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By Alameda County Environmental Health at 2:52 pm, Oct 04, 2013



Catalina Espino Devine Project Manager Marketing Business Unit Chevron Environmental Management Company 6101 Bollinger Canyon Road San Ramon, CA 94583 Tel (925) 790-3949 espino@chevron.com

September 30, 2013

Alameda County Health Care Services 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577

Re: Chevron Service Station No. 90917

5280 Hopyard Road Pleasanton, CA

I have reviewed the attached Well Destruction Report.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Sincerely,

Catalina Espino Devine Project Manager

Attachment: Report



5900 Hollis Street, Suite A Emeryville, California 94608

Telephone: (510) 420-0700 Fax: (510) 420-9170

http://www.craworld.com

September 30, 2013

Reference No. 060057

Mr. Jerry Wickham, P.G. Alameda County Environmental Health Services 1131 Harbor Bay Parkway, Suite 250 Alameda, California 94502

Re: Well Destruction Report

Chevron Station 90917 5280 Hopyard Road Pleasanton, California

Fuel Leak Case No RO0000439

Dear Mr. Wickham:

Conestoga-Rovers & Associates (CRA) is submitting this *Well Destruction Report* on behalf of Chevron Environmental Management Company (Chevron) for the site referenced above (Figure 1). As requested by the Alameda County Environmental Health (ACEH) in a letter dated May 1, 2013 requiring the monitoring wells and vapor probes be destroyed in order to receive remedial action completion certification and case closure (Attachment A). CRA requested an extension for the well destruction report in an email dated June 20, 2013 and the extension was granted by ACEH in an email dated June 26, 2013 (Attachment A). CRA properly destroyed monitoring wells MW-4 through MW-9, vapor probes VP-2, VP-4, VP-5, and VP-6, and sub-slab vapor probes SSVP-3, SSVP-4, and SSVP-5 (Figure 2). The work completed in association with the well destruction is summarized below.

Permits

Prior to performing the work, CRA obtained drilling permit number 2013074 (Attachment B) from the Zone 7 Water Agency (Zone 7).

Site Health and Safety Plan

CRA prepared a site safety plan to protect site workers and visitors during the well destruction activities. The plan was kept onsite, and reviewed, signed, and followed by all site workers and visitors.

Underground Utility Location

CRA marked the site for Underground Service Alert (USA) clearance and notified USA at least 48 hours prior to the start of destruction activities. Norcal Geophysical Consultants (Norcal) of Cotati, California were contracted to verify underground utility locations in the vicinity of each

Equal Employment Opportunity Employer



September 30, 2013

Reference No. 060057

- 2 -

existing monitoring well and vapor probe prior to destructions using electric line locators, metal detectors, and ground penetrating.

Drilling Company

All destruction activities were conducted by Vapor-Tech Services of Hayward, California (C-57 License Number 916085).

Destruction Dates

Destruction activities took place from August 12 through 14, 2013.

CRA Personnel

CRA personnel, Oliver Yan and Margareta Wolf managed the destruction activities under the supervision of California Professional Geologist Nathan Lee, PG 8486

Monitoring Well and Vapor Probe Destructions

Monitoring wells MW-4 through MW-9 were destroyed by pressure grouting with Portland Type I/II cement. Using a tremie pipe each well was filled with cement from bottom to the top of casing. Once the well casings were filled with cement, they were pressurized for 5 minutes by applying a pressure of 25 pounds per square inch (psi) with an air compressor. This process was repeated until the cement reached static conditions. The top 2 feet of casing was then removed. Vapor probes VP-2, VP-4, VP-5, and VP-6, were destroyed by over-drilling with a 3-inch diameter hand-auger to approximately 5.5 to 6.5 feet below grade (fbg). Once the vapor probes were over-drilled, the borehole was gravity filled with cement to approximately 0.5 fbg. Sub-slab vapor probes SSVP-3, SSVP-4, and SSVP-5 were removed by over-drilling using a roto-hammer drill and backfilled with anchoring cement. All well vaults were removed after pressure grouting and over-drill activities were completed and then filled to grade with concrete or dirt to match the existing surface. CRA's *Standard Procedures for Monitoring Well Destruction* is included as Attachment C.

Well Completion Reports

Department of Water Resources (DWR) Well Completion Reports are confidential documents and are therefore not included in this report. CRA will submit the completed Well Completion Reports to DWR.

Waste Removal

Soil cuttings generated from well destruction activities were placed in a Department of Transportation approved 55-gallon drum. The drum will be removed from the site and transported to a Chevron and State of California approved disposal facility.



September 30, 2013

Reference No. 060057

- 3 -

CRA properly destroyed all monitoring wells at the site, therefore, on behalf of Chevron; we request a final No Further Action letter be issued for this site.

We appreciate this opportunity to work with you on this project. Please contact Nathan Lee at (925) 849-1003 or nlee@craworld.com if you have any questions or comments.

Regards,

CONESTOGA-ROVERS & ASSOCIATES

NATHAN S.
LEE NO.8486

Nathan Lee PG 8486

OY/cw/20

Encl.

Figure 1 Vicinity Map Figure 2 Site Plan

Attachment A Regulatory Letter

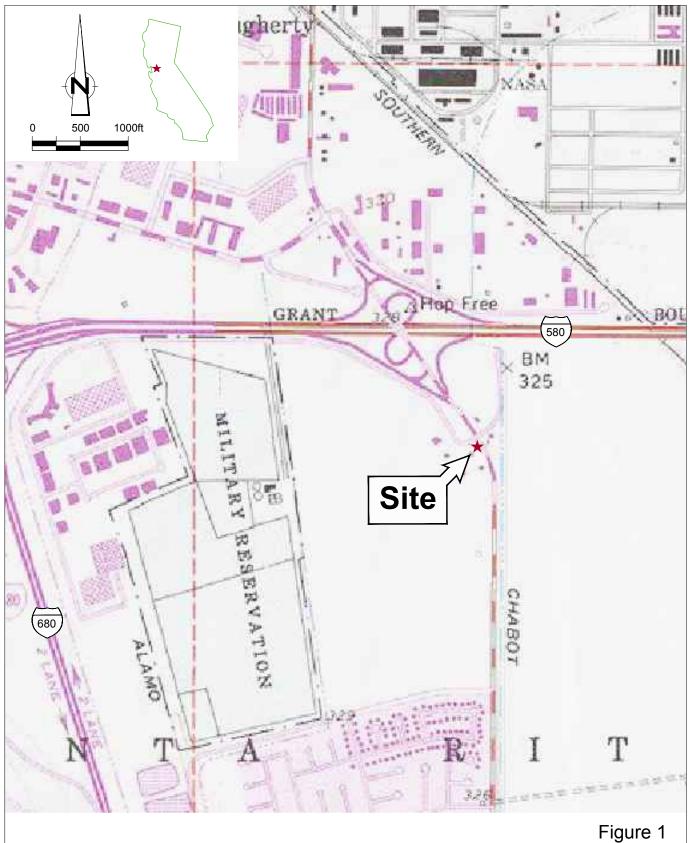
Attachment B Well Destruction Permit

Attachment C Standard Operating Procedures for Well Destruction

c.c.: Ms. Catalina Espino Devine, Chevron (electronic)

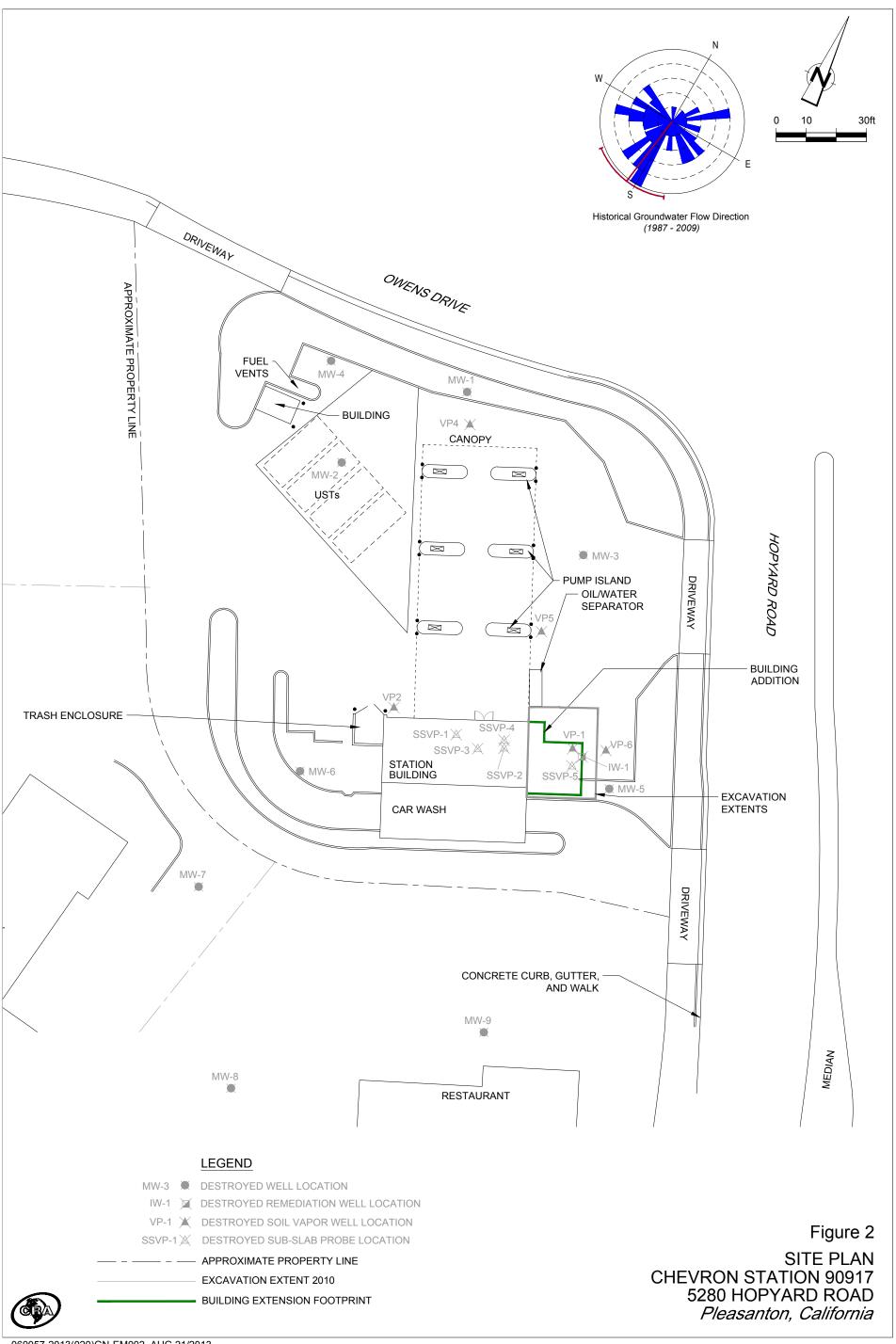
Mr. Sam Ghaben, Black Bear Diner Lamorinda Development & Investment

FIGURES



VICINITY MAP
CHEVRON STATION 90917
5280 HOPYARD ROAD
Pleasanton, California





ATTACHMENT A

REGULATORY CORRESPONDENCE

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY



ALEX BRISCOE, Director

ENVIRONMENTAL HEALTH SERVICES ENVIRONMENTAL PROTECTION 1131 Harbor Bay Parkway, Suite 250 Alameda, CA 94502-6577 (510) 567-6700 FAX (510) 337-9335

May 1, 2013

Ms. Catalina Espino Devine (Sent via E-mail to: espino@chevron.com)
Chevron
6111 Bollinger Canyon Road, BR-Y-3608
San Ramon, CA 94583

Lamorinda Development and Investment 89 Davis Road, Suite 160 Orinda, CA 94563 C & H Development Company 43 Panoramic Way Walnut Creek, CA 94595

Subject: Well Decommissioning for Fuel Leak Case No. RO0000439 and GeoTracker Global ID T0600100345, Chevron #9-0917, 5280 Hopyard Road, Pleasanton, CA 94588

Dear Ms. Devine:

Alameda County Environmental Health (ACEH) have reviewed the fuel leak case file and case closure summary for the above-referenced site and concur that no further action related to the underground storage tank fuel release is required at this time. No comments were received on the proposed case closure during a public comment period conducted between February 19 and April 24, 2013. Prior to issuance of remedial action completion certification and case closure, we request that the monitoring wells at the site be properly decommissioned, should the monitoring wells have no further use at the site. Please decommission the monitoring wells and provide documentation of the well decommissioning to this office no later than June 27, 2013. Remedial action completion certification will be issued following receipt of the documentation.

Well destruction permits may be obtained from the Zone 7 Water Agency (http://www.zone7water.com). If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org.

TECHNICAL REPORT REQUEST

Please upload technical reports to the ACEH ftp site (Attention: Jerry Wickham), and to the State Water Resources Control Board's GeoTracker website according to the following schedule and file-naming convention:

June 27, 2013 – Well Decommissioning Report
 File to be named: WELL_DCM_R_yyyy-mm-dd RO439

These reports are 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.

Responsible Parties RO0002938 May 1, 2013 Page 2

If you have any questions, please call me at (510) 567-6791 or send me an electronic mail message at jerry.wickham@acgov.org. Online case files are available for review at the following website: http://www.acgov.org/aceh/index.htm.

Sincerely,

Digitally signed by Jerry Wickham
DN: cn=Jerry Wickham, o=Alameda County Environmental

Health, ou, email=jerry.wickham@acgov.org, c=US Date: 2013.05.01 11:40:45 -07'00'

Jerry Wickham, California PG 3766, CEG 1177, and CHG 297

Senior Hazardous Materials Specialist

Attachment: Responsible Party(ies) Legal Requirements/Obligations

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Danielle Stefani, Livermore Pleasanton Fire Department, 3560 Nevada St, Pleasanton, CA 94566 (Sent via E-mail to: dstefani@lpfire.org)

Colleen Winey (QIC 8021), Zone 7 Water Agency, 100 North Canyons Pkwy, Livermore, CA 94551 (Sent via E-mail to: cwiney@zone7water.com)

Bill Hurtido, Accor North America, 4001 International Parkway, Carrollton, TX 75007

Nathan Lee, Conestoga-Rovers & Associates, 5900 Hollis Street, Suite A, Emeryville, CA 94608 (Sent via E-mail to: NLee@craworld.com)

Donna Drogos, ACEH (Sent via E-mail to: donna.drogos@acgov.org)
Jerry Wickham, ACEH (Sent via E-mail to: jerry.wickham@acgov.org)

GeoTracker, eFile

Attachment 1

Responsible Party(ies) Legal Requirements/Obligations

REPORT/DATA REQUESTS

These reports/data are being requested pursuant to Division 7 of the California Water Code (Water Quality), Chapter 6.7 of Division 20 of the California Health and Safety Code (Underground Storage of Hazardous Substances), and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations (Underground Storage Tank Regulations).

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (Local Oversight Program [LOP] for unauthorized releases from petroleum Underground Storage Tanks [USTs], and Site Cleanup Program [SCP] for unauthorized releases of non-petroleum hazardous substances) require submission of reports in electronic format pursuant to Chapter 3 of Division 7, Sections 13195 and 13197.5 of the California Water Code, and Chapter 30, Articles 1 and 2, Sections 3890 to 3895 of Division 3 of Title 23 of the California Code of Regulations (23 CCR). Instructions for submission of electronic documents to the ACEH FTP site are provided on the attached "Electronic Report Upload Instructions."

Submission of reports to the ACEH FTP site is in addition to requirements for electronic submittal of information (ESI) to the State Water Resources Control Board's (SWRCB) Geotracker website. In April 2001, the SWRCB adopted 23 CCR, Division 3, Chapter 16, Article 12, Sections 2729 and 2729.1 (Electronic Submission of Laboratory Data for UST Reports). Article 12 required electronic submittal of analytical laboratory data submitted in a report to a regulatory agency (effective September 1, 2001), and surveyed locations (latitude, longitude and elevation) of groundwater monitoring wells (effective January 1, 2002) in Electronic Deliverable Format (EDF) to Geotracker. Article 12 was subsequently repealed in 2004 and replaced with Article 30 (Electronic Submittal of Information) which expanded the ESI requirements to include electronic submittal of any report or data required by a regulatory agency from a cleanup site. The expanded ESI submittal requirements for petroleum UST sites subject to the requirements of 23 CCR, Division, 3, Chapter 16, Article 11, became effective December 16, 2004. All other electronic submittals required pursuant to Chapter 30 became effective January 1, 2005. Please visit the SWRCB website for more information on these requirements. (https://www.waterboards.ca.gov/water_issues/programs/ust/electronic_submittal/)

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "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." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 7835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, late reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to \$10,000 per day for each day of violation.

Alameda County Environmental Cleanup Oversight Programs (LOP and SCP)

REVISION DATE: July 25, 2012

ISSUE DATE: July 5, 2005

PREVIOUS REVISIONS: October 31, 2005; December 16, 2005; March 27, 2009; July 8, 2010

SECTION: Miscellaneous Administrative Topics & Procedures

SUBJECT: Electronic Report Upload (ftp) Instructions

The Alameda County Environmental Cleanup Oversight Programs (petroleum UST and SCP) require submission of all reports in electronic form to the county's FTP site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Please do not submit reports as attachments to electronic mail.
- Entire report including cover letter must be submitted to the ftp site as a single Portable Document Format (PDF) with no password protection.
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements must be included and have either original or electronic signature.
- Do not password protect the document. Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. Documents with password protection will not be accepted.
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:

RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Submission Instructions

- 1) Obtain User Name and Password
 - a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
 - i) Send an e-mail to .loptoxic@acgov.org
 - b) In the subject line of your request, be sure to include "ftp PASSWORD REQUEST" and in the body of your request, include the Contact Information, Site Addresses, and the Case Numbers (RO# available in Geotracker) you will be posting for.
- 2) Upload Files to the ftp Site
 - a) Using Internet Explorer (IE4+), go to ://alcoftp1.acgov.org
 - (i) Note: Netscape, Safari, and Firefox browsers will not open the FTP site as they are NOT being supported at this time.
 - b) Click on Page located on the Command bar on upper right side of window, and then scroll down to Open FTP Site in Windows Explorer.
 - c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
 - d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
 - e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.
- 3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
 - a) Send email to .loptoxic@acgov.org notify us that you have placed a report on our ftp site.
 - b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name @acgov.org. (e.g., firstname.lastname@acgov.org)
 - c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload) If site is a new case without an RO#, use the street address instead.
 - d) If your document meets the above requirements and you follow the submission instructions, you will receive a notification by email indicating that your document was successfully uploaded to the ftp site.

Lee, Nathan

From: Wickham, Jerry, Env. Health [jerry.wickham@acgov.org]

Sent: Wednesday, June 26, 2013 11:17 AM

To: Lee, Nathan

Cc: Espino Devine, Catalina

Subject: RE: RO 0439 - Chevron 90917 5280 Hopyard Road, Pleasanton, CA - Extension Request for

the Submittal of Well Decommissioning Report

Nathan,

Based on your request, the schedule for reporting of well decommissioning activities for the above referenced case is extended to September 30, 2013.

Regards,
Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
phone: 510-567-6791
jerry.wickham@acgov.org

From: Lee, Nathan [mailto:nlee@craworld.com]

Sent: Thursday, June 20, 2013 2:43 PM

To: Wickham, Jerry, Env. Health **Cc:** Espino Devine, Catalina

Subject: RO 0439 - Chevron 90917 5280 Hopyard Road, Pleasanton, CA - Extension Request for the Submittal of Well

Decommissioning Report

Dear Mr. Wickham:

On behalf of Chevron Environmental Management Company ("EMC"), Conestoga-Rovers, and Associates ("CRA") is requesting an extension for the submittal of the *Well Decommissioning Report* which was requested by Alameda County Environmental Health (ACEH) in the letter, dated May 1, 2013. The reason for this extension request is due to scheduling of subcontractors, determining proper well destruction procedures with the Zone 7 Water Agency, and proper site notification for offsite properties.

The well destruction of monitoring wells MW-4, MW-5, MW-6, MW-7, MW-8, and MW-9; vapor probes, VP-2, VP-4, VP-5, and VP-6, and sub-slab vapor probes SSVP-3, SSVP-4, and SSVP-5 are scheduled to commence on **August 13, 2013**. Additional time is requested by CRA to help facilitate the proper destruction of the remaining wells. Therefore, an extension of **September 30, 2013** for the submittal of the *Well Decommissioning Report* is requested.

Thanks,

Nathan Lee, P.G.
Conestoga-Rovers & Associates (CRA)

2300 Clayton Road, Suite 920 Concord, CA 94520

Phone: 925.849.1003 - New Number

Fax: 510.420.9170 Cell: 510.385.2499 Email: <u>nlee@CRAworld.com</u>

ATTACHMENT B

WELL DESTRUCTION PERMIT

SIGNATURE

ATTACH SITE PLAN OR SKETCH

ZONE 7 WATER AGENCY

100 NORTH CANYONS PARKWAY, LIVERMORE, CALIFORNIA 94551 VOICE (925) 454-5000 FAX (925) 245-9306 E-MAIL whong@zone7water.com

DRILLING PERMIT APPLICATION

| | FOR APPLICANT TO COMPLETE | | FOR OFFICE USE | |
|---|--|------------------------|--|---|
| LOCATION C | DF PROJECT 5280 HOP YARD ROAD PLEASANTON, CA 94598 | WELL | FNUMBER 2013074 NUMBER 3S/1E-6Q7 to 6Q12 (MW-4 to 941-1301-074-05 | MW9) |
| LAT: 37°4 APN 94 CLIENT | Source GROGLE EARTH ft. Accuracy ft. 41 53-71 N ft. LONG: 12.1 54 16.62 W ft. 11-[301-17-1/941-1301-13-3/941-1301-13-4] | | PERMIT CONDITIONS (Circled Permit Requirements Apply) SENERAL . A permit application should be submitted so as | to arrive at the |
| Address GIO City SAN APPLICANT Name CONES Email OYA | TOGA-ROVERS AND ASSOCIATES NOCKAMORLP COM Fax (510)420-9170 | 2 | Zone 7 office five days prior to your proposed st Submit to Zone 7 within 60 days after completic work the original <u>Department of Water Resource</u> <u>Drillers Report (DWR Form 188), signed by the</u> Permit is void if project not begun within 90 day date. | arting date. on of permitted os Water Well he driller. ys of approval |
| City EMERS TYPE OF PROWell Construction Well Destruction Cathodic Protection | OJECT: ction Geotechnical Investigation ion Contamination Investigation tection Other Studies for ATLEAST 5 MINUTE STURE GROUT - APPLY GROUT, PRESSURES FOR ATLEAST 5 MINUTE STURE GROUT - APPLY GROUT, PRESSURES FOR ATLEAST 5 MINUTE STURE GROUT - APPLY GROUT, PRESSURES FOR ATLEAST 5 MINUTE STURE GROUT - APPLY GROUT, PRESSURES FOR ATLEAST 5 MINUTE STURE GROUT - APPLY GROUT, PRESSURES FOR ATLEAST 5 MINUTE CONTINUES OF THE PROPERTY C | 1 2 3 4 5. | WATER SUPPLY WELLS Minimum surface seal diameter is four inches gr well casing diameter. Minimum seal depth is 50 feet for municipal and i or 20 feet for domestic and irrigation wells unless is specially approved. Grout placed by tremie. An access port at least 0.5 inches in diameter is on the wellhead for water level measurements. A sample port is required on the discharge pipe i wellhead. | reater than the industrial wells a lesser depth required |
| DRILLING ME Mud Rotary Cable Tool DRILLING CO | | P 1 * 2 | ROUNDWATER MONITORING WELLS INCLUDING IEZOMETERS Minimum surface seal diameter is four inches the well or piezometer casing diameter. Minimum seal depth for monitoring wells is to depth practicable or 20 feet. Grout placed by tremle. | s greater than |
| WELL SPECII Drill Hole Casing D Surface S | FICATIONS: Diameter 8-8.5 in. Maximum Diameter 2" in. Depth 25 ft. Seal Depth 55 WEN 6. ft. Number 6 GEONOWATER HON WELL 4 SOIL VAROX PROSES 35 SUB-SLAB VAROX FOINT | | EOTECHNICAL. Backfill bore hole with compacter bavy bentonite and upper two feet with compacter reas of known or suspected contamination, treprout shall be used in place of compacted cuttings. EATHODIC. Fill hole above anode zone with concrete | d material. In mied cement i. |
| Hole Dia: ESTIMATED (ESTIMATED (| Of Borings Maximum meter in. Depth ft. STARTING DATEAUGUST 5, 2013 COMPLETION DATEAUGUST 7, 2013 NOTIFY ZONE 7 IF DATE CHANGES | F. W | emie. /ELL DESTRUCTION、See attached. PECIAL CONDITIONS, Submit to Zone 7 within ompletion of permitted work the well instal | |
| | e to comply with all requirements of this permit and Alameda ance/No. 73-68. Date 6/11/2013 | | scluding all soil and water laboratory analysis | |

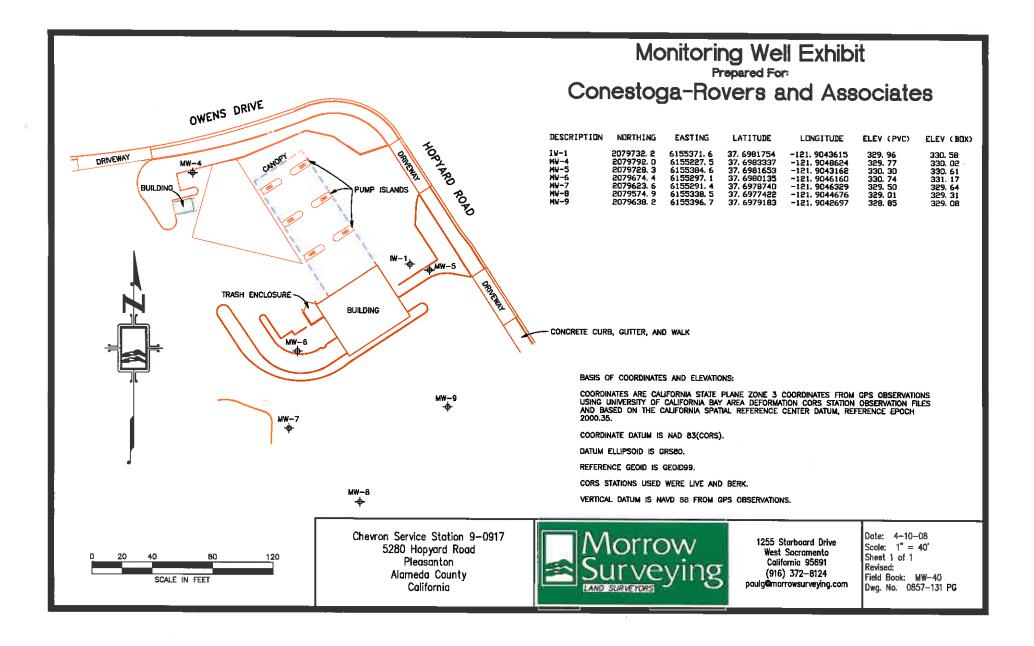
Zone 7 Water Resources Engineering Groundwater Protection Ordinance

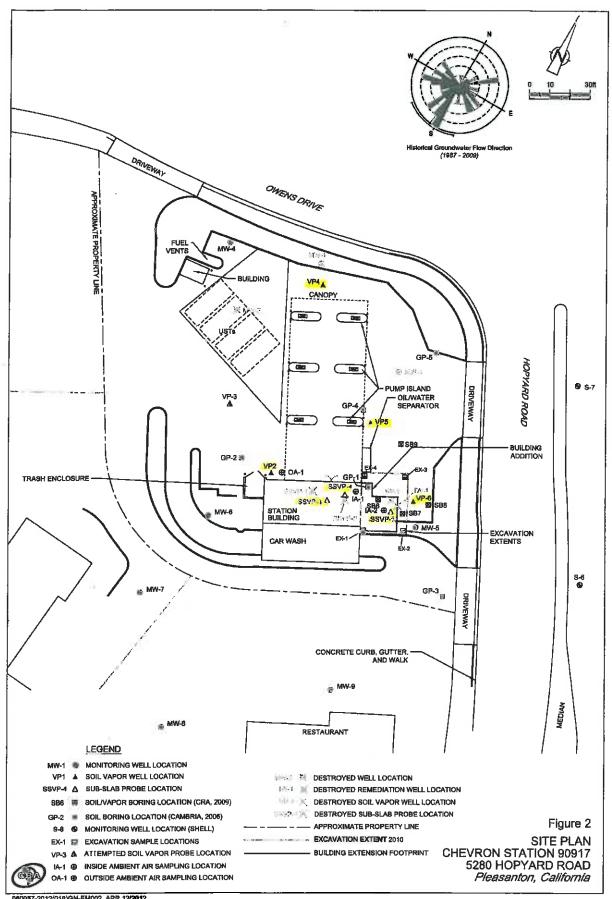
Chevron Environmental Management Company
5280 Hopyard Road
Pleasanton

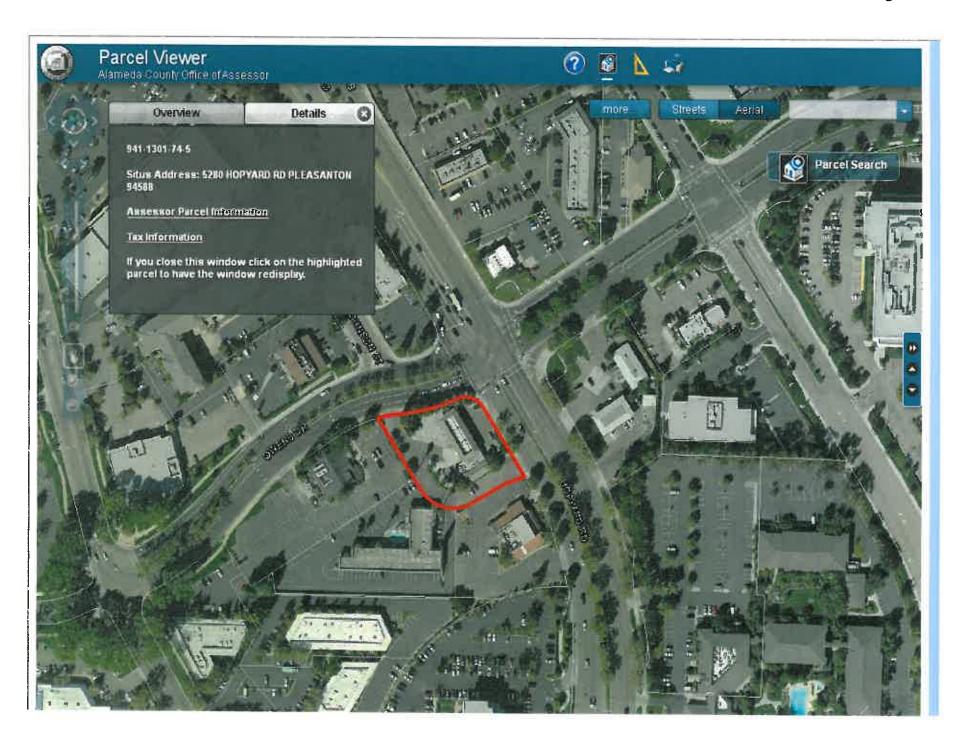
Wells 35/1E-6Q7 to 35/1E-6Q12 (MW-4 to MW-9) and 35/1E-6Q15 to 35/1E-6Q18 (VP-2 to VP-6)
Permit 2013074

Destruction Requirements:

- 1. Remove from the well any pump, appurtenances, debris, or other materials.
- 2. Sound the well as deeply as practicable and record for your report.
- 3. Fill casing with neat cement or cement grout sealing material to two feet below the finished grade and pressurize to 25 psi and maintain for 5 minutes, forcing the sealing material through the existing perforations and into the surrounding formation.
- 4. Release the pressure and refill the empty portion of the casing with grouting material allowing it to spill over the top of the casing to form a cap.
- 5. Cut and remove any casing(s) to two feet below the finished grade or original ground, whichever is the lower elevation (optional).
- 6. After seal has set, backfill the remaining hole with compacted material.







ATTACHMENT C

STANDARD OPERATING PROCEDURES FOR WELL DESTRUCTION

STANDARD FIELD PROCEDURES FOR MONITORING WELL DESTRUCTION

This document presents standard field procedures for properly destroying groundwater monitoring wells. The objective of well destruction is to destroy wells in a manner that is protective of potential water resources. The two procedures most commonly used are pressure grouting and drilling out the well. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Pressure Grouting

Pressure grouting consists of injecting neat Portland cement through a tremie pipe under pressure to the bottom of the well. The cement is composed of about five gallons of water to a 94 pound sack of Portland I/II Cement. Once the well casing is full of grout, it is pressurized for five minutes by applying a pressure of 25 pounds per square inch (psi) with a grout pump. The well casing can also be pressurized by extending the well casing to the appropriate height and filling it with grout. In either case, the additional pressure allows the grout to be forced into the sand pack. After grouting the sand pack and casing, the well vault is removed and the area resurfaced or backfilled as required.

Well Drill Out

When well drill out is required, the well location is cleared for subsurface utilities and a hollow-stem auger (or other appropriate) drilling rig is used to drill out the well casing and filter pack materials. First, drill rods are placed down the well and used to guide the augers as they drill out the well. A guide auger is used in place of the drill rods if feasible. Once the well is drilled out, the boring is filled with Portland cement injected through the augers or a tremmie pipe under pressure to the bottom of the boring. The well vault is removed and the area resurfaced or backfilled as required.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.