Xtra OIL COMPANY
2307 PACIFIC AVENUE
ALAMEDA, CA 94501
(510) 865-9503 FAX (510) 865-1889

June 29, 2016

RECEIVED
By Alameda County Environmental Health 8:57 am, Jun 30, 2016

Ms. Karel Detterman
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

SUBJECT: OZONE INJECTION WELL INSTALLATION REPORT CERTIFICATION
County Case # RO 191
Xtra Oil Company
1701 Park Street
Alameda, CA

Dear Ms. Detterman**:**

P&D Environmental, Inc. has prepared the following document for the subject site:

- Ozone Injection Well Installation Report (IW1) dated June 29, 2016 (document 0058.R29).

I declare under penalty of perjury that the contents and conclusions in the document are true and correct to the best of my knowledge.

Should you have any questions, please do not hesitate to contact me at (510) 865-9506.

Sincerely,
Xtra Oil Company

Keith Simas

0058.L62

P&D ENVIRONMENTAL, INC.

55 Santa Clara Ave, Suite 240
Oakland, CA 94610
(510) 658-6916

June 29, 2016
Report 0058.R29

Mr. Ted Simas
Mr. Keith Simas
Xtra Oil Company
2307 Pacific Ave.
Alameda, CA 94501

SUBJECT: OZONE INJECTION WELL INSTALLATION REPORT (IW1)
County Case # RO 191
Xtra Oil Company
1701 Park Street
Alameda, CA

Gentlemen:

P&D Environmental, Inc. (P&D) is pleased to present this report documenting the installation of one ozone injection well designated as IW1 at the subject site. Well installation was performed on September 22, 2015 and the well was developed on October 23, 2015. A Site Location Map is attached as Figure 1, and a Site Plan showing the well location is attached as Figure 2.

Well installation was performed in accordance with methods and procedures set forth in P&D's Well Installation and Ozone Sparging Work Plan dated July 6, 2015 (document 0058.W7). The Alameda County Department of Environmental Health (ACDEH) approved installation of the well identified in the Work Plan in a letter dated July 28, 2015 from Ms. Karel Detterman of the ACDEH. Well IW1 was installed to help facilitate In Situ Chemical Oxidation (ISCO) by injection of ozone as a remedial solution for petroleum hydrocarbon contamination in groundwater at the site.

All work was performed under the direct supervision of a California professional geologist.

BACKGROUND

A detailed discussion of the site background, historical monitoring and sampling, and historical investigations are provided in P&D's Remedial Action Work Plan (RAWP) dated October 24, 2007 (document 0058.W2), P&D's Corrective Action Plan (CAP) dated October 11, 2010 (document 0058.W3), and P&D's Site Conceptual Model Report dated October 8, 2010 (document 0058.R10). As an interim step for implementation of the CAP, P&D prepared a Groundwater Extraction Feasibility Work Plan dated April 15, 2011 (document 0058.W4) to verify the feasibility of groundwater extraction at the site with a selected number of wells identified in the RAWP.

ISCO using ozone injection was proposed in P&D's In Situ Chemical Oxidation Feasibility Test Work Plan dated February 7, 2014 (document 0058.W6) and in P&D's In Situ Chemical Oxidation Feasibility Test Work Plan Addendum dated June 9, 2014 (document 0058.W6A). Ozone

injection feasibility test activities were approved in a letter dated August 6, 2014 from the ACDEH and ozone injection at well MW2 was performed from August 27, 2014 through mid-day on September 26, 2014. Documentation of ozone injection feasibility test activities is provided in P&D's Ozone Sparging Pilot Test Report dated October 13, 2014 (document 0058.R26) and documentation of evaluating well MW2 for rebound is provided in P&D's Post-Ozone Sparging Pilot Test Rebound Evaluation Report dated November 13, 2014 (document 0058.R27). In P&D's July 6, 2015 Well Installation and Ozone Sparging Work Plan P&D proposed resuming ozone injection at well MW2 and additionally sparging at wells EW2 and IW1.

FIELD ACTIVITIES

Prior to performing field activities, permit W2015-0722 for ozone injection well IW1 was obtained from the Alameda County Public Works Agency (ACPWA), drilling locations were marked with white paint, Underground Service Alert was notified for underground utility location, and a health and safety plan was prepared. Notification of the drilling dates was also provided to the ACDEH.

Well Installation

On September 22, 2015 P&D personnel oversaw the installation of one ozone injection well (IW1) at the subject site. Exploration Geoservices, Inc. of San Jose, California performed the well installation. The location of the well at the site is shown in Figure 2.

The borehole for ozone injection well IW1 was drilled to a total depth of 25.0 feet below the ground surface (bgs). The borehole was drilled using a truck-mounted drill rig with 8-inch outside diameter hollow stem augers. Soil samples were collected at 5-foot intervals for lithologic logging purposes using a Standard Penetration Test (SPT) split-spoon sampler driven by a 140-pound hammer falling 30 inches. Blow counts were recorded every six inches. The soil in the SPT split spoon sampler and the soil cuttings from drilling were classified lithologically in the field in accordance with standard geologic field techniques and the Unified Soil Classification System (USCS). No soil samples were retained for laboratory analysis. A copy of the boring log is attached with this report as Appendix A.

The ozone injection well was constructed using 2-inch diameter Schedule 40 PVC pipe with the lowermost 10 feet of the well casing consisting of 0.020-inch width factory slotted pipe. A screw-on cap was placed on the bottom of the well. The annular space surrounding the screen for the well was filled with # 2/16 washed sack sand to a height of one foot above the top of the screen. A one-foot thick layer of bentonite pellets was placed above the sand and hydrated. The remaining annular space was filled with a neat cement grout sanitary seal to approximately one half foot below the ground surface. The top of each of the PVC well pipe was secured with a watertight locking plug and covered with a traffic-rated watertight well vault. A well construction diagram for the well is attached with this report as Appendix B.

Soil cuttings were screened in the field at the time of drilling for organic vapors with a photoionization detector (PID) that was equipped with a 10.6 eV bulb and that was calibrated with a 100 part per million by volume isobutylene gas. Soil cuttings were also evaluated for the presence of petroleum hydrocarbon odors by P&D personnel.

All drilling and sampling equipment was cleaned by steam cleaning or with an Alconox solution followed by a clean water rinse prior to use in the borehole. All well construction materials were new. Soil and water generated during drilling activities were stored in drums onsite, pending analysis and appropriate disposal.

Well Development

On October 23, 2015 well IW1 was developed by over-pumping by Environmental Field Services (EFS) of Pacific Grove, California. Prior to development, the well was monitored for depth to water to the nearest 0.01 feet using an electric water level indicator. The measured depth to groundwater prior to development on October 23, 2015 in well IW1 was 7.76 feet.

During development of the well EFS personnel did not observe petroleum hydrocarbon sheen on the water removed from well IW1, but did observe a slight petroleum hydrocarbon odor on the water. A total of approximately 15 gallons of water was reported to have been removed during development from well IW1. Water removed from the well during development was stored in a drums onsite pending characterization and appropriate disposal. Well development data sheets are attached with this report as Appendix C.

Soil Disposal

One soil sample designated as Drum 1 was collected from the drummed soil for characterization of the soil for disposal purposes. The drum of soil generated during borehole drilling for well construction was removed from the site as non-hazardous waste on October 20, 2015 by Big Sky Enterprises of Benicia, California (Big Sky). The drum of soil was transported to the Big Sky facility in Benicia, California using non-hazardous waste manifest 102015. A copy of the soil disposal non-hazardous waste manifest is attached with this report as Appendix D.

GEOLOGY AND HYDROGEOLOGY

Based on review of the Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California, by R.W. Graymer (2000) of the U. S. Geological Survey, the subject site is underlain by Holocene and Pleistocene age dune sand (Qds) which consists of fine-grained, very well-sorted and well-drained eolian deposits. Buried paleosols encountered in the dunes are considered indicative of periods of non-deposition.

Review of the boring log attached with this report as Appendix A shows that the subsurface materials encountered in the borehole for the injection well is consistent with the Qpa description provided above.

A Site Plan showing the location of well IW1 is attached with this report as Figure 2. In continuously cored borehole IW1, groundwater was initially encountered during drilling at a depth of 9.0 feet bgs. Groundwater was subsequently measured in the borehole for the well at a depth of 8.9 feet bgs once the borehole had been drilled to a depth of 25 feet bgs.

DISCUSSION AND RECOMMENDATIONS

P&D recommends that ozone injection be performed in wells MW2, EW2, and IW1 using procedures set forth in P&D's February 7, 2014 In Situ Chemical Oxidation Feasibility Test Work Plan, P&D's June 9, 2014 In Situ Chemical Oxidation Feasibility Test Work Plan Addendum, and P&D's Ozone Sparging Pilot Test Report dated October 13, 2014.

DISTRIBUTION

A copy of this report will be uploaded to the ACDEH website, in accordance with ACDEH requirements. In addition, a copy of this report will be uploaded to the GeoTracker database.

LIMITATIONS

This report was prepared solely for the use of Xtra Oil Company. The content and conclusions provided by P&D in this assessment are based on information collected during our investigation, which may include, but not be limited to, visual site inspections; interviews with the site owner, regulatory agencies and other pertinent individuals; review of available public documents; subsurface exploration and our professional judgment based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly revealed conditions must be evaluated and may invalidate the findings of this report.

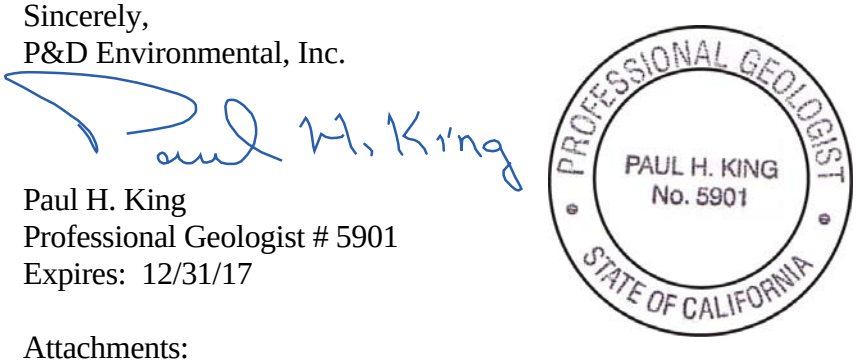
This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. P&D is not responsible for the accuracy or completeness of information provided by other individuals or entities, which are used in this report.

This report presents our professional judgment based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,
P&D Environmental, Inc.



Paul H. King
Professional Geologist # 5901
Expires: 12/31/17

Attachments:

Figure 1 - Site Location Map
Figure 2 - Site Plan Showing Ozone Injection Well Location

Appendix A - Boring Logs
Appendix B - Well Construction Diagrams
Appendix C - Well Development Data Sheets
Appendix D - Drum Disposal Manifest

PHK/mld/sjc
0058.R29

FIGURES

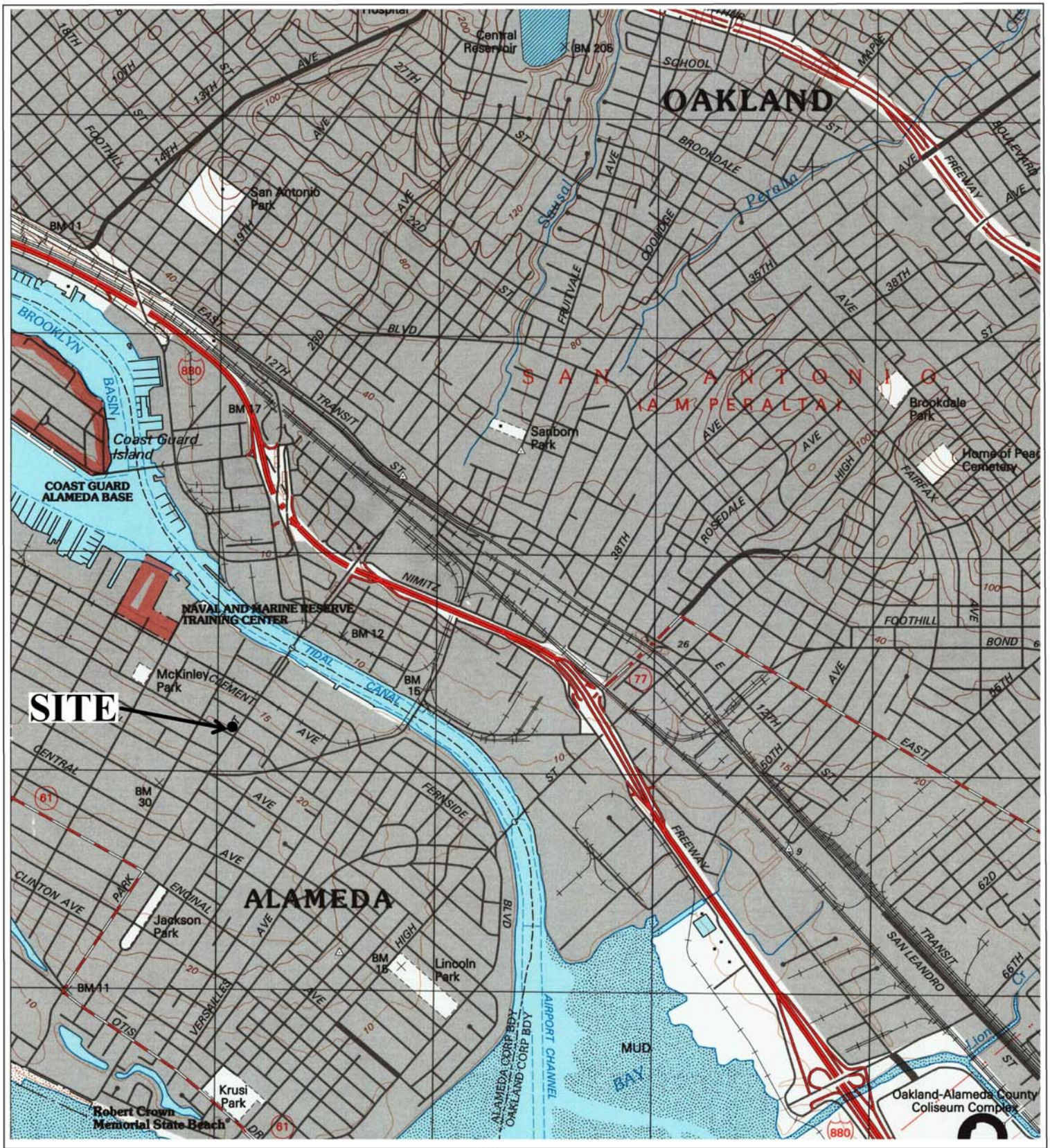


Figure 1
Site Location Map
Xtra Oil Company
1701 Park Street
Alameda, California

Basemap from:
U.S. Geological Survey
Oakland East, California
7.5-Minute Quadrangle, Map edited 1996

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 1,000 2,000
Approximate Scale in Feet

N

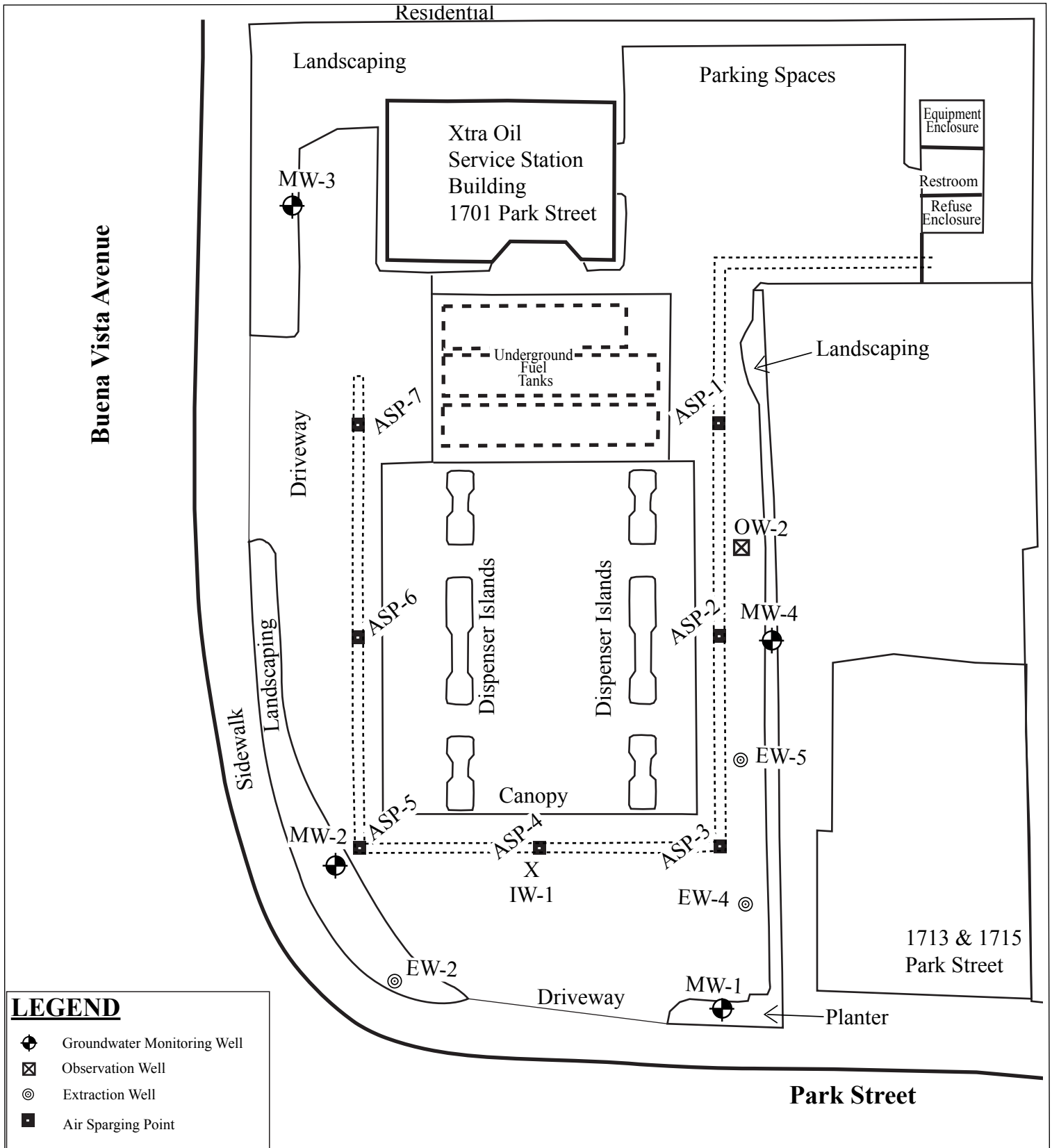


Figure 2
Site Plan Showing Ozone Injection Well Location
Xtra Oil Company
1701 Park Street
Alameda, California

Basemap from: Alisto Engineering Group September 2005, and Google Earth October 2009

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 12.5 25
Approximate Scale in Feet

N

APPENDIX A

Boring Logs

P&D ENVIRONMENTAL, INC.

BORING NO.: IW1	PROJECT NO.: 0058	PROJECT NAME: Xtra Oil Company 1701 Park Street, Alameda	
BORING LOCATION: Approximately 31 ft. north and 46 ft. west of southeast corner of property		ELEVATION AND DATUM: None	
DRILLING AGENCY: Exploration Geoservices, Inc.	DRILLER: John	DATE & TIME STARTED: 9/22/15 0800	DATE & TIME FINISHED: 9/22/15 1000
DRILLING EQUIPMENT: Mobile B40			
COMPLETION DEPTH: 25.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY: PMK
FIRST WATER DEPTH: 9.0 Feet	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (6-inches).			See Well Construction Diagram	55	Borehole cored from 0.0 to 25.0 ft. using a truck-mounted 8-inch O.D. hollow stem auger drill rig. Soil collected at 5.0-foot intervals for lithologic logging using a 2.5-inch O.D. California Modified split spoon sampler driven by a 140-pound hammer falling 30-inches. Blow counts were recorded every 6-inches.
	0.5 to 2.0 ft. Dark brown silty fine sand (SM); medium dense, moist. Moderate Petroleum Hydrocarbon (PHC) odor. (0,85,15)					
	2.0 to 5.0 ft. Dark grayish-brown silty fine sand (SM); medium dense, moist. Strong PHC odor. (0,85,15)				189	
5		SM	5 5 6		327	5.0 ft. to 6.5 ft. 1.5 ft. recovery
	5.0 to 10.0 ft. Bluish-gray silty fine sand (SM); medium dense, moist to saturated. Strong PHC odor. (0,85,15) Wet at 8.5 ft. Saturated at 9.0 ft.			▽▼	742	Water encountered during drilling at 9.0 ft. at 0805. Water level measured at 10.7 ft. at 0945 and at 8.9 ft. at 1028.
10			5 8 15		0.8	10.0 ft. to 11.5 ft. 0.5 ft. recovery
	10.0 to 15.0 ft. Brown fine sand (SP); medium dense, saturated. No PHC odor. (0,95,5)	SP				
15			10 10 18		0.3	15.0 ft. to 16.5 ft. 1.5 ft. recovery Borehole terminated at 25.0 ft. on 9/22/15. Well constructed in borehole on 9/22/15.
20	15.0 to 25.0 ft. Gray silty fine sand (SM); medium dense, saturated, with orange mottling. No PHC odor. (0,85,15)	SM	8 10 12		0.1	20.0 ft. to 21.5 ft. 1.5 ft. recovery Mr. Jose Ambris with Alameda County Public Works Agency on site to observe and document pouring of the sanitary seal.
25			5 6 12		0	23.5 ft. to 25.0 ft. 1.5 ft. recovery
30						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.

APPENDIX B

Well Construction Diagrams

P&D ENVIRONMENTAL, INC.
55 Santa Clara Avenue, Suite 240
Oakland, CA 94610
(510) 658-6916

WELL CONSTRUCTION DIAGRAM

PROJECT NUMBER 0058

PROJECT NAME Xtra Oil Company Alameda

COUNTY Alameda

WELL PERMIT NO. W2015-0722

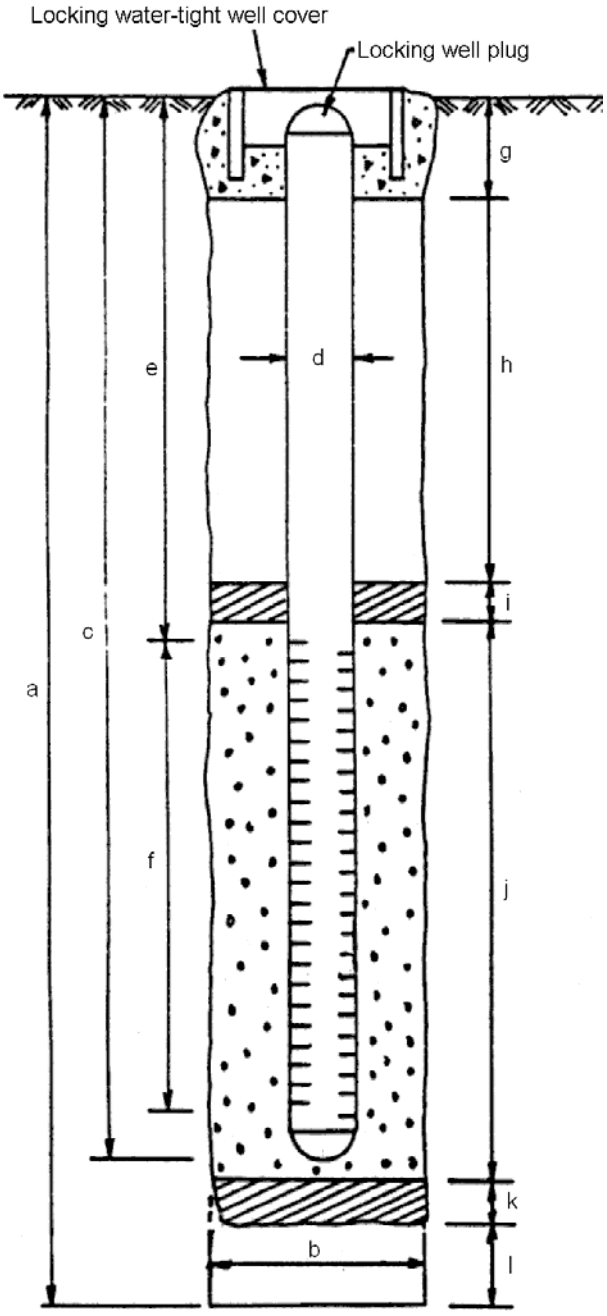
BORING/WELL NO. IW1

TOP OF CASING ELEV. Not Surveyed

GROUND SURFACE ELEVATION Not Surveyed

DATUM Not Surveyed

DATE(S) CONSTRUCTED 9/22/15



EXPLORATORY BORING

a. Total depth 25.0 ft.

b. Diameter 8.0 in.

Drilling method Hollow-stem Auger

WELL CONSTRUCTION

c. Casing length 25.0 ft.

Material PVC Schedule 40

d. Diameter 2.0 in.

e. Depth to top of perforations 15.0 ft.

f. Perforated length 10.0 ft.

Perforated interval from 15.0 to 25.0 ft.

Perforation type Factory Slotted PVC

Perforation size 0.020 in.

g. Surface sanitary seal 1.0 ft.

Seal material Concrete

h. Sanitary seal 11.0 ft.

Seal material Portland cement type II

i. Filter pack seal 1.0 ft.

Seal material Bentonite

j. Filter pack length 11.0 ft.

Filter pack interval from 14.0 to 25.0 ft.

Pack material Lonestar # 2/16 sand

k. Bottom seal 0 ft.

Seal material None

l. Sluff in bottom of borehole 0 ft.

APPENDIX C

Well Development Data Sheets

Environmental Field Services

Well Development Record

Project Name: 1701 Park Ave
Date: 10/23/15
Well ID: IW-1
Project Number: 0058
Well Diameter: 2"
Purging Method: Peristaltic Pump
Initial Depth to Water: 7.76
Casing Volume:
Total Depth of Well: 22.00
Pump Depth: 22'
Total Depth After Dvlp.: 22.00
Total Casing Vol. Removed:

Volume Purged (gal.)	Time	DTW	Conductivity (uS/cm)	pH	Temp. °C	Turbidity (NTU)	ORP	Comments D.O. mg/L
Initial	1105	7.76	1.02	11.26	23.62	OR	-99	10.37
1.5L	1110	9.95	1.04	11.34	23.84	OR	-111	10.06
3L	1115	11.08	1.15	11.48	24.34	OR	-147	8.53
4.5L	1120	11.62	1.02	11.31	24.52	OR	-145	8.06
6L	1125	12.13	1.02	11.31	24.52	OR	-145	8.06
7.5L	1130	13.80	1.02	11.31	24.52	OR	-145	8.06
9L	1135	13.40	1.02	11.31	24.52	OR	-145	8.06
10.5L	1140	13.70	1.02	11.31	24.52	OR	-145	8.06
12L	1145	13.75	1.02	11.31	2452	OR	-145	8.06
13.5L	1150	13.95	0.918	10.92	24.47	OR	-122	7.56
15L	1155	13.80	0.746	10.06	24.46	OR	-75	6.75

pH Calibration

Buffer Solution: 4, 7, 10

Notes: Slight Fuel odor, NO Product Detected.

OR = over Range

Environmental Field Services

Well Development Record

Project Name: 1701 Park Ave
Date: 10/23/15
Well ID: IW-1
Project Number: 00058
Well Diameter: 2"
Purging Method: Peristaltic Pump
Initial Depth to Water: 7.76
Casing Volume:
Total Depth of Well: 22.00
Pump Depth: 22'
Total Depth After Dvlp.: 22.00
Total Casing Vol. Removed: ?

Volume Purged (gal.)	Time	DTW	Conductivity (uS/cm)	pH	Temp. °C	Turbidity (NTU)	Comments ORP	DO mg/L
Initial	1200	13.85	0.746	10.06	24.46	OR	-75	6.76
16.5L	1205	13.85	0.746	10.06	24.46	OR	-75	6.76
18L	1210	13.85	0.712	8.50	24.36	OR	-75	5.96
19.5L	1215	13.85	0.695	8.73	24.35	980	-55	5.29
21L	1220	13.85	0.638	9.05	24.45	813	-27	8.09
22.5L	1225	13.85	0.638	9.02	24.46	769	-40	4.54
24L	1230	13.85	0.639	8.97	24.41	351	-66	2.87
25.5L	1235	13.50	0.636	8.93	24.45	170	-99	2.73
27L	1240	13.20	0.636	8.92	24.48	125	-129	2.68
28.5L	1245	13.45	0.633	8.92	24.49	95.7	-163	2.63
30L	1250	13.47	0.632	8.92	24.50	82.3	-182	2.60

pH Calibration

Buffer Solution: 4, 7, 10

Notes: 1210 - Re Calibrated Ph meter. (PASS)
Clear @ 21L
Removed a TOTAL OF 15 GAL.

APPENDIX D

Drum Disposal Manifest

NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.

Manifest Document No. 102015

2. Page 1 of 1

3. Generator's Name and Mailing Address: Chevron (Xtra Oil) 1701 Park St Alameda CA 94501

4. Generator's Phone ( )

5. Transporter 1 Company Name: BIS Slug Enterprises

6. US EPA ID Number

A. State Transporter's ID

B. Transporter 1 Phone: 800 479-7993

7. Transporter 2 Company Name

8. US EPA ID Number

C. State Transporter's ID

D. Transporter 2 Phone

9. Designated Facility Name and Site Address: BIS Slug Enterprises 401 W. Channel Benicia CA 94501

10. US EPA ID Number

E. State Facility's ID

F. Facility's Phone

11. WASTE DESCRIPTION	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt./Vol.
a. Soil	001	DM	600	P
b.				
c.				
d.				

G. Additional Descriptions for Materials Listed Above: wear PPE

H. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

GENERATOR

16. **GENERATOR'S CERTIFICATION:** I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.

Printed/Typed Name: SNA | Signature: SNA | Date: Month 10 Day 23 Year 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Jeff Rhodes | Signature | Date: Month 10 Day 23 Year 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.

Printed/Typed Name: Jeff Rhodes | Signature | Date: Month 10 Day 27 Year 15

NON-HAZARDOUS WASTE