical reports to the ACEH ftp site (Attention: Karel Detterman), and to the State Water Resources Control Board's Geotracker website, according to Attachment 1 and the following specified file naming convention and schedule:

- March 9, 2016 – Well Destruction Report Addendum
  File to be named: RO491_WELL_DCM_ADDEN_R_yyyy-mm-dd

This report is being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

Thank you,

Karel Detterman, PG
Hazardous Materials Specialist
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
Direct: 510.567.6708
Fax: 510.337.9335
Email: karel.detterman@acgov.org

PDF copies of case files can be downloaded at:

http://www.acgov.org/aceh/lop/ust.htm

From: Wells <wells@acpwa.org>
Date: January 6, 2016 at 3:40:20 PM PST
To: Nadya Vicente <nadya.vicente@cardno.com>
Subject: RE: Alameda County Well Permit Approval Notification

Hi Nadya,

For question No. 1. You will have to at least make an attempt to find the wells and document the search. Then we can consider the well "lost'.
Question No. 2. Yes. Your proposal will be fine to pull the whole case out.

James

JAMES YOO
ENVIRONMENTAL COMPLIANCE SPECIALIST
ALAMEDA COUNTY PUBLIC WORKS AGENCY
WATER RESOURCES SECTION
399 Elmhurst Street
Hayward, CA 94544
Ph: 510-670-6633
Fax: 510-782-1939
jamesy@acpwa.org
www.acgov.org/pwa/wells