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CHEVRON U.S.A. INC.



8 STATE WATER RESOURCES CONTROL BOARD
9
10 OF THE STATE OF CALIFORNIA

11 In the Matter of the Petition for Review by

No.

12 CHEVRON U.S.A. INC.

PETITION FOR REVIEW, REQUEST
FOR HEARING AND REQUEST FOR
PLACEMENT IN ABEYANCE

13 Petitioner,

14
15 Of Order Pursuant to California Water Code
16 Section 13267 issued by the Central Valley
17 Regional Water Quality Control Board dated
August 11, 2014

18

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20 Chevron U.S.A. Inc. (“Chevron” or “Petitioner”) hereby timely files this Petition for
21 Review and Request for Hearing requesting review of an “Order Pursuant to California
22 Water Code Section 13267” (“Order”) issued by the Central Valley Regional Water Quality
23 Control Board (“Regional Board”). A copy of the Order is provided as *Appendix A*.

24 **Petitioner is also requesting that this Petition for Review be placed in abeyance to**
25 **allow Chevron to work toward a resolution of the contested issues with the Central**
26 **Valley Regional Water Quality Control Board (“Regional Board”).** Petitioner hereby
27 reserves the right to amend this Petition for Review with additional information and legal

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1 points and authorities if a resolution of the issues being challenged cannot be achieved with
2 the Regional Board.

3 Pursuant to California Water Code (“CWC”) § 13320, and California Code of
4 Regulations (“CCR”) § 2050, Chevron alleges as follows:

5 **1. Petitioner’s Name, Address, Telephone Number and Email Address (if**
6 **available):**

7
8 Chevron U.S.A. Inc.
9 Kern River Field
10 1546 China Grade Loop
Bakersfield, California 93308
(661) 392-2245

11 Petitioner owns and operates oil production facilities in California including, but not
12 limited to, the Kern River Field located in the San Joaquin Valley. The Kern River Field
13 has been producing oil in the San Joaquin Valley for over 100 years. As part of field
14 operations in the Kern River Field, certain wastewater associated with oil production
15 activities is disposed of pursuant to valid Underground Injection Control (“UIC”) permits
16 issued by the California Division of Oil, Gas and Geothermal Resources (“DOGGR”).
17 Copies of both the project approvals and individual well permits issued by DOGGR for the
18 16 UIC wells that are the subject of the Order are provided as *Appendix B*.

19 **2. The action or inaction of the Regional Board being Petitioned.**

20 On August 11, 2014, the Regional Board issued the Order pursuant to its purported
21 authority under CWC § 13267 to Petitioner seeking certain information on sixteen (16)
22 current or former DOGGR permitted UIC injection wells, including sampling and analysis
23 of groundwater from the wells. Petitioner was provided no notice of the Order, and did not
24 receive the Order until August 13, 2014.¹ (*See Copy of USPS Product and Tracking*
25 *Information, Appendix C*). Of the sixteen (16) wells for which information was requested,

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27 ¹ It should be noted that the Order indicates that it was provided to Petitioner by both
28 Certified Mail and Personal Service. However, no personal service was actually received.

1 only seven (7) are currently active, but all were properly permitted under the UIC program
2 for wastewater injection by DOGGR at the time injection occurred. (*See Cover Letter to*
3 *Work Plan dated August 18, 2014, Appendix D*).² Additionally, one of the wells (API
4 #02975045) has been converted into a production well and a sample cannot be reasonably
5 obtained. The Order also requires the submittal of certain water supply well information
6 that is outside Chevron’s control. Pursuant to the Order, all well sampling activities and
7 information requested must be submitted by September 4, 2014, just 22 calendar days after
8 Chevron received the Order.

9 Chevron is seeking review of the following aspects of the Order. A more complete
10 description of each issue is contained in the Preliminary Statement of Points and
11 Authorities:

12 A. The Order contains infeasible deadlines that violate CWC § 13000,
13 and are arbitrary, capricious and an abuse of discretion.

14 As further described in the Preliminary Statement of Points and Authorities, it is
15 impossible to comply with the required deadline to collect and analyze groundwater
16 samples from the sixteen (16) injection wells and to develop a technical report containing
17 the results. Despite acknowledging the infeasibility, the Regional Board has refused to
18 amend the Order to contain reasonable, or even feasible, deadlines for the well sampling
19 work. (*See Correspondence from the Regional Board dated September 5, 2014, Appendix*
20 *E*). Issuing an Order that cannot reasonably be complied with violates California Water
21 Code § 13000, and is arbitrary, capricious and an abuse of discretion.

22 _____
23 ² As part of Petitioner’s compliance with the Order, Petitioner has submitted an “Injection
24 Well Groundwater Sampling Work Plan” and associated cover letter (“Work Plan”), and a
25 “Feasibility Report and Time Schedule for Injection Well Groundwater Sampling” and
26 associated cover letter (“Feasibility Report”) to the Regional Board. These documents are
27 certified submittals that are being submitted as part of the record for this Petition for
28 Review. Because these documents contain significant background information as to the
wells and basis for the infeasibility of the compliance deadlines, and no notice or
opportunity to comment was provided in this matter, the reports are also being submitted
and referenced as part of this Petition for Review. Both documents are provided in
Appendix D.

1 B. The requirement to obtain groundwater samples from the sixteen (16)
2 injection wells fails to comply with the reasonable relationship
3 requirement of CWC § 13267.

4 The Order requires Petitioner to obtain groundwater samples, in some cases from
5 multiple zones within the same well, despite already requiring the submittal of all existing
6 analytical results of groundwater from the zones where fluids have been injected using the
7 wells that are the subject of the Order (hereinafter referred to as the “subject zones”)³. The
8 existing groundwater dataset for the subject zones that has been provided to the Regional
9 Board pursuant to the Order is comprised of 61 different samples collected between 1966
10 and 2008. Because the wells are operated in compliance with DOGGR issued UIC permits
11 and are not constructed to allow for groundwater sampling, significant work on each well is
12 needed to even obtain the samples. (*See Feasibility Report, Appendix D*). Petitioner
13 estimates the cost to sample fifteen (15) of the sixteen (16) wells will be a minimum of
14 \$1,000,000.⁴ (*See Declaration of Margarito Guzman, Appendix F*).

15 The cost to obtain the samples and conduct the analysis from the 16 wells is grossly
16 disproportionate to and significantly outweighs the benefit the information provides the
17 Regional Board. The existing groundwater data set containing portions of the requested
18 constituent analysis is significant (61 different samples between 1966 and 2008) and has
19 already been submitted pursuant to the Order. Additionally, analytical results from annual
20 samples obtained in 2013 from the water injected have also been provided to the Regional

21 ³ The Order requires submittal of all pre-existing groundwater sample data obtained from
22 the subject zones. Those zones are primarily the Santa Margarita and Chanac zones, with
23 one well also having injected into the Kern River zone. The water injected into the UIC
24 permitted wells was sampled on an annual basis, and that information has been submitted to
DOGGR. Petitioner understands that DOGGR has already provided this information for

25 ⁴ The 16th well (API #02975045) has been converted to a production well through plugging
26 the well below the oil bearing formation. Because the primary subject zones are both below
27 the oil bearing formation, the plug would need to be drilled out with the associated risk of
losing the ability to produce from the well in the future. Therefore, a sample from this well
is not reasonably attainable. The costs associated with alternatively characterizing the
groundwater in the vicinity of this well are addressed separately in Subsection C below.

1 Board by DOGGR. Although the analytical testing for all of the constituents required by
2 the Order are not fully satisfied by the existing groundwater and injected fluid sample
3 results, the benefit of the additional information does not justify the cost of at least
4 \$1,000,000 that would be spent to obtain the incremental data. Since any new groundwater
5 samples obtained would likely be dominated by the injected water, a more reasonable
6 approach would be to allow Petitioner to collect additional injected water samples and
7 analyze those for the additional constituents not covered by the previous samples. Because
8 the cost is grossly disproportionate to the benefit, this requirement violates the “reasonable
9 relationship” requirement of CWC § 13267.

10 C. The requirement to alternatively characterize groundwater in the
11 vicinity of the converted production well fails to comply with the
12 “reasonable relationship” requirement of CWC § 13267 and the
13 reasonableness requirement of CWC § 13000.

14 Of the sixteen (16) wells that the Order requires to be sampled, one (API
15 #02975045) has been converted to a production well making a sample from that well not
16 reasonably obtainable. The Regional Board has indicated that Petitioner will be required to
17 develop an alternative method of characterizing the groundwater quality of the subject
18 zones in the area of that well. (*See Correspondence from Regional Board dated September*
19 *5, 2014, Appendix E*). To obtain a representative sample, Petitioner would likely be
20 required to either deepen an existing production well at an exorbitant cost of approximately
21 \$300,000, or drill a new well at an even higher cost. (*See Declaration of Margarito*
22 *Guzman, Appendix F*). The estimated \$300,000 cost does not include the additional costs
23 associated with the loss of production or the risk of losing the ability to produce from that
24 well in the future.

25 A significant amount of previously collected groundwater sample data for the
26 subject zones (61 different samples collected between 1966 and 2008) has already been
27 submitted to the Regional Board, and additional data characterizing the water injected has
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1 been previously been provided to DOGGR on an annual basis pursuant to the UIC permits.
2 Additionally, any new sample obtained from the well would likely be dominated by water
3 that Petitioner has previously injected. Although the analytical testing requirements in the
4 Order are not fully satisfied by prior analytical testing requirements under the UIC permit,
5 the high costs of obtaining the alternative sample is not justified by the incremental amount
6 of data that would be obtained. Therefore, the requirement does not comply with the
7 “reasonable relationship” requirement of CWC § 13267, and does not meet the
8 reasonableness standard of CWC § 13000.

9 D. The Order requires the submittal and certification of information
10 outside Petitioner’s custody and control.

11 Finally, Petitioner requests review of the requirement in the Order to submit “all
12 available information for each identified water supply well,” including specific information
13 that is maintained by local water agencies and is not available to Petitioner. On September
14 4, 2014, Petitioner submitted all information it was able to obtain from three (3) water
15 agencies.⁵ Any attempt to require Petitioner to obtain information that may exist but was
16 not made available to it by these water agencies violates CWC § 13000, and is arbitrary,
17 capricious, an abuse of discretion and a violation of law.

18 Additionally, the Order requires Petitioner to certify that all information submitted
19 is “true, accurate and complete.” (*See Order, Appendix A*). As the information on third
20 party wells is outside Petitioner’s custody and control, Petitioner cannot reasonably certify
21 this information as “true, accurate and complete”, and to demand Petitioner do so is
22 unreasonable, arbitrary and capricious, and an abuse of discretion.

23 E. Petitioner requests the following relief.

24 Based on the foregoing, Petitioner requests that Order be amended to:
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26 _____
27 ⁵ The three water agencies are the Oildale Mutual Water Company, the Kern County
28 Environmental Health Services Division, and the Kern County Water Agency.

- 1 (1) Remove the requirement to obtain groundwater samples from the
2 sixteen (16) wells as unreasonable, unnecessary, and the cost not
3 justifying the benefit due to the submittal of previously obtained
4 groundwater sample results;
- 5 (2) In the alternative, if the State Board determines that at least some
6 samples should be obtained, at a minimum, Petitioner requests
7 the Order be amended to include a feasible and reasonable
8 deadline for obtaining those samples, conducting the analysis,
9 and developing a technical report. Additionally, Petitioner
10 requests that a more reasonable approach be adopted that
11 requires Petitioner to collect additional samples from water to be
12 injected and analyze those for the additional constituents not
13 covered by the previous analyses;
- 14 (3) If the State Board determines that at least some groundwater
15 samples should be obtained, Petitioner requests the Order be
16 amended to remove the requirement to obtain a sample, or a
17 nearby representative sample, from the well that has been
18 converted to a production well (API #02975045) as unreasonable
19 and the cost not bearing a reasonable relationship to the
20 incremental benefit to be obtained by the Regional Board.
- 21 (4) Petitioner requests that the Order be amended to limit
22 Petitioner’s obligation to obtain information from outside entities
23 to using reasonable efforts to obtain such information from third
24 parties and providing any information it actually obtains.
25 Additionally, Petitioner requests that the requirement to certify
26 third party data as being “true, accurate and complete” be
27 eliminated.
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1 **3. The date the Regional Board acted.**

2 The Order issued by the Regional Board is dated August 11, 2014. Petitioner did
3 not receive the Order until the afternoon of August 13, 2014.⁶ The Order was issued to
4 Petitioner without any formal procedure or notice and opportunity to comment on the
5 record. Petitioner believes that because it did not receive the Order until August 13, 2014,
6 that is the date the Regional Board acted. However, by submitting this Petition for Review
7 by September 10, 2014, the filing complies with the 30 day requirement contained in CWC
8 § 13320 even if the more conservative date of August 11, 2014 is used.

9 **4. A statement of the reasons the action or inaction was inappropriate or**
10 **improper.**

11 As described in Section 2 above, and more fully described in the Preliminary Points
12 and Authorities below, the Order contains numerous requirements that are infeasible,
13 arbitrary and capricious, an abuse of discretion and contrary to law.

14 First, the deadline contained in the Order to collect and analyze groundwater
15 samples from the sixteen (16) wells that were permitted for injection and to develop and
16 submit a technical report is infeasible. Despite recognizing that the deadline is infeasible,
17 the Regional Board has refused to amend the Order to contain feasible and reasonable
18 deadlines. (*See Correspondence from Regional Board dated September 5, 2014, Appendix*
19 *E*). Issuing an Order that cannot reasonably be complied with is unreasonable, arbitrary and
20 capricious, an abuse of discretion, and a violation of law.

21 Second, the requirement to obtain groundwater samples from the sixteen (16) wells
22 that were permitted for injection violates the requirement contained in CWC § 13267 that
23 the cost of providing the information bears a “reasonable relationship” to the benefit to the
24 Regional Board in obtaining the information. The wells were not designed or constructed
25 to allow for obtaining groundwater samples. Approximately two (2) to four (4) days of

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27 ⁶ As noted previously, although the Order indicates “personal service”, no such service was
28 ever provided.

1 work, that may include changing well heads and valves and removing well tubing, will be
2 needed on each well just to make a well available for sampling. (*See Feasibility Report,*
3 *Appendix D*). Additionally, just obtaining the sample will take at least three (3) days per
4 well due to the need to purge large volumes of water from each well.⁷ (*See Feasibility*
5 *Report, Appendix D*). Well sampling for fifteen (15) of the sixteen (16) wells is estimated
6 to cost a minimum of \$1,000,000. (*See Declaration of Margarito Guzman, Appendix F*).
7 The existing groundwater data set containing portions of the requested constituent analysis
8 is significant (61 different samples between 1966 and 2008) and has already been submitted
9 pursuant to the Order. Additionally, analytical results from annual samples obtained in
10 2013 from the water injected have also been provided to the Regional Board by DOGGR.
11 Although the analytical testing for all of the constituents required by the Order are not fully
12 satisfied by the existing groundwater and injected fluid sample results, the benefit of the
13 additional information does not justify the cost of at least \$1,000,000 that would be
14 expended to obtain the incremental data, and is unreasonable in violation of CWC § 13000.

15 Third, one of the wells for which a groundwater sample is required has been
16 converted to a production well. Therefore, a sample from that well is not reasonably
17 obtainable. The Regional Board is requiring that an alternative method be developed to
18 characterize the groundwater in the subject zones in the area of the well. (*See*
19 *Correspondence from Regional Board dated September 5, 2014, Appendix E*). However, to
20 characterize the groundwater in the subject zones in that area, either deepening an existing
21 production well at a cost of approximately \$300,000, or drilling a new well at an even
22 higher cost will likely be required. Additionally, such an approach risks the loss of the
23 ability to produce from that well in the future. Any newly obtained groundwater sample
24 would likely be dominated by the waste water previously injected, and previously obtained

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26 ⁷ To purge the typical three (3) well casing volumes from a well would take weeks for each
27 well and up to approximately 10,000 gallons purged. Therefore, sample procedures have
28 been altered to pump for approximately 2.5 days. However, even the shortened period of
sampling time could not be accomplished by the September 4, 2014 deadline.

1 groundwater sample results have already been submitted to the Regional Board. Although
2 the analytical testing for all of the constituents required by the Order are not fully satisfied
3 by the existing groundwater and injected fluid sample results, the cost to obtain the
4 incremental information violates the requirement that the costs bear a “reasonable
5 relationship” to the benefit contained in CWC § 13267, and is unreasonable in violation of
6 CWC § 13000.

7 Finally, the Order requires Petitioner to submit and certify the accuracy and
8 completeness of information that is not within its custody and control. While Petitioner has
9 made reasonable efforts to obtain information from the relevant third party water agencies,
10 it cannot be held responsible for data that may be available but was not provided to
11 Petitioner by the water agencies, nor should it be required to certify the accuracy and
12 completeness of information that is outside of its custody and control. Any attempt to
13 require Petitioner to obtain information that may exist but was not made available to it by
14 these third party water agencies violates CWC § 13000, and is arbitrary, capricious, an
15 abuse of discretion and a violation of law.

16 **5. How the Petitioner is aggrieved.**

17 The Petitioner is aggrieved by being subject to an Order that cannot be complied
18 with. Because it is impossible to comply with the Order, Petitioner may be subject to
19 enforcement action and penalties despite using its best efforts to comply. Additionally,
20 even where Petitioner could obtain the data requested, such efforts would require
21 extraordinary resources and the cost to obtain the data will likely exceed \$1,000,000. (*See*
22 *Declaration of Margarito Guzman, Appendix F*). Such an expenditure of resources is
23 unreasonable and does not justify the incremental information that would be obtained.

24 Fundamentally, Petitioner should not be placed in a position of being unable to
25 comply with an information order issued by the Regional Board when all legal
26 requirements related to the discharge of wastewater were followed. This is not a situation
27 where discharges occurred illegally. All required permissions to inject into the subject
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1 zones were obtained. Additionally, given that a significant amount of information already
2 exists (albeit not identical in scope), Petitioner should not be required to expend in excess
3 of \$1,000,000 for the incremental amount of information that would be obtained.

4 **6. The action the Petitioner requests the State Water Board take.**

5 As presented and justified in Section 2 of this Petition for Review, Petitioner
6 requests that the State Board rescind the Order and make, or direct the Regional Board to
7 make, the following amendments:

- 8 (1) Remove the requirement to obtain groundwater samples from the
9 sixteen (16) wells as unreasonable, unnecessary, and the cost not
10 justifying the benefit due to the submittal of previously obtained
11 groundwater sample results;
- 12 (2) In the alternative, if the State Board determines that at least some
13 samples should be obtained, at a minimum, Petitioner requests
14 the Order be amended to include a feasible and reasonable
15 deadline for obtaining those samples, conducting the analysis,
16 and developing a technical report. Additionally, Petitioner
17 requests that a more reasonable approach be adopted that
18 requires Petitioner to collect additional injected water samples
19 and analyze those for the additional constituents not covered by
20 the previous analyses;
- 21 (3) If the State Board determines that at least some groundwater
22 samples should be obtained, Petitioner requests the Order be
23 amended to remove the requirement to obtain a sample, or a
24 nearby representative sample, from the well that has been
25 converted to a production well (API #02975045) as unreasonable
26 and the cost not bearing a reasonable relationship to the
27 informational benefit to be obtained by the Regional Board.

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1 (4) Petitioner requests that the Order be amended to limit
2 Petitioner’s obligation to obtain information from outside entities
3 to using reasonable efforts to obtain such information from third
4 parties and providing any information it actually obtains.
5 Additionally, Petitioner requests that the requirement to certify
6 third party data as being “true, accurate and complete” be
7 eliminated.

8 7. **Preliminary Statement of Points and Authorities.**

9 A. Background

10 Petitioner operates in the Kern River Field, which is located in the San Joaquin
11 Valley and has produced oil and gas for over 100 years. As part of oil and gas production,
12 a significant amount of formation water is produced with the oil. The water that cannot be
13 reused in production activities or otherwise provided for agricultural usage is disposed of
14 using UIC regulated injection wells permitted by DOGGR. The majority of this water is
15 treated prior to disposal.

16 Injection wells used in the Kern River Field are part of the Federal UIC program.
17 The UIC program in California has been administered by DOGGR since 1982. The wells
18 covered by the Order are Class II UIC wells, which provide for the injection of non-
19 hazardous brine and other fluids associated with oil and gas production. Each of the current
20 or former wells covered by the Order inject into the subject zones. The primary subject
21 zones are at depths below the oil producing formation. DOGGR Annual Reports indicate
22 that injection of oil field related wastewater has been permitted in the Santa Margarita
23 formation since approximately 1964, and permitted into the Chanac formation since
24 approximately 1979.⁸ (*See Relevant Pages of DOGGR Annual Reports, Appendix G*).

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26 ⁸ DOGGR Annual Reports first list injection into the Santa Margarita formation in the Kern
27 River Field in the 1965 Report, and first list injection into the Chanac formation in the Kern
28 River Field in the 1979 Report. Due to the very large size of these Annual Reports, only
the relevant pages have been provided. However, full copies can be provided upon request.

1 It is Petitioner’s understanding that the United States Environmental Protection
2 Agency (“USEPA”) has recently expressed concern to DOGGR about permitted injection
3 into formations that contain less than 10,000 ppm TDS. Since that time, Petitioner has been
4 actively working with DOGGR to find alternative injection zones that are above 10,000
5 ppm TDS. In June 2014, Petitioner filed a project application for disposal into the Olcese
6 formation with DOGGR. That project application is currently being reviewed by the
7 Regional Board. Petitioner continues to work with DOGGR to address any UIC related
8 concerns it may have. However, all current and previous injection into the subject zones
9 has been done in compliance with all legal requirements and in compliance with UIC
10 permits issued by DOGGR. Copies of those permits for the sixteen (16) wells subject to the
11 Order are provided in *Appendix B*.⁹

12 B. The Order

13 The Order requests information on sixteen (16) wells that either currently inject or
14 have previously injected into the subject zones. The Order also requests that Petitioner
15 provide certain information on both its own water supply wells, and information on third
16 party water supply wells, within one (1) mile of each injection location. All information,
17 including obtaining and analyzing samples and developing a technical report, was required
18 to be submitted by September 4, 2014. The Order provides that failure to comply with this
19 date will subject Petitioner to the potential for penalties not to exceed \$1,000 per day. (*See*
20 *Order, Appendix A*).

21 A significant amount of information has already been submitted to the Regional
22 Board pursuant to this Order. Specifically, as required, a Work Plan was submitted by
23 August 18, 2014 (just 5 calendar days after receiving the Order), a Feasibility Report was
24 submitted, as required, by August 25, 2014, and all previously obtained analyses, Petitioner
25 operated water well data, and third party water well data that Petitioner was able to obtain

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27 ⁹ For completeness, both the overall project level approvals, and the individual well permits
28 with associated API numbers issued by DOGGR have been provided.

1 was submitted, as required, by September 4, 2014. Copies of the Work Plan and Feasibility
2 Report are provided in *Appendix D*. Copies of the water well and other data submitted prior
3 to September 4, 2014 is not provided herein due to the significant volume of material and
4 confidentiality concerns expressed by the third party water agencies, but could be provided
5 to the State Board upon request.

6 The collection and submittal of this data by the required deadlines has taken a
7 tremendous amount of resources and effort and clearly demonstrates Petitioner's good faith
8 attempt to comply with the Order. However, as further described below, it is both
9 infeasible and unreasonable to obtain groundwater samples from the sixteen (16) wells and
10 submit the analytical data and associated technical report by the required September 4, 2014
11 deadline, which was just 22 calendar days after Petitioner received the Order.

12 Although each specific issue is more fully described below, Petitioner's
13 fundamental position is that it should not be put in a position of potentially being in
14 violation of an infeasible Order and having to expend in excess of \$1,000,000 when it
15 complied with all legal requirements associated with the injection wells and other
16 groundwater and injected water sample data already exists. These wells were operated
17 within the boundaries of the Kern River Oil Field, and the injection zones are beneath the
18 oil bearing formation. This is in no way a situation of a lack of compliance or wrongdoing
19 on the part of Petitioner, but simply one of providing additional information to the Regional
20 Board. Petitioner must be provided a reasonable opportunity to comply with the Order, and
21 the requirements of the Order must be reasonable.

22 Petitioner's specific allegations are provided below.

23 C. The Order contains infeasible deadlines that violate CWC § 13000,
24 and are arbitrary, capricious and an abuse of discretion.

25 Section 13000 of the CWC provides the Legislature's intent that "waters of the state
26 shall be regulated to attain the highest water quality which is reasonable, considering all
27 demands being made and to be made on those waters and the total values involved,

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1 beneficial and detrimental, economic and social, tangible and intangible.” (*See CWC §*
2 *13000*). This language imposes a fundamental requirement that any Regional Board action
3 be reasonable. In this case, non-hazardous wastewater associated with oil and gas
4 operations has been legally disposed of in UIC injection wells that were permitted by
5 DOGGR, and all such operations have occurred within the oil field boundaries and have
6 been in compliance with the permits issued. Petitioner recognizes the authority of the
7 Regional Board to request information, however, those requests, and the deadlines provided
8 to comply with those requests, must be reasonable pursuant to CWC § 13000.

9 The deadline contained in the Order is not reasonable, or even feasible.
10 Immediately upon receiving the Order, Petitioner engaged an environmental consultant and
11 selected a contractor to conduct the sampling. The contractor adjusted its schedule to
12 accommodate Petitioner’s short timeframe, and the earliest the contractor could start onsite
13 was September 8, 2014, four (4) days after the deadline contained in the Order.
14 Additionally, two (2) to four (4) days of pre-work is required to even access each well for
15 sampling because injection wells are not constructed to provide easy access for
16 groundwater sampling. Each well is different depending on the construction, but activities
17 that may be needed before sampling can occur is modifications to the wellhead such as
18 removal of valve trees, and removal of in-well components like tubing and other
19 obstructions. (*See Work Plan and Feasibility Report, Appendix D*).

20 Common sampling techniques require purging of three (3) well casing volumes in
21 order to remove stagnant water in and/or near the well bore. That volume of purge water in
22 some cases is estimated to be up to 10,000 gallons. The use of low flow pumps, which is
23 required due to downhole size restrictions, would take weeks to purge the well before
24 obtaining a sample. In a further effort to speed the sampling process, Petitioner has
25 proposed (and the Regional Board has accepted) a modified sampling technique to reduce
26 the amount of purging necessary. Even using that technique, a minimum of three (3) days
27 is needed just to collect the sample. Therefore, a minimum of five (5) to seven (7) days per
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1 well is needed for each well to collect the required samples. This timing also does not
2 include timing for the water quality testing to be performed and a technical report to be
3 developed.

4 Additionally, several wells injected into multiple zones. To sample both zones
5 within a single well, each zone must be segregated requiring three (3) days of sampling for
6 each zone, further extending the time needed to sample certain wells. (*See Feasibility*
7 *Report, Appendix D*).

8 Based on the above information, it was completely infeasible to complete the
9 required testing in the twenty-two (22) calendar days provided by the Order. Additionally,
10 despite recognizing the infeasibility of the deadline, the Regional Board has refused to
11 amend the Order or otherwise alter the deadline. (*See Correspondence from Regional*
12 *Board dated September 5, 2014, Appendix E*). This refusal places Petitioner in certain non-
13 compliance despite its extraordinary efforts to try to comply. Not providing an opportunity
14 to comply is unreasonable in violation of CWC § 13000, and constitutes an arbitrary and
15 capricious exercise of the Regional Board's authority, and is an abuse of discretion on the
16 part of the Regional Board.

17 D. The requirement to obtain groundwater samples from the sixteen (16)
18 injection wells fails to comply with the reasonable relationship
19 requirement of CWC § 13267.

20 The Regional Board's authority to request information pursuant to CWC § 13267 is
21 expressly limited in that "the burden, including costs, of these reports shall bear a
22 reasonable relationship to the need for the report and the benefits to be obtained from the
23 reports." (*See CWC § 13267(b)(1)*). In this case, the costs and other burdens imposed by
24 the Order are grossly disproportionate to the benefit the information provides to the
25 Regional Board.

26 The water injected into the UIC permitted wells was sampled on an annual basis,
27 and that information has been submitted to DOGGR. It is Petitioner's understanding that
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1 DOGGR has already provided this information for the year 2013 to the Regional Board.
2 Additionally, due to the large amount of water previously injected, any groundwater sample
3 actually obtained is likely to be dominated by that previously injected water for which some
4 analytical data already exists. Significant pre-existing groundwater sampling (61 different
5 samples collected between 1966 and 2008) has been conducted in the subject zones at the
6 time these and other wells were drilled or recompleted to other formations. That
7 information was already provided to the Regional Board prior to the September 4, 2014
8 deadline. While not identical in the scope of analyzed constituents as those required by the
9 Order, this represents a large dataset on which the Regional Board can rely without
10 requiring additional and costly sampling activities.

11 Additionally, as described above, based on the large amount of work necessary to
12 obtain groundwater samples, the estimated cost to obtain samples for fifteen (15) of the
13 sixteen (16) wells is a minimum of \$1,000,000. (*See Declaration of Margarito Guzman,*
14 *Appendix F*). This cost does not include the significant effort already undertaken to collect
15 and submit the requested information to the Regional Board. These estimated costs also
16 assume no downhole damage or other difficulties are encountered, issues that are common
17 with idled wells. Additionally, any time in-well equipment is removed, there is a risk that
18 the well could be lost, meaning that future use of the well may be impaired to the point
19 where it is unusable, which would require abandoning the well and drilling a new well.

20 As is clear, the costs to Petitioner associated with obtaining groundwater samples
21 from the wells is extraordinary and grossly disproportionate to the benefit to the Regional
22 Board given the amount of information already available. Any such groundwater sample is
23 likely to be dominated by the wastewater previously injected into that location. As such,
24 the Order's requirement to obtain groundwater samples from the sixteen (16) current or
25 previous UIC permitted injection wells fails the required "reasonable relationship" test
26 imposed by CWC § 13267.

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1 E. The requirement to alternatively characterize groundwater in the
2 vicinity of the converted production well fails to comply with the
3 “reasonable relationship” requirement of CWC § 13267 and the
4 reasonableness requirement of CWC § 13000.

5 In addition to the expense and risks identified above, one well (API #02975045) for
6 which a sample is required to be obtained was previously converted to a production well.
7 (See *Work Plan and Feasibility Report, Appendix D*). Because the injection zones are
8 below the primary oil producing formation, the conversion was accomplished by plugging
9 the well above the injection zone, making the injection zones inaccessible in this well. In
10 order to obtain a groundwater sample, the plug would have to be drilled out to access the
11 deeper zones at a cost of approximately \$300,000. (See *Declaration of Margarito Guzman,*
12 *Appendix F*). Additionally, not only will production be lost, but there is the risk that the
13 well itself may also be lost. This represents an enormous potential cost to the Petitioner just
14 for a single groundwater sample from each zone.

15 The Regional Board has ordered Petitioner to develop an alternative method of
16 characterizing the groundwater quality of the subject zones. (See *Correspondence from*
17 *Regional Board dated September 5, 2014, Appendix E*). However, there are no other
18 disposal wells within a one (1) mile radius that have disposal into both of the primary
19 subject zones that are required to be sampled by the Order. Therefore, to obtain an
20 alternative groundwater sample in this area, either an existing production well will have to
21 be drilled deeper to access the subject zones (with the potential risk of loss of that well), or
22 an entirely new well will need to be drilled. Such an extraordinary cost is grossly
23 disproportionate to the benefit to be obtained by a single sample for each zone, violating the
24 “reasonable relationship” requirement of CWC § 13267. Additionally, given the significant
25 data that already exists, requiring Petitioner to conduct such extensive activities to obtain a
26 single sample for each zone is unreasonable in violation of CWC § 13000.

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1 certify this information as “true, accurate and complete”, and to demand Petitioner do so is
2 unreasonable, arbitrary and capricious, and an abuse of discretion.

3 **8. Statement that copies of the Petition have been sent to the Regional**
4 **Board.**

5 A copy of this Petition for Review is being sent by first-class mail to the Regional
6 Board, on September 10, 2014, to the attention of Mr. Clay L. Rodgers, Assistant Executive
7 Officer.

8 **9. Explanation of why the Petitioner could not raise these objections before**
9 **the Regional Board.**

10 The Order was issued to Petitioner without any formal procedure or notice and
11 opportunity to comment on the record. Petitioner had no knowledge that the Order was to
12 be issued prior to receiving it on August 13, 2014. Petitioner raised the substantive
13 concerns with the Regional Board after the Order was issued in the required initial phone
14 consultation on August 14, 2014, in the Work Plan dated August 18, 2014, and in the
15 Feasibility Report and Time Schedule for Injection Well Groundwater Sampling dated
16 August 25, 2014. (*See Work Plan and Feasibility Reports, Appendix D*). Despite raising
17 these issues, the Regional Board has refused to revise the Order despite recognizing its
18 infeasibility. (*See Correspondence from Regional Board dated September 5, 2014,*
19 *Appendix E*).

20 **10. A copy of the request to the Regional Board for preparation of the**
21 **administrative record.**

22 Petitioner has also requested that the Regional Board prepare the administrative
23 record. However, the request makes clear that the Petition is being placed in abeyance and
24 that any obligation to prepare the record will not commence unless and until Petitioner
25 requests the Petition be placed in active status. A copy of this request is provided as
26 *Appendix H*.

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11. Petitioners request for an evidentiary hearing.

For reasons set forth above, and because Petitioner did not have notice or an opportunity to provide information and comments on the record before the Order was issued, Petitioner requests that the State Board conduct a full evidentiary hearing to consider this Petition in accordance with Title 23, California Code of Regulations, Section 2052. Additionally, because Petitioner was not provided an opportunity to submit evidence prior to the Order being issued, it hereby reserves the right to provide additional documentation and evidence at any such hearing.

Dated: September 10, 2014.

CHEVRON CORPORATION
BRIAN E. WALL
6001 Bollinger Canyon Road, T2196
San Ramon, CA 94583

By 
Brian E. Wall
Attorney for Petitioner

Appendix A
Copy of Regional
Board Order



Central Valley Regional Water Quality Control Board

11 August 2014

**PERSONAL SERVICE AND
CERTIFIED MAIL
7012 1010 0003 3172 6950**

Greta G. Lydecker
Chevron U.S.A. Inc.
9525 Camino Media
Bakersfield, CA 93311

ORDER PURSUANT TO CALIFORNIA WATER CODE SECTION 13267. You are legally obligated to respond to this Order. Read this Order carefully.

Chevron U.S.A. Inc., is the operator of the injection wells identified as API numbers 02926346, 02955750, 02967907, 02970045, 02971717, 02972050, 02973218, 02973297, 02975045, 02975049, 02976159, 02977806, 02977807, 02980421, 02984592, and 03010793 (hereinafter "injection wells subject to this Order"). The California Division of Oil, Gas, and Geothermal Resources (Division) has determined that the injection wells subject to this Order have injected fluids produced by oil or gas extraction activities into one or more aquifers that may be suitable for drinking water supply and other beneficial uses. The issuance of this Order has been coordinated with the Division.

As described further below, this Order requires Chevron U.S.A. Inc., to submit information about the quality of groundwater within the zone(s) where fluids have been injected using the injection wells subject to this Order. In addition, this Order requires Chevron U.S.A. Inc., to submit the location and contact information for all water supply wells within one (1) mile of each of the injection wells subject to this Order. The Division will be contacting you to obtain other information that is also needed to assess the threat to groundwater quality posed by the operation of the injection wells subject to this Order. This Order is not intended to require Chevron U.S.A. Inc., to submit any information that the Division is concurrently obtaining from Chevron U.S.A. Inc.

The Central Valley Water Board's authority to require technical reports derives from Section 13267 of the California Water Code, which specifies, in part, that:

(a) A regional board ... in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the state within its region.

(b)(1) In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region... that could affect the quality of waters within its region

shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The Central Valley Water Board is concerned about the potential threat to human health and potential impacts to water quality posed by the discharge of waste associated with the injection of fluids into aquifers that may be suitable for drinking water supply and other beneficial uses. The technical information and reports required by this Order are necessary to assess the potential threat to human health and potential impacts to water quality. The need to understand the potential threat to human health and potential impacts to water quality justifies the need for the information and reports required by this Order. Based on the nature and possible consequences of the discharges of waste, the burden of providing the required information, including reporting costs, bears a reasonable relationship to the need for the report, and the benefits to be obtained. Chevron U.S.A. Inc., is required to submit this information and reports because it is the operator of the injection wells subject to this Order.

Under the authority of California Water Code section 13267, the Central Valley Water Board hereby orders Chevron U.S.A. Inc., to:

1. **By 18 August 2014**, submit a work plan that adequately describes the procedures to collect a representative groundwater sample from the injection zone(s) for each of the injection wells subject to this Order. **By 4 September 2014**, submit a technical report with the analyses of each of the groundwater samples, in accordance with the water quality analysis and reporting requirements contained in Attachment A to this Order.

Note: If a representative sample cannot feasibly be collected from one or more of the injection zones for any of the injection wells subject to this Order within the required timeframe (e.g., due to constraints posed by the design of the injection well), then **by 25 August 2014**, submit a technical report demonstrating that collection of a representative sample from those injection zones is not feasible within the required timeframe, and proposing an alternative sampling procedure and expeditious time schedule for obtaining a representative sample of groundwater from those injection zones. Alternative sampling procedures and time schedules are subject to approval by the Assistant Executive Officer of the Central Valley Water Board.

2. **By 4 September 2014**, submit all previously-obtained analytical data for fluid samples collected from any injection zones within one (1) mile of each of the injection wells subject to this Order.
3. **By 4 September 2014**, submit a technical report containing the following:

- A. A list and location map of all water supply wells within one mile of each injection well subject to this Order.
- B. All available information for each identified water supply well, including the well owner name and contact information; type of well (i.e., domestic, irrigation, industrial, etc.); status (i.e., active, idle, etc.); well construction; borehole geophysical logs; and all analytical results for any water sample(s) collected from each water supply well. Notify Central Valley Water Board staff within 24 hours upon determination that any water supply well information cannot be obtained from the California Department of Water Resources because it is confidential.

Submissions pursuant to this Order must include the following statement signed by an authorized representative of Chevron U.S.A. Inc.:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The failure to furnish the required report, or the submission of a substantially incomplete report or false information, is a misdemeanor, and may result in additional enforcement actions, including issuance of an Administrative Civil Liability Complaint pursuant to California Water Code section 13268. Liability may be imposed pursuant to California Water Code section 13268 in an amount not to exceed one thousand dollars (\$1,000) for each day in which the violation occurs.

Any person aggrieved by this Order of the Central Valley Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code section 13320. The State Water Board must receive the petition by 5:00 p.m., within 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations, and instructions applicable to filing petitions, may be found at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml, or will be provided upon request.

By **14 August**, you must contact Dane S. Johnson of this office at (559) 445-5525 to discuss your proposed work plan and technical report.

All required technical information must be submitted to the attention of:

Dane S. Johnson
Central Valley Water Board
1685 E Street

Fresno, CA 93706

In addition, all information is to be copied to the Division, to the attention of:

Steven R. Bohlen, State Oil and Gas Supervisor
Department of Conservation, DOGGR
801 K Street
Sacramento, CA 95814-3500

Based on the information submitted in the work plan and/or technical report, additional information or action may be required.

Be advised that sections 13260 and 13264 of the California Water Code require any person who proposes to discharge waste that could affect waters of the state to submit a Report of Waste Discharge for any new discharge or change in the character, volume, or location of an existing discharge. Fluids produced by oil or gas extraction activities that can no longer be disposed of in the injection wells subject to this Order cannot be discharged to land or waters of the state prior to the issuance of Waste Discharge Requirements, and cannot be discharged to waters of the United States prior to the issuance of an National Pollutant Discharge Elimination System (NPDES) Permit. Failure to comply with these requirements may constitute a misdemeanor under Water Code section 13265 or a felony under Water Code section 13387, and may also subject Chevron U.S.A. Inc., to judicial or administrative civil liabilities. It is strongly recommended that you contact Central Valley Water Board staff to discuss any proposed changes to the discharge of the fluids that had previously been disposed of in an injection well subject to this Order.

Any questions regarding this matter should be directed to me at (559) 445-5116 or at Clay.Rodgers@waterboards.ca.gov.



Clay L. Rodgers
Assistant Executive Officer

Enclosure: Attachment A

ATTACHMENT A

Water Quality Analysis

Groundwater samples collected from wells and injection zones shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program, using current applicable EPA-approved analytical methods for water for the following:

- A. Total dissolved solids
- B. Metals listed in California Code of Regulations, title 22, section 66261.24, subdivision (a)(2)(A)
- C. Benzene, toluene, ethylbenzene, and xylenes
- D. Total petroleum hydrocarbons for crude oil
- E. Polynuclear aromatic hydrocarbons (including acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene)
- F. Radionuclides listed under California Code of Regulations, title 22, Table 64442
- G. Methane
- H. Major and minor cations (including sodium, potassium, magnesium, and calcium)
- I. Major and minor anions (including nitrate, chloride, sulfate, alkalinity, and bromide)
- J. Trace elements (including lithium, strontium, boron, iron, and manganese)

Water Quality Reporting

Water quality information shall be submitted in a technical report that includes, at a minimum:

- A. Site plan with locations of well(s) sampled.
- B. Description of field sampling procedures.
- C. Table(s) of analytical results organized by well number (including API number).
- D. Copies of analytical laboratory reports, including quality assurance/quality control procedures and analytical test methods.
- E. Waste management and disposal procedures.

Appendix B
Project and Individual
Well Permits

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 861-0279



October 29, 2002

Mr. M. R. Marquez
ChevronTexaco Expl. & Prod. Co
P.O. Box 1392
Bakersfield, CA 93302

WATER DISPOSAL PROJECT
Kern River Field
Chanac/Santa Margarita Zones
Sec. 10, T.29S., R.28E
Sec. 13, T.28S., R.27E

Project Code: 34000010
Max. Permitted Volume: 10,000 B/D
Max. Permitted Well(s): 4
Note: Notify this office if either of these values are exceeded.

Dear Mr. Marquez:

The continuance of the project designated above is approved provided:

1. Notices of intention to drill, redrill, deepen, rework, or abandon, on current Division forms (OG105, OG107, OG108) shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. **ALL FLUIDS MUST MEET CLASS II CRITERIA.**

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, once every year thereafter, after any significant anomalous rate or pressure change, or as requested by the Division, to confirm that the injection fluid is confined to the proper zone or zones. This monitoring schedule may be modified by the district deputy. This office shall be notified before such surveys are made, as surveys may be witnessed by the Division inspector.
10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.8 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

Sincerely,



Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(861) 322-4031
FAX: (861) 861-0279



October 29, 2002

Mr. M. R. Marquez
ChevronTexaco Expl. & Prod. Co
P.O. Box 1392
Bakersfield, CA 93302

WATER DISPOSAL PROJECT
Kern River Field
Chanac Zone
Sec. 3,4,10,11, T.29S., R.28E

Project Code: 34000019
Max. Permitted Volume: 15,000 B/D
Max. Permitted Well(s): 7
Note: Notify this office if either of these values are exceeded.

Dear Mr. Marquez:

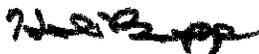
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2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. **ALL FLUIDS MUST MEET CLASS II CRITERIA.**

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
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10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.8 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

Sincerely,



Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 861-0279



October 29, 2002

Mr. M. R. Marquez
ChevronTexaco Expl. & Prod. Co
P.O. Box 1392
Bakersfield, CA 93302

WATER DISPOSAL PROJECT
Kern River Field
Chanac-Santa Margarita Zones
Sec. 3,4,5,7,8,9, T.29S., R.28E

Project Code: 34000030
Max. Permitted Volume: 120,000 B/D
Max. Permitted Well(s): 12
Note: Notify this office if either of these
values are exceeded.

Dear Mr. Marquez:

The continuance of the project designated above is approved provided:

1. Notices of intention to drill, redrill, deepen, rework, or abandon, on current Division forms (OG105, OG107, OG108) shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. **ALL FLUIDS MUST MEET CLASS II CRITERIA.**

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
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14. Additional data will be supplied upon the request of the Division.

Sincerely,



Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 861-0279



October 29, 2002

Mr. M. R. Marquez
ChevronTexaco Expl. & Prod. Co
P.O. Box 1392
Bakersfield, CA 93302

WATER DISPOSAL PROJECT
Kern River Field
Chanac/Santa Margarita Zones
Sec. 4,5,8,9, T.29S., R.28E

Project Code: 34000032
Max. Permitted Volume: 150,000 B/D
Max. Permitted Well(s): 5
Note: Notify this office if either of these values are exceeded.

Dear Mr. Marquez:

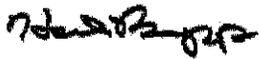
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4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. **ALL FLUIDS MUST MEET CLASS II CRITERIA.**

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, once every year thereafter, after any significant anomalous rate or pressure change, or as requested by the Division, to confirm that the injection fluid is confined to the proper zone or zones. This monitoring schedule may be modified by the district deputy. This office shall be notified before such surveys are made, as surveys may be witnessed by the Division inspector.
10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.85 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

Sincerely,



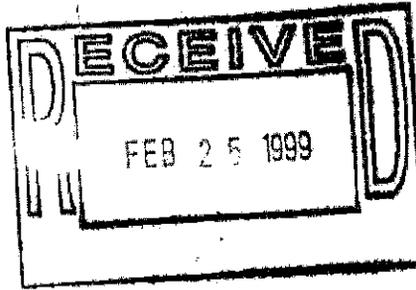
Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(805) 322-4031
FAX: (805) 861-0279



February 22, 1999



Mr. D. E. Roberts
Texaco Expl. & Prod. Inc.
1546 China Grade Loop
Bakersfield, CA 93308

WELL FILE

Re: Injection of Regeneration Brine

Dear Mr. Roberts:

A letter was sent to you, dated May 28, 1998, permitting injection of regen. brine into well "San Joaquin" WD 9 on the condition that the well was open only to the Santa Margarita Zone (not the Chanac). This decision was based on the fairly high concentration of Boron in a Santa Margarita zonal analysis. Upon further review, however, the "freshness" of the Santa Margarita (<1,000 ppm TDS) dictates that it needs to be protected from degradation by a fluid such as a regeneration brine. Therefore this letter serves as a retraction of the May 28th letter and the injection of this brine into this zone must be prohibited. I apologize for this change in direction and hope that it hasn't inconvenienced your company much. If you have any questions concerning this matter, please don't hesitate to call me.

Sincerely,

Richard S. Thesken
Associate Engineer

cc: Dick Yock

DEPARTMENT OF CONSERVATION

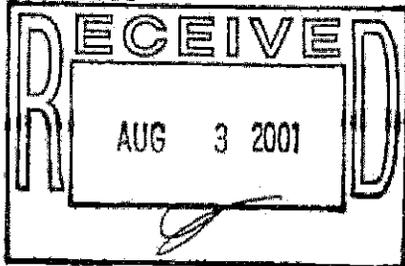
4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 861-0279



July 31, 2001

Ms. Ilia Q. Lambert
Texaco Expl. & Prod. Inc.
P.O. Box 5197-X
Bakersfield, CA 93308

WATER DISPOSAL PROJECT
Kern River Field
Santa Margarita Zone
Entier Field



Project Code: 34000035
Max. Permitted Volume: 400,000 B/D
Max. Permitted Well(s): 19
Note: Notify this office if either of these values are exceeded.

Dear Ms. Lambert:

The continuance of the project designated above is approved provided:

1. Notices of intention to drill, redrill, deepen, rework, or abandon, on current Division forms (OG105, OG107, OG108) shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. ALL FLUIDS MUST MEET CLASS II CRITERIA.

↳ fluid created from oil field operations - produced water

RTheisten@conserv.ca.gov 334-3066

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, once every year thereafter, after any significant anomalous rate or pressure change, or as requested by the Division, to confirm that the injection fluid is confined to the proper zone or zones. This monitoring schedule may be modified by the district deputy. This office shall be notified before such surveys are made, as surveys may be witnessed by the Division inspector.
10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.85 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

Sincerely,



for Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

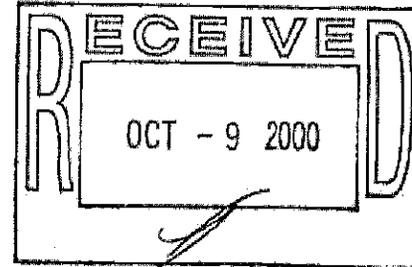
DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
661) 322-4031
FAX: (661) 861-0279



October 4, 2000

Ms. Ilia Q. Lambert
Texaco Expl. & Prod. Inc.
5201 Truxtun Avenue
Bakersfield, CA 93309



RE: Injection Project Reviews

Dear Ms. Lambert:

Having completed your July, 2000 annual injection project reviews, we have consolidated the following projects to simplify the reporting and reviewing process. Also, attached are your new project approval letters.

- 1) Water disposal, Kern River field, Santa Margarita zone, projects #34000034 and #34000040 have been merged into project #34000035.
- 2) Water disposal, Kern River field, Chanac zone, project #34000039 has been merged into project #34000019.
- 3) Steamflood, Kern River field, Kern River zone, project #34000009 has been merged into project #34000013.

Should you have any questions, please call me at 661-322-4031.

Sincerely,

A handwritten signature in cursive script that reads "Reed Bowles".

Reed Bowles
Associate Engineer
Division of Oil, Gas and Geothermal Resources

uic\wp\merger

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 861-0279



October 29, 2002

Mr. M. R. Marquez
ChevronTexaco Expl. & Prod. Co
P.O. Box 1392
Bakersfield, CA 93302

WATER DISPOSAL PROJECT
Kern River Field
Chanac/Santa Margarita Zones
Sec. 28, T.28S., R.28E

Project Code: 34000045
Max. Permitted Volume: 40,000 B/D
Max. Permitted Well(s): 3
Note: Notify this office if either of these values are exceeded.

Dear Mr. Marquez:

The continuance of the project designated above is approved provided:

1. Notices of intention to drill, redrill, deepen, rework, or abandon, on current Division forms (OG105, OG107, OG108) shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. **ALL FLUIDS MUST MEET CLASS II CRITERIA.**

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, once every year thereafter, after any significant anomalous rate or pressure change, or as requested by the Division, to confirm that the injection fluid is confined to the proper zone or zones. This monitoring schedule may be modified by the district deputy. This office shall be notified before such surveys are made, as surveys may be witnessed by the Division inspector.
10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.8 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

Sincerely,



Hal Bopp
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd

DEPARTMENT OF CONSERVATION

4800 STOCKDALE HWY, SUITE 417
BAKERSFIELD, CALIFORNIA 93309
(661) 322-4031
FAX: (661) 881-0279



February 1, 2006

Mr. John W. Howe
Longbow, LLC
1701 Westwind Dr., Suite 126
Bakersfield, CA 93301

WATER DISPOSAL PROJECT
Kern River Field
Kern River Zone
Sec. 18, T.28S., R.28E

Project Code: 34000057
Max. Permitted Well(s): 1

Dear Mr. Howe:

The initiation of the project designated above is approved provided:

1. Notices of intention to drill, redrill, deepen, rework, or abandon, on current Division forms (OG105, OG107, OG108) shall be completed and submitted to the Division for approval whenever a new well is to be drilled for use as an injection well and whenever an existing well is converted to an injection well, even if no work is required on the well.
2. This office shall be notified of any anticipated changes in a project resulting in alteration of conditions originally approved, such as: increase in size, change of injection interval, or increase in injection pressures. Such changes shall not be carried out without Division approval.
3. A monthly Injection Report shall be filed with this Division on our Form OG110B on or before the last day of each month, for the preceding month, showing the amount of fluid injected, and surface pressure required for each injection well.
4. A chemical analysis of the fluid to be injected shall be made and filed with this Division whenever the source of injection fluid is changed, or as requested by this office. ALL FLUIDS MUST MEET CLASS II CRITERIA.

5. All fluid sampling and analyses required by this Division are done in accordance with the provisions of the Division's Quality Assurance Program. Please refer to the Division's "Notice to Oil and Gas Operators" dated: November 17, 1986.
6. An accurate, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for installation and operation of such gauge or device. A gauge or device used for injection pressure testing, which is permanently affixed to the well or any part of the injection system, shall be calibrated at least every six months. Portable gauges shall be calibrated at least every two months. Evidence of such calibration shall be available to the Division upon request.
7. All injection wells shall be equipped with tubing and packer set immediately above the approved zone of injection upon completion or recompletion, unless a variance to this requirement has been granted by this office.
8. A Standard Annular Pressure Test (SAPT) shall be run, as outlined in the Notice to Operators dated 1/9/90, prior to injecting into any well(s) being drilled or reworked for the purpose of injection and every five years thereafter or as requested by the Division. The Division shall be notified to witness such tests.
9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, once every year thereafter, after any significant anomalous rate or pressure change, or as requested by the Division, to confirm that the injection fluid is confined to the proper zone or zones. This monitoring schedule may be modified by the district deputy. This office shall be notified before such surveys are made, as surveys may be witnessed by the Division inspector.
10. Data shall be maintained to show performance of the project and to establish that no damage to life, health, property, or natural resources is occurring by reason of the project. Injection shall be stopped if there is evidence of such damage, of loss of hydrocarbons, or upon written notice from the Division. Project data shall be available for periodic inspection by Division personnel.
11. The maximum allowable injection pressure gradient is limited to 0.8 psi per foot of depth as measured at the top perforation. Prior to any sustained injection above this gradient, rate-pressure tests shall be made. The test shall begin at the hydrostatic gradient of the injection fluid to be used and shall continue until either the intended maximum injection pressure is reached or until the formation fractures, whichever occurs first. These tests shall be witnessed, unless otherwise instructed, and the test results submitted to this Division for approval.

12. All injection piping, valves, and facilities shall meet or exceed design standards for the injection pressure and shall be maintained in a safe and leak-free condition.
13. Any remedial work needed as a result of this project on idle, abandoned, or deeper zone wells in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.
14. Additional data will be supplied upon the request of the Division.

NOTE: Only Kern River produced water may be injected into this well.

Sincerely,



Randy Adams
Deputy Supervisor
Division of Oil, Gas, and Geothermal Resources

cc: RWQCB
UIC file

uic\wp\wd
DT

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT
Santa Margarita Zone

340
(field code)
00
(area code)
10
(new pool code)
10
(old pool code)

D. L. Oreolt
SWEPT
P. O. Box 11164
Bakersfield, CA 93389

Bakersfield, California
March 14, 1990

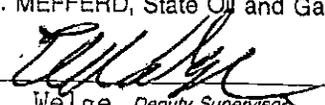
Your _____ proposal to _____ rework _____ well "Overland" 31D
A.P.I. No. 029- 26346, Section 28, T. 28S, R. 28E, M.D. B. & M.,
Kern River field, _____ area, Santa Margarita pool,
Kern County, dated 2/27/90, received 3/5/90 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The operations and surveillance of this well shall conform to the requirements outlined in our project approval letter dated 5/13/88.
2. THIS DIVISION SHALL BE NOTIFIED TO WITNESS a standard annular pressure test as outlined in the Notice to Operators dated January 9, 1990.
3. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
4. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond

Engineer Mike Glinzak
MG/jk ^{Dm}
Phone (805) 322-4031

M. G. MEFFERD, State Oil and Gas Supervisor
By 
E. A. Welge, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS &
GEOTHERMAL RESOURCES
PERMIT TO CONDUCT WELL OPERATIONS
WATER DISPOSAL PROJECT

No. P493-2438

Chanac/Santa Margarita Zones

340
FIELD CODE
00
AREA CODE
08
NEW POOL
08
OLD POOL

Bakersfield, California
June 29, 1993

Gregory Matiuk
CHEVRON U.S.A. INC.
P. O. Box 1392
Bakersfield, CA 93302

Your proposal to rework well "H.H. & F." 2D, A.P.I. No. 029-55750, Section 9, T. 29S, R. 28E, MD B. & M., Kern River field, — area, Chanac-Santa Margarita pool, Kern County, dated 6/4/93, received 6/15/93 has been examined in conjunction with records filed in this office.

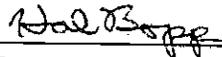
DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. The specified blowout prevention equipment, as defined by DOG Manual MO7, is considered minimal and shall be maintained in operating condition at all times
 - a. on the 7" casing, DOG Class II 2M .
3. The operations and surveillance of this well shall conform to the requirements outlined in our project approval letter dated 4/11/91.
4. **THIS DIVISION SHALL BE NOTIFIED TO WITNESS** a standard annular pressure test, prior to commencing injection, as outlined in the Notice to Operators dated January 9, 1990.
5. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond

Engineer Rich Thesken
Phone (805) 322-4031

William F. Guerard, Jr.
Acting State Oil & Gas Supervisor


Hal Bopp, Deputy Supervisor

RT/rf pcm

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

cc:

OG111

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT
Chanac/Santa Margarita Zones

340
(field code)
00
(area code)
08
(new pool code)
07
(old pool code)

J. A. Ruhl
SWEPI
P. O. Box 11164, RM. 928
Bakersfield, CA 93389

Bakersfield, California
May 5, 1992

Your rework & convert to proposal to water disposal well "Overland" 34WD,
A.P.I. No. 029-67907, Section 28, T. 28S, R. 28E, M.D. B. & M.,
Kern River field, ----- area, Chanac-Santa Margarita pool,
Kern County, dated 4/22/92, received 4/24/92 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The operations and surveillance of this well shall conform to the requirements outlined in our project approval letter dated 4/2/92.
2. THIS DIVISION SHALL BE NOTIFIED TO WITNESS a standard annular pressure test, prior to commencing injection, as outlined in the Notice to Operators dated January 9, 1990.
3. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond
Engineer Joyce Jaszarowski
Phone (805) 322-4031
JTJ/db

K. P. HENDERSON, Acting Oil & Gas Supervisor
By Hal Bopp
Hal Bopp, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

REPORT ON PROPOSED OPERATIONS

WATER DISPOSAL PROJECT
Kern River Field
Santa Margarita Zone

340
(field code)
00
(area code)
10
(new pool code)
--
(old pool code)

C. G. Bursell
GETTY OIL COMPANY
Rt. 1, Box 197-X
Bakersfield, Ca. 93308

Bakersfield, California
November 25, 1983

Your _____ proposal to drill well "San Joaquin" WD 3
A.P.I. No. 029-70045, Section 5, T. 29S, R. 28E, M.D. B. & M.
Kern River field, _____ area, San Margarita pool,
Kern County, dated 9/20/83, received 10/24/83 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Sufficient cement shall be pumped back of the 7" casing to fill to the surface.
3. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
4. The operation and surveillance of this well shall conform to the attached general requirements.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days, after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
6. No change in the proposed program shall be made without prior approval of this Division.

NOTE: A chemical analysis of the injection zone water shall be taken and submitted to this office prior to commencing injection.

DC:nj
Blanket Bond
cc: RWQCB

M. G. MEFFERD, State Oil and Gas Supervisor

By A. J. [Signature]
Deputy Supervisor

A copy of this report and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

PERMIT TO CONDUCT WELL OPERATIONS

Water Disposal Project
Kern River Field
Santa Margarita Zone

340
(field code)
00
(area code)
10
(new pool code)
15
(old pool code)

M. F. Jacintho
SHELL CALIFORNIA PRODUCTION INC.
P.O. Box 11164
Bakersfield, CA 93389

Bakersfield, California
December 13, 1985

Your supplementary proposal to convert to water disposal well "Kern Co. Land Co." 2X
A.P.I. No. 029-72050, Section 10, T. 29S, R. 28E, MD B. & M.,
Kern River field, - area, Santa Margarita pool,
Kern County, dated 12/11/85, received 12/11/85 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
3. The operation and surveillance of this well shall conform to the requirements outlined in our water disposal project approval letter dated 10/2/84.
4. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
5. An analysis of injection zone fluid shall be submitted to this office within 30 days.
6. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond
cc: RWQCB
UIC

Engineer David R. Clark

Phone (805) 322-4031
DRc/kg

M. G. MEFFERD, State Oil and Gas Supervisor

By A. G. Hluza

A. G. Hluza, Deputy Supervisor

**A copy of this report and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed
or the operations have been suspended.**

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT

Kern River Zone

BLM

340
FIELD CODE
00
AREA CODE
05
NEW POOL
05
OLD POOL

Bakersfield, California
February 07, 2006

Mr. John W. Howe
Longbow, LLC
1701 Westwind Dr. Suite 126
Bakersfield, CA 93301

Your proposal to rework and convert to water disposal well 557, A.P.I. No. 029-73218, Section 18, T. 28S, R. 28E, MD B. & M., Kern River field, — area, Kern River pool, Kern County, dated 12/13/05, received 12/13/05 has been examined in conjunction with records filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

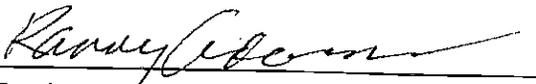
1. Prior to commencing operations, an operator's representative shall instruct all operator's rig personnel, or drilling contractor's representative, on the potential hazards and control of wells which operate in active steam zones or areas of anomalous zone pressures.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. The 9 5/8" casing shall be equipped with a lubricator, DOGGR Class II 2M BOPE, or other device capable of complete shut-in and control of the well.
4. Sufficient surveys shall be run within 90 days after the injection begins to confirm that the injection fluid is confined to the intended zone of injection.
5. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. **WITNESS** a standard annular pressure test, prior to commencing injection. A 24 hour notification is required.
 - b. **WITNESS** within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection. A 24 hour notification is required.
6. The operations and surveillance of this well shall conform to the requirements outlined in our project approval letter dated 02/01/06.
7. No change in the proposed program shall be made without prior approval of this Division.

NOTE: Issuance of this report was held in abeyance pending the review and approval of your corresponding project application.

Blanket Bond

Hal Bopp
State Oil and Gas Supervisor

Engineer Richard S. Thesken
Direct (661) 334-3661
Office (661) 322-4031

By 
Randy Adams
Deputy Supervisor

RST/tw

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

Project#34000057
cc: BLM
OG111

PERMIT TO CONDUCT WELL OPERATIONS

340
(field code)
00
(area code)
05
(new pool code)
--
(old pool code)
California

C. D. Fiddler
CHEVRON U.S.A., INC.
P.O. Box 5355
Bakersfield, CA 93388

Bakersfield
April 15, 1985

Your _____ proposal to drill well D3-3,
A.P.I. No. 029-75049, Section 3, T. 29S, R. 28E, MD B. & M.,
Kern River field, _____
Kern County, dated 3/21/85, received 3/25/85 area, Kern River pool,
filed in this office. _____ has been examined in conjunction with records

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Sufficient cement shall be pumped back of the 14" & 9 5/8" casing to fill to the surface.
3. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
4. Prior to spudding, an operator's representative shall instruct all operator's rig personnel, or drilling contractor's representative, on the potential hazards and control of wells which operate in active steam zones.
5. No change in the proposed program shall be made without prior approval of this Division.

NOTES:

1. The Division routinely monitors monthly well production data, and if anomalous water is indicated, remedial action will be ordered.
2. Approval is granted for a producing developmental well. If in the future this well is to be converted to a water disposal a supplementary notice will be required.
3. Satisfactory completion of the Federal U.I.C. project review process must occur prior to commencing injection.

Blanket Bond
cc: Co.

Engineer David R. Clark
Phone (805) 322-4031
DRC/kg

M. G. MEFFERD, State Oil and Gas Supervisor
By A. G. Hluza

A. G. Hluza, Deputy Supervisor

A copy of this report and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

PERMIT TO CONDUCT WELL OPERATIONS

Water Disposal Project
Kern River Field
Chanac Zone

310
(field code)
00
(area code)
0507
(new pool code)
08
(old pool code)

T. J. Hurst
TEXACO PRODUCING INC.
P. O. Box 5197X
Bakersfield, CA 93388

Bakersfield, California
March 5, 1987

Your _____ proposal to rework well "May" WD-1
A.P.I. No. 029-76159, Section 8, T. 29S, R. 28E, MD B. & M.,
Kern River field, _____ area, Chanac pool,
Kern County, dated 2/23/87, received 3/2/87 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
3. Prior to commencing operations, an operator's representative shall instruct all operator's rig personnel, or drilling contractor's representative, on the potential hazards and control of wells which operate in areas of anomalous zone pressures.
4. The operation and surveillance of this well shall conform to the requirements outlined in our water disposal project approval letter dated 9/9/85
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection, and a pressure fall-off test.
6. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond
cc: RWQCB

Engineer Reed J. Bowles

Phone (805) 322-4031
RJB/kr

M. G. MEFFERD, State Oil and Gas Supervisor

By E. A. WELGE
E. A. WELGE, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations. Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT
Kern River Field
Santa Margarita Zone

340
(field code)
00
(area code)
10
(new pool code)
--
(old pool code)

M. F. Jacintho
SHELL CALIFORNIA PRODUCTION INC.
P. O. Box 11164
Bakersfield, CA 93389

Bakersfield, California
February 25, 1986

Your _____ proposal to _____ drill _____ well "KCL 10" 210
A.P.I. No. 029-77806, Section 10, T. 29S, R. 28E, MD B. & M.,
Kern River field, _____ area, Santa Margarita pool,
Kern County, dated 2/18/86, received 2/19/86 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Sufficient cement shall be pumped back of the 7" casing to fill to the surface.
3. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
4. The operation and surveillance of this well shall conform to the requirements outlined in our Water Disposal project approval letter dated October 2, 1984.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
6. The Division shall be notified to witness a pressure fall-off test annually.
7. No change in the proposed program shall be made without prior approval of this Division.

NOTES:

1. A current chemical analysis of the injection fluid shall be submitted to this office within 30 days.
2. A chemical analysis of the injection zone fluid shall be submitted to this office prior to commencing permanent injection.

Blanket Bond

Engineer David R. Clark

Phone (805) 322-4031
DRC/kg

M. G. MEFFERD, State Oil and Gas Supervisor

By E. A. Welge
E. A. Welge, Acting Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT
Kern River Field
Santa Margarita Zone

340
(field code)
00
(area code)
10
(new pool code)
--
(old pool code)
Bakersfield, California

M. F. Jacintho
SHELL CALIFORNIA PRODUCTION INC.
P. O. Box 11164
Bakersfield, CA 93389

Bakersfield
February 25, 1986

Your _____ proposal to drill well "KCL 10" 212
A.P.I. No. 029-77807 Section 10, T. 29S, R. 28E, MD B. & M.,
Kern River field, _____ area, Santa Margarita pool,
Kern County, dated 2/18/86, received 2/19/86 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Sufficient cement shall be pumped back of the 7" casing to fill to the surface.
3. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
4. The operation and surveillance of this well shall conform to the requirements outlined in our Water Disposal project approval letter dated October 2, 1984.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
6. The Division shall be notified to witness a pressure fall-off test annually.
7. No change in the proposed program shall be made without prior approval of this Division.

NOTES:

1. A current chemical analysis of the injection fluid shall be submitted to this office within 30 days.
2. A chemical analysis of the injection zone fluid shall be submitted to this office prior to commencing permanent injection.

Blanket Bond

Engineer David R. Clark

Phone (805) 322-4031
DRC/kg

M. G. MEFFERD, State Oil and Gas Supervisor

By E. A. Welge
E. A. Welge, Acting Deputy Supervisor

**A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed
or the operations have been suspended.**

PERMIT TO CONDUCT WELL OPERATIONS

340
(field code)
00
(area code)
10
(new pool code)

(old pool code)

WATER DISPOSAL PROJECT
Kern River Field
Santa Margarita Zone

T. J. Hurst
TEXACO PRODUCING INC.
P. O. Box 5197X
Bakersfield, CA 93388

Bakersfield, California
July 21, 1987

Your _____ proposal to _____ drill _____ well "Orient" WD 1
A.P.I. No. 029- 80421, Section 30, T. 28S, R. 28E, M.D. B. & M.,
Kern River field, _____ area, Santa Margarita pool,
Kern County, dated 05-20-87, received 05-21-87 has been examined in conjunction with records
filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Drilling fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Adequate blowout prevention equipment shall be installed and maintained in operating condition at all times.
3. Sufficient cement shall be pumped back of the 9 5/8" casing to fill to the surface.
4. The operation and surveillance of this well shall conform to the requirements outlined in our Water Disposal project approval letter dated July 20, 1987.
5. THIS DIVISION SHALL BE NOTIFIED TO WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection,
6. No change in the proposed program shall be made without prior approval of this Division.
7. Prior to spudding, an operator's representative shall instruct all operator's rig personnel, or drilling contractor's representative, on the potential hazards and control of wells which operate in areas of anomalous zone pressures.

Blanket Bond

Engineer Randall L. Adams

Phone (805) 322-4031
RLA:dp

M. G. MEFFERD, State Oil and Gas Supervisor

By E. A. WELGE
E. A. WELGE, Deputy Supervisor

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS &
GEOTHERMAL RESOURCES

No. P498-1123

PERMIT TO CONDUCT WELL OPERATIONS

WATER DISPOSAL PROJECT

Santa Margarita Zone

340
FIELD CODE
00
AREA CODE
10
NEW POOL

OLD POOL

Bakersfield, California
March 4, 1998

Darryl Gunderson
AERA ENERGY LLC
P.O. Box 11164
Bakersfield, CA 93389-1164

Your proposal to drill well "Hotchkiss" 14D-10, A.P.I. No. 030-10793, Section 10, T. 29S, R. 21E, MD B. & M., Kern River field, --- area, Kern River pool, Kern County, dated 02/23/98, received 02/23/98 has been examined in conjunction with records filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Prior to commencing operations, an operator's representative shall instruct all operator's rig personnel, or drilling contractor's representative, on the potential hazards and control of wells which operate in active steam zones or areas of anomalous zone pressures.
2. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
3. The well shall be equipped with a minimum 6" diverter system on the conductor pipe.
4. Sufficient cement shall be used to fill the annular space behind the 8 5/8" casing to at least 500' above oil & gas zones and excessive pressure intervals and to at least 100' above the base of fresh water, if present.
5. All drilling fluid shall be disposed of according to Regional Water Quality Control Board regulations.
6. THIS DIVISION SHALL BE NOTIFIED TO:
 - a. WITNESS, within 90 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection. A 24 hour notification is required.
 - b. WITNESS a standard annular pressure test, prior to commencing injection, as outlined in the Notice to Operators dated January 9, 1990. A 24 hour notification is required.
7. The operations and surveillance of this well shall conform to the requirements outlined in our project approval letter dated July 2, 1993.
8. No change in the proposed program shall be made without prior approval of this Division.

Blanket Bond

Engineer Richard S. Thesken
Phone (805) 322-4031

William F. Guerard, Jr.
State Oil & Gas Supervisor


for Hal Bopp, Deputy Supervisor

RST/nas

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

cc:
OG111

Appendix C
USPS Product and
Tracking Information

English

Customer Service

USPS Mobile

Register / Sign In



See the USPS.com or Track Packages Subr

Quick Tools

Ship a Package

Send Mail

Manage Your Mail

Shop

Business Solutions

USPS Tracking™



Customer Service ›
Have questions? We're here to help.

Tracking Number: 70121010000331726950

Product & Tracking Information

Postal Product:

Features:
Certified Mail™



August 13, 2014 , 11:09 am **Delivered** **BAKERSFIELD, CA 93311**

Your item was delivered at 11:09 am on August 13, 2014 in BAKERSFIELD, CA 93311.

August 13, 2014 , 8:36 am Out for Delivery BAKERSFIELD, CA 93311

August 13, 2014 , 8:26 am Sorting Complete BAKERSFIELD, CA 93311

August 13, 2014 , 8:08 am Arrived at Unit BAKERSFIELD, CA 93311

August 13, 2014 , 5:17 am Departed USPS Facility BAKERSFIELD, CA 93380

August 13, 2014 , 3:18 am Arrived at USPS Facility BAKERSFIELD, CA 93380

August 11, 2014 , 9:38 pm Departed USPS Facility FRESNO, CA 93706

August 11, 2014 , 9:09 pm Arrived at USPS Facility FRESNO, CA 93706

Available Actions

[Text Updates](#)

[Email Updates](#)

[Return Receipt After Mailing](#)

Track Another Package

Tracking (or receipt) number

[Track It](#)

LEGAL

Privacy Policy
Terms of Use
Help
Site Map

ON USPS.COM

Get Mail
Buy Stamps & Supplies
Retail Services & Products
Customer Service
Delivery & Pickup
Shipping & Tracking

ON ABOUT.USPS.COM

About USPS
Navigation
Accessibility
Forms & Publications
Contact Us

OTHER USPS SITES

Business Customer Gateway
Postnet
Postnet Generator
Postnet Encoder
Business Reply Mail



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Appendix D
Work Plan and
Feasibility Report



San Joaquin Valley BU
Chevron North America Exploration
and Production Company
(a Chevron U.S.A. Inc. division)
1546 China Grade Loop
Bakersfield, CA 93308

**COPY VIA E-MAIL
ORIGINAL VIA OVERNIGHT MAIL**

August 18, 2014

Dane S. Johnson
Central Valley Water Board
1685 E Street
Fresno, CA 93706

RE: Order Pursuant to California Water Code Section 13267, Issued to Chevron
U.S.A. Inc., dated August 11, 2014

Dear Mr. Johnson:

This letter and attached Work Plan have been developed in response to the "Order Pursuant to California Water Code Section 13267" dated August 11, 2014 ("Order") issued by the Central Valley Regional Water Quality Control Board ("RWQCB") to Chevron U.S.A. Inc. ("Chevron"). The Order relates to injection wells identified as API numbers 02926346, 02955750, 02967907, 02970045, 02971717, 02972050, 02973218, 02973297, 02975045, 02975049, 02976159, 02977806, 02977807, 02980421, 02984592, and 03010793 (hereinafter collectively referred to as "the injection wells"). Chevron's submittal of this letter and Work Plan should not be construed as an acceptance or agreement by Chevron of the factual allegations contained in the Order, and Chevron hereby reserves all rights and remedies available to it, including the ability to challenge those findings and/or appeal the Order.

As background, of the sixteen (16) wells for which information has been requested, only seven (7) of the injection wells are currently in active status. All of the injection wells were permitted for injection into the target formation by the California Division of Oil, Gas and Geothermal Resources ("DOGGR"), and all requirements of those permits have been and are being met.

As explained to you by Chevron's Sam Bulkeley and Abby Auffant on August 14, 2014, the deadlines contained in the Order are unreasonable and not feasible. Chevron did not receive the Order until after 3:00 P.M. on Wednesday, August 13, 2014, leaving just three business days to develop the required work plan. However, in a good faith attempt to comply with the Order, Chevron has retained a third party consultant to develop the attached Work Plan based on information available prior to the August 18, 2014 deadline. Information that could not be obtained by that time, including but not limited to the timing to conduct the sampling, shall be provided to the RWQCB by August 25, 2014

Additionally, the September 4, 2014 deadline to obtain and analyze samples, and to submit a technical report is also not feasible. Due to the depth of the injection zone and complexities of multi-zone sampling, specialized contractors and equipment are necessary to obtain the samples. Chevron is diligently working to understand what additional work is needed at each well to

August 18, 2014

Page 2

obtain samples, as well as determining the availability of the necessary specialized contractors. However, the well work, sample collection, sample analysis and development of a technical report cannot be accomplished by the September 4, 2014 deadline. Chevron will provide an update to the RWQCB by August 25, 2014 with respect to the anticipated timing for completion of sampling activities and submittal of a technical report once an evaluation of the work needed at each well is completed and availability of the specialized contractors is confirmed.

In the meantime, if you need any additional information, please contact Sam Bulkeley at (661) 392-2385 or Abby Auffant at (661) 654-7535. Thank you for your courtesy and cooperation in this matter.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Sincerely,
Chevron U.S.A. Inc.

By: 
Gary Piron
Kern River Field Area Manager

Enclosure: Injection Well Groundwater Sampling Work Plan For Kern River Oil Field

CC with Enclosure:
Clay L. Rodgers, Assistant Executive Officer
Central Valley Regional Water Quality Control Board
1685 E Street
Fresno, CA 93706

Via Email and Overnight Mail
Steven R. Bohlen, State Oil and Gas Supervisor
Department of Conservation, DOGGR
801 K Street
Sacramento, CA 95814-3500



INJECTION WELL GROUNDWATER SAMPLING WORK PLAN FOR KERN RIVER OIL FIELD

Chevron U.S.A., Inc.
Kern County, California

Prepared for:

Chevron U.S.A., Inc.
Kern River Oil Field
Kern County, California

Prepared by:

AMEC Environment & Infrastructure, Inc.
1281 East Alluvial Avenue, Suite 101
Fresno, California 93720
(559) 264-2535

August 18, 2014



**INJECTION WELL GROUNDWATER SAMPLING
WORK PLAN FOR KERN RIVER OIL FIELD**
Kern River Oil Field
Kern County, California

August 18, 2014



This work plan was prepared by the staff of AMEC Environment & Infrastructure, Inc., under the supervision of the Geologist whose seal and signature appear hereon.

The findings, recommendations, specifications, or professional opinions presented in this work plan were prepared in accordance with generally accepted professional geologic practice and within the scope of the project. No other warranty, express or implied, is provided.

Gary L. Kramer, P.G.
Senior Associate Geologist



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Table 1 Injection Well Construction Details Provided by Chevron

FIGURES

Figure 1 Site Location Map
Figure 2 Site Plan Showing Locations of Injection Wells

APPENDICES

Appendix A Regional Water Quality Control Board Section 13267 Order
Appendix B Wellbore Diagrams
Appendix C API 02975045 Well Record
Appendix D AMEC Environment & Infrastructure, Inc., Protocols



INJECTION WELL GROUNDWATER SAMPLING WORK PLAN FOR KERN RIVER OIL FIELD

Kern River Oil Field
Kern County, California

EXECUTIVE SUMMARY

The following work plan is provided to the Central Valley Regional Water Quality Control Board (RWQCB) following a Section 13267 order dated August 11, 2014, (Order) issued to Chevron U.S.A., Inc. (Chevron) (Appendix A). The work plan describes procedures to collect groundwater samples from injection zones from sixteen injection wells within the Kern River Oil Field identified in the Order (Figure 1). The RWQCB provided guidance on laboratory analytical methods and ordered that the work plan be submitted on August 18, 2014.

Chevron requested that AMEC Environment and Infrastructure, Inc. prepare this work plan to address the Order. This work plan has been prepared based on the information available within the limited time constraints required by the Order and describes the basic methods that will be used to collect groundwater samples from each injection well, the laboratory analytical procedures that will be used for water quality characterization, and reporting requirements. This work will be performed under the direct supervision of a licensed California Professional Geologist.

INJECTION WELL GROUNDWATER SAMPLING WORK PLAN FOR KERN RIVER OIL FIELD

Kern River Oil Field
Kern County, California

1.0 LOCATION

The sixteen injection wells are located on Chevron U.S.A., Inc. (Chevron) operated properties within the Kern River Oil Field (KROF) (Figure 1). The wells are located in Township 28 South, Range 28 East, Sections 18, 28, 29, 30, and 31; and in Township 29 South, Range 28 East, Sections 3, 5, 8, 9, and 10 within the Mount Diablo Base and Meridian (Figure 2).

2.0 HYDROGEOLOGY

The KROF is situated on a faulted homocline with a strike of 325 degrees azimuth and a dip of about 4 degrees southwest (Kuespert and Sanford, 1990). The China Grade and Gun Club faults are two east-west trending normal faults located near the southern part of the field. A third normal fault, the Kern Front fault, is located near the west end of the field and trends roughly north-south. (Kuespert and Sanford, 1990). The Kern Front fault separates the KROF and the Kern Front Field.

The geology beneath the KROF consists of the Kern River, Chanac, and Santa Margarita formations.

2.1 KERN RIVER FORMATION

The Kern River formation consists of non-marine, coarse-grained, arkosic sandstones and conglomerates with occasional beds of silt stones and mudstones (Bartow and Pitman, 1983). These sediments were deposited in braided stream complexes during the Pliocene to Pleistocene epoch (Kuespert and Sanford, 1990). The Kern River Formation is the primary oil producing formation in the KROF with producing zones between depths of 250 and 1,400 feet. The Kern River and underlying Chanac formations are separated by an erosional disconformity.

2.2 CHANAC FORMATION

The Chanac formation consists of Miocene to Pliocene non-marine fluvial deposits. The Chanac has non-commercial hydrocarbon accumulations in various locations in the KROF, but is a major hydrocarbon producer in the adjacent Kern Front Field (Bartow and McDougall, 1984). The Chanac consists of fine to coarse-grained sands, conglomeratic lag deposits and interbedded silt and mudstone. The sands have a high porosity ranging from 25-33 percent

and permeability in the multi-Darcy range (Bartow and McDougall, 1984). The Chanac has a northwest strike and a shallow southwest dip similar to the Kern River formation. The Chanac formation is about 400 feet thick in the KROF (DOGGR, 1985), and it unconformably overlies the Santa Margarita Formation.

2.3 SANTA MARGARITA FORMATION

The Santa Margarita formation consists of upper Miocene shallow marine sandstone deposited in a near shore shelf environment (Kuespert and Sanford, 1990). The Santa Margarita Formation at KROF consists of fine to medium grained, grey-white sandstone interspersed by shale and siltstone (DOGGR, 2010). These are mostly coarsening upward successions of sandstones interspersed by silt/shale. This formation dips toward the southwest as a homoclinal structure along the trend of the overlying Chanac and Kern River formations. The Santa Margarita formation shows steady thickening towards west-southwest. The thinnest interval occurs along the eastern part of the Kern River area (DOGGR, 2010).

The Santa Margarita Formation is an oil producing horizon in the McVan subarea of the Poso Creek field, where it is in sand-to-sand contact with the overlying sands of the Chanac formation. Oil is also produced from the Santa Margarita formation in the Mountain View, Kern Bluff, and Union Avenue fields. The thickness of the Santa Margarita is about 300 feet thick in the KROF (DOGGR, 1985). It conformably overlies the upper Fruitvale Shale.

3.0 INJECTION WELL CONSTRUCTION DETAILS

Chevron has provided AMEC Environment & Infrastructure, Inc. (AMEC) with well construction specifications (Table 1) and wellbore diagrams for the injection wells (Appendix B). Of the sixteen wells, one is completed with perforations within the Kern River formation (API 02973218); five are completed in the Chanac formation (API 02970045, API 02972050, API 02973297, API 02976159, and API 02977806); five are completed in portions of the Chanac and Santa Margarita formations (API 02926346, API 02955750, API 02967907, API 02975049, and API 03010793); and four are completed in the Santa Margarita formation (API 02971717, API 02977807, API 02980421, API 02984592).

Injection Well API 02975045 was converted into a producing oil well within the Kern River formation in February 2014. The portions of the well that were previously perforated in the Santa Margarita and Chanac formations were plugged with cement. A record of the well conversion is attached in Appendix C.



4.0 LOGISTICS

Prior to initiating the work plan, Chevron and AMEC will collaborate on a health and safety plan to address procedures for AMEC field staff and Chevron's well pump contractor. AMEC will also obtain sample containers from Chevron's contracted laboratory. Chevron will obtain any permits that might be required by the California Division of Oil Gas and Geothermal Resources to allow for the sampling efforts.

Chevron will provide necessary procedures for depressurizing each well and remove the well head equipment to expose the well casing and any down hole tubing prior to initiating sampling of each well. AMEC and Chevron's well pump contractor will inspect the well heads and decide on appropriate equipment and specific methods for purging and sampling the well. If necessary, AMEC may request that Chevron remove the down-hole tubing to allow for sampling access. Removal of well tubing will likely delay sampling and subsequent reporting for these particular wells.

5.0 GROUNDWATER SAMPLING PROCEDURES

This section outlines two alternative procedures that will be employed to purge and collect representative groundwater samples from each well depending on conditions encountered in the field. The procedure used to purge and sample each well will be based on the well head access, if tubing is present within the well, the condition of the well head, number of perforated zones that need to be sampled, the depth of well, and the static water level measured in the well at the time of sampling. Groundwater sampling will be performed using AMEC protocols (Appendix D).

5.1 DEPTH TO GROUNDWATER MEASUREMENTS

AMEC will collect depth to groundwater using an electric sounder before any purging and groundwater sampling activities commences. The groundwater level will be measured and recorded in the field notes. The depth to groundwater, the total depth of the well, and the measured well inside diameter will be used to calculate wetted casing volumes for each well.

5.2 GROUNDWATER PURGING AND SAMPLING

Each well will be purged prior to obtaining groundwater samples. AMEC is proposing two alternative methods for purging and sampling: 1) purging and sampling by bailing, or 2) purging and sampling by pumping. The method chosen will depend on amount of groundwater to be purged and whether the well is perforated through multiple zones.

5.2.1 Purging and Sampling by Bailing

This method will involve purging each well of a minimum of three casing volumes using a stainless steel bailer. Field parameters consisting of pH, electrical conductance (EC), and temperature will be measured during purging and recorded in the field notes. The volume of groundwater purged will also be recorded. Groundwater samples will be collected after field parameters have stabilized. If tubing is present, then a packer already exists that isolates the injection zone in the well. The bailer will be lowered in the tubing to a depth just above the packer. This is necessary to prevent the bailer from becoming hung below the tubing where the packer is set. The samples will be collected from the stainless steel bailer and decanted into clean laboratory provided containers, packed on ice, and transported under chain of custody procedures to a California Environmental Laboratory Accreditation Program (ELAP) laboratory for analysis.

5.2.2 Purging and Sampling by Pumping Using Packers and Submersible Pumps

This method will be employed if the calculated volume of purge water is sufficiently high to make bailing impractical or if the well is perforated into multiple aquifer zones. This method will employ well packers to isolate the perforated zone so that a submersible pump can be used to purge a smaller volume from the isolated zone within the casing. Chevron's pump contractor will select the pumps and equipment based on the overall depths at which the samples will be collected.

In wells where the perforated interval is within a single zone, the pump will be lowered to the depth of the perforations and the upper part of the well casing above the top of the perforations will be isolated with a packer. If tubing is present, a packer already exists that isolates the injection zone in the well. The pump will be lowered in the tubing to a depth just above the packer. This is necessary to prevent the pump from becoming hung below the tubing where the packer is set. The pump will then be used to purge a minimum of three casing volumes from the isolated zone measured between the packer and the total well depth.

In wells where the perforated intervals are within the Chanac and the Santa Margarita zones, two samples will be obtained from each zone when adequate separation between the perforated intervals exists. Packers will need to be placed at the bottom and top of perforations in the Chanac zone. The pump will be set in the well casing within perforated zone in the Chanac formation. The pump will then be used to purge a minimum of three casing volumes from the isolated zone within the Chanac formation measured between the upper and lower packers. After the groundwater sample is collected from the Chanac formation, the packers and pump will be removed and the Santa Margarita formation will be sampled. The pump will be lowered to the depth of the perforations within the Santa Margarita formation, and the well casing above the top of the Santa Margarita perforations will be

isolated with a packer. The pump will then be used to purge a minimum of three casing volumes from the isolated zone measured between the packer and the total well depth.

Field parameters consisting of pH, EC, and temperature will be measured during purging and recorded in the field notes. The volume of groundwater purged will also be recorded.

Groundwater samples will be collected after field parameters have stabilized. The samples will be collected from the pump discharge at a rate of less than 500 milliliters per minute and then decanted into clean laboratory provided containers, packed on ice, and transported to a California ELAP laboratory under chain of custody for laboratory analysis.

6.0 QUALITY ASSURANCE AND QUALITY CONTROL SAMPLES

AMEC will collect one duplicate sample, one field blank, and one travel blank quality assurance/quality control (QA/QC) samples during this investigation. The field blank will be prepared in the field by decanting laboratory-filtered volatile organic compound free deionized water through the bailer or pump into a laboratory provided sample containers.

Groundwater samples and QA/QC samples will be labeled with pertinent information including sample identification, the date and time the samples were collected, and the sampler's name. A sample control log will be prepared to identify the sample with the appropriate well location, date and time of sampling, analytical methods, depth, and other pertinent information.

7.0 LABORATORY ANALYTICAL METHODS

The groundwater and QA/QC samples collected from each well will be submitted to a California ELAP laboratory for the following constituents using U.S. Environmental Protection Agency (EPA) approved methods:

- total dissolved solids by Standard Method SM 2540C;
- California Code of Regulations Title 22 metals (antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, fluoride salts, lead, , molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc) by EPA method 6010B and mercury by EPA method 7470A;
- benzene, toluene, ethyl benzene, and xylenes by EPA method 8260B;
- total petroleum hydrocarbons for crude oil by EPA method 8015B;
- polynuclear aromatic hydrocarbons (acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenz[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene) by EPA method 8270C SIM;

- radionuclides (radium-226, radium-228 by EPA methods 903 and 904, gross alpha particle activity [excluding radon and uranium]) by EPA method 900.0, and uranium by EPA method 200.8;
- methane by RSK-175;
- major and minor cations (sodium, potassium, magnesium, and calcium) by EPA method 6010B;
- major and minor anions (nitrate, chloride, sulfate, and bromide by EPA method 300.0 and alkalinity (carbonate, bicarbonate and hydroxyl) by Standard Method SM 2320B; and
- trace elements (lithium, strontium, and boron) by EPA method 207.7.

Analytical results, including quality assurance data, will be provided by the laboratory. AMEC will review the laboratory quality assurance data (including the results of the duplicate field sample) for data verification purposes. The analytical data will then be tabulated by AMEC along with any data qualifiers.

8.0 DECONTAMINATION PROCEDURES

The work-over rig, pump tubing, bailers, and any other down-well equipment used by Chevron's well pump contractor will be decontaminated with a hot water high-pressure washer prior to initiating water sampling operations. Water obtained from Chevron fresh water supply will be used for decontamination. Plastic sheeting will be placed under the work-over rig before sampling operations begin to reduce the potential for spillage of any fluids from purging operations. Down-hole equipment will be stored on the rig or racks to prevent contact with the ground surface. Wash water will be contained in United States Department of Transportation (DOT) approved 55-gallon drums or portable holding tank.

9.0 RESIDUAL MANAGEMENT

Purge water will be contained in DOT approved 55-gallon drums or portable holding tank depending on the volume of water produced. The drums or holding tanks will be managed in accordance with Chevron's Controlled Waste Management Program.

10.0 TECHNICAL REPORT

AMEC will prepare a technical report following verification of the analytical results. The technical report will include:

- Site plan with locations of wells sampled

- Description of field procedures
- Tables of analytical results organized by well API Number
- Copies of analytical reports including quality assurance/quality control procedures and analytical test methods
- Waste management and disposal procedures

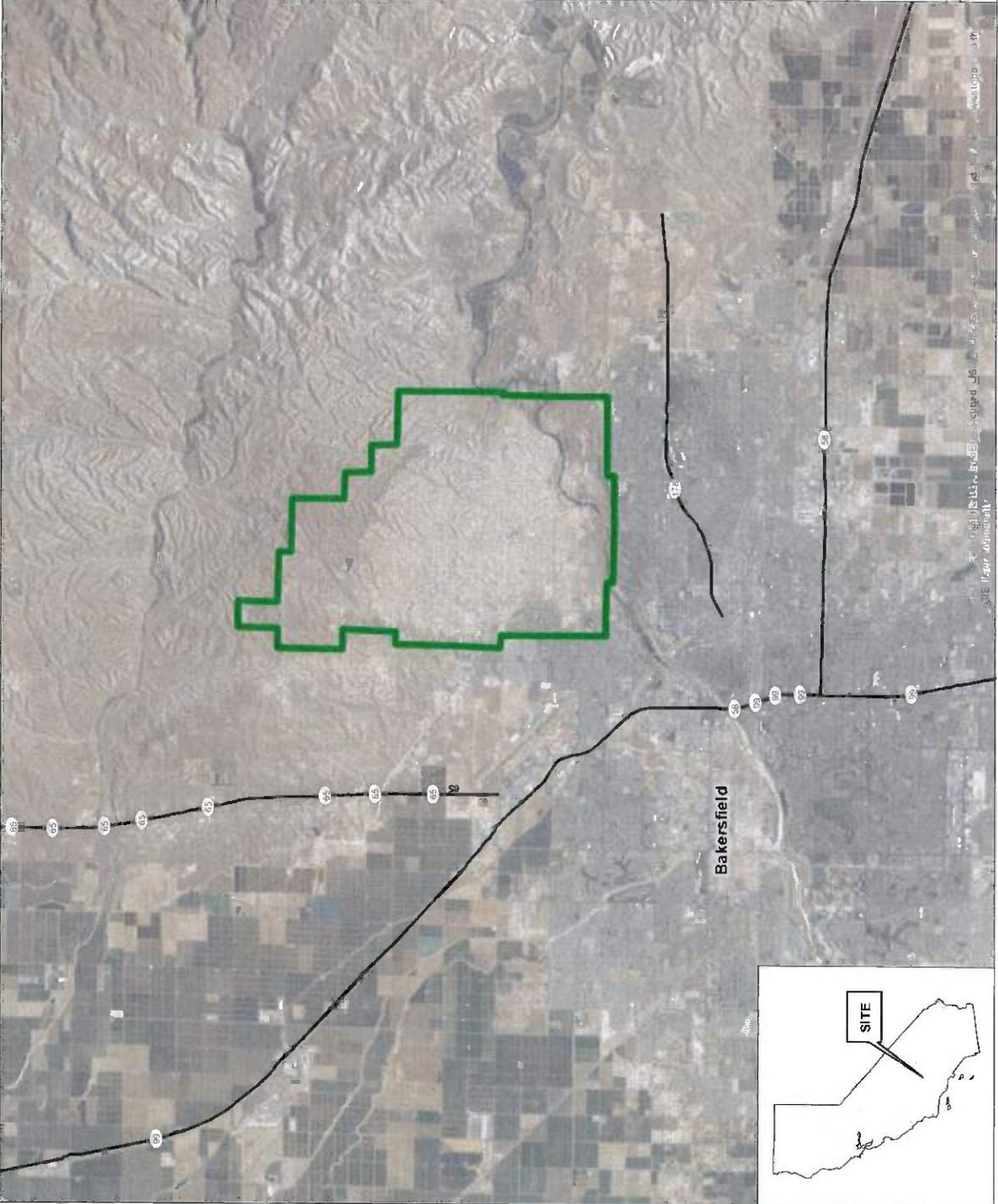
11.0 TIMING AND NOTIFICATIONS

Chevron, AMEC, and Chevron's well pump contractor will implement the work plan as soon as possible upon receipt of the Regional Water Quality Control Board's (RWQCB) approval of the work plan.

The RWQCB will be notified within three (3) days of when each well is scheduled to be sampled, and the RWQCB will be provided with regular updates as to the progress of well sampling activities.

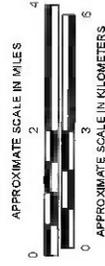
12.0 REFERENCES

- Bartow, Alan and Pittman, Gardner, M., 1983, The Kern River Formation, Southeastern San Joaquin Valley, California. Hydrogeologic Review and Evaluation of Potential Groundwater: United States Geologic Survey Bulletin 1529-D, (Bartow and Pittman, 1983).
- Bartow, J.A., and McDougall, K., 1984, Tertiary stratigraphy of the southeastern San Joaquin Valley, California USGS Bulletin 1529-J (Bartow and McDougall, 1984).
- California Division of Oil and Gas, 1985, California Oil & Gas Fields, Central California.: California Department of Conservation, Division of Oil and Gas, (DOGRR, 1985).
- California Division of Oil, Gas and Geothermal Resources, District Four, 2010, Proposal to Expand Water Disposal Project #34000035 by Chevron U.S.A. Inc., (DOGGR, 2010).
- Kuespert Jonathan, G. and Sanford, Steven J., 1990, Kern River Field History and Geology,: Structure, Stratigraphy and Hydrocarbon Occurrences of the San Joaquin Basin, California, (Kuespert and Sanford, 1990).



Explanation

Field boundary for Kern River Oil Field



Basemap modified from ESRI's online content sharing Program, World Imagery Layer, 0.5 meter resolution, UC-6 imagery, dated May 5, 2010.

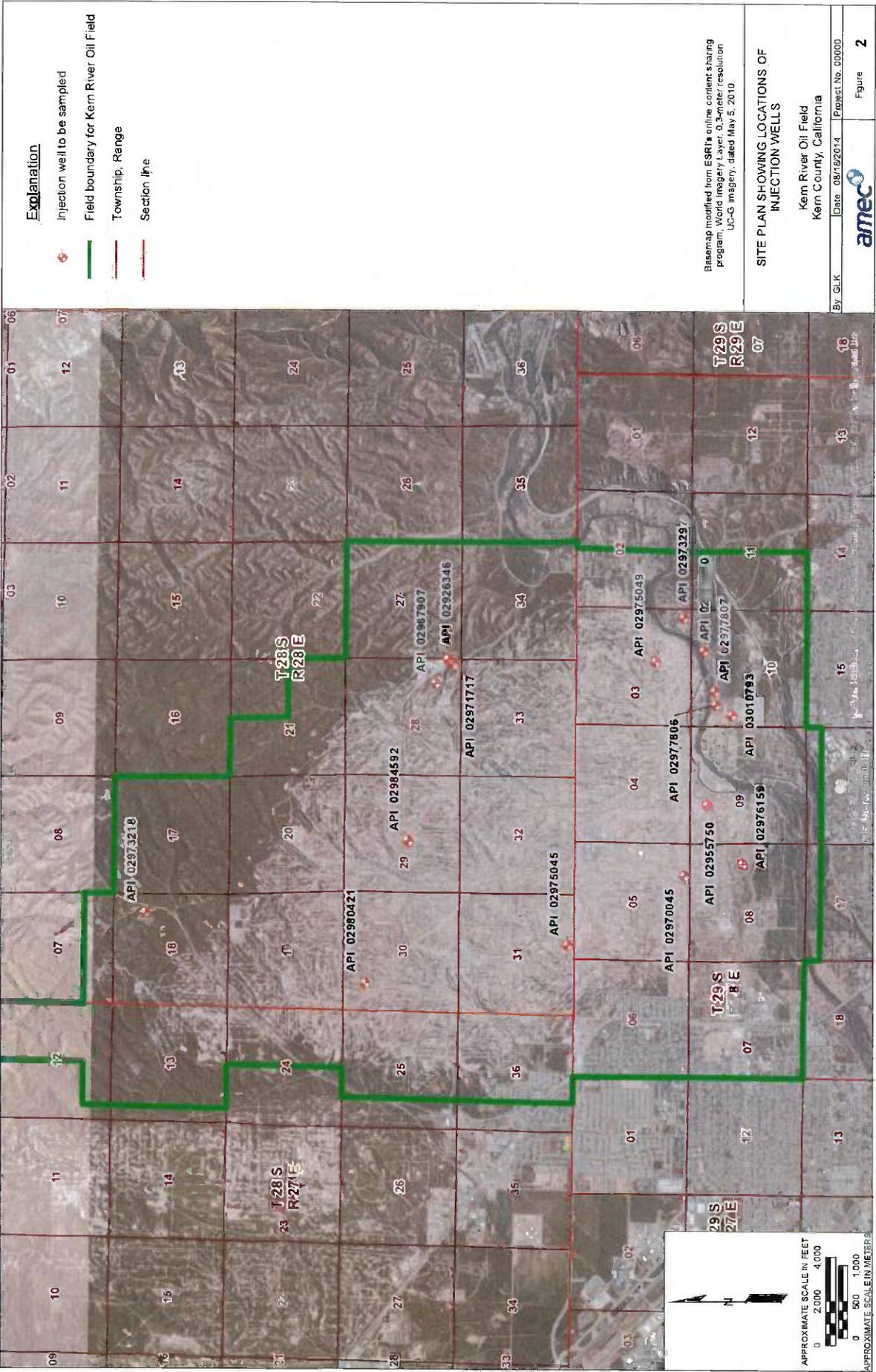
SITE LOCATION MAP

Kern River Oil Field
Kern County, California

BY: G.L.K. Date: 08/18/2014 Project No. 00090C

Figure 1





Explanation

- ◆ Injection well to be sampled
- Field boundary for Kern River Oil Field
- Township, Range
- Section line

Basecap modified from ESRI's online content sharing program
 World Imagery Layer, 0.3-meter resolution
 UC-3 imagery, dated May 5, 2010

SITE PLAN SHOWING LOCATIONS OF INJECTION WELLS

Kern River Oil Field
 Kern County, California

| | | |
|---------|------------------|-------------------|
| By: GJK | Date: 08/18/2014 | Project No. 00900 |
| | | Figure 2 |





APPENDIX A

Regional Water Quality Control Board Section 13267 Order



Central Valley Regional Water Quality Control Board

11 August 2014

Greta G. Lydecker
Chevron U.S.A. Inc.
9525 Camino Media
Bakersfield, CA 93311

**PERSONAL SERVICE AND
CERTIFIED MAIL
7012 1010 0003 3172 6950**

ORDER PURSUANT TO CALIFORNIA WATER CODE SECTION 13267. You are legally obligated to respond to this Order. Read this Order carefully.

Chevron U.S.A. Inc., is the operator of the injection wells identified as API numbers 02926346, 02955750, 02967907, 02970045, 02971717, 02972050, 02973218, 02973297, 02975045, 02975049, 02976159, 02977806, 02977807, 02980421, 02984592, and 03010793 (hereinafter "injection wells subject to this Order"). The California Division of Oil, Gas, and Geothermal Resources (Division) has determined that the injection wells subject to this Order have injected fluids produced by oil or gas extraction activities into one or more aquifers that may be suitable for drinking water supply and other beneficial uses. The issuance of this Order has been coordinated with the Division.

As described further below, this Order requires Chevron U.S.A. Inc., to submit information about the quality of groundwater within the zone(s) where fluids have been injected using the injection wells subject to this Order. In addition, this Order requires Chevron U.S.A. Inc., to submit the location and contact information for all water supply wells within one (1) mile of each of the injection wells subject to this Order. The Division will be contacting you to obtain other information that is also needed to assess the threat to groundwater quality posed by the operation of the injection wells subject to this Order. This Order is not intended to require Chevron U.S.A. Inc., to submit any information that the Division is concurrently obtaining from Chevron U.S.A. Inc.

The Central Valley Water Board's authority to require technical reports derives from Section 13267 of the California Water Code, which specifies, in part, that:

(a) A regional board ... in connection with any action relating to any plan or requirement authorized by this division, may investigate the quality of any waters of the state within its region.

(b)(1) In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region... that could affect the quality of waters within its region

KARL E. LONGLEY ScD, P.E., CHAIR | PAMELA C. CREEDON P.E., BCEE, EXECUTIVE OFFICER

1685 E Street, Fresno, CA 93706 | www.waterboards.ca.gov/centralvalley

shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The Central Valley Water Board is concerned about the potential threat to human health and potential impacts to water quality posed by the discharge of waste associated with the injection of fluids into aquifers that may be suitable for drinking water supply and other beneficial uses. The technical information and reports required by this Order are necessary to assess the potential threat to human health and potential impacts to water quality. The need to understand the potential threat to human health and potential impacts to water quality justifies the need for the information and reports required by this Order. Based on the nature and possible consequences of the discharges of waste, the burden of providing the required information, including reporting costs, bears a reasonable relationship to the need for the report, and the benefits to be obtained. Chevron U.S.A. Inc., is required to submit this information and reports because it is the operator of the injection wells subject to this Order.

Under the authority of California Water Code section 13267, the Central Valley Water Board hereby orders Chevron U.S.A. Inc., to:

1. **By 18 August 2014**, submit a work plan that adequately describes the procedures to collect a representative groundwater sample from the injection zone(s) for each of the injection wells subject to this Order. **By 4 September 2014**, submit a technical report with the analyses of each of the groundwater samples, in accordance with the water quality analysis and reporting requirements contained in Attachment A to this Order.

Note: If a representative sample cannot feasibly be collected from one or more of the injection zones for any of the injection wells subject to this Order within the required timeframe (e.g., due to constraints posed by the design of the injection well), then **by 25 August 2014**, submit a technical report demonstrating that collection of a representative sample from those injection zones is not feasible within the required timeframe, and proposing an alternative sampling procedure and expeditious time schedule for obtaining a representative sample of groundwater from those injection zones. Alternative sampling procedures and time schedules are subject to approval by the Assistant Executive Officer of the Central Valley Water Board.

2. **By 4 September 2014**, submit all previously-obtained analytical data for fluid samples collected from any injection zones within one (1) mile of each of the injection wells subject to this Order.
3. **By 4 September 2014**, submit a technical report containing the following:

- A. A list and location map of all water supply wells within one mile of each injection well subject to this Order.
- B. All available information for each identified water supply well, including the well owner name and contact information; type of well (i.e., domestic, irrigation, industrial, etc.); status (i.e., active, idle, etc.); well construction; borehole geophysical logs; and all analytical results for any water sample(s) collected from each water supply well. Notify Central Valley Water Board staff within 24 hours upon determination that any water supply well information cannot be obtained from the California Department of Water Resources because it is confidential.

Submissions pursuant to this Order must include the following statement signed by an authorized representative of Chevron U.S.A. Inc.:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The failure to furnish the required report, or the submission of a substantially incomplete report or false information, is a misdemeanor, and may result in additional enforcement actions, including issuance of an Administrative Civil Liability Complaint pursuant to California Water Code section 13268. Liability may be imposed pursuant to California Water Code section 13268 in an amount not to exceed one thousand dollars (\$1,000) for each day in which the violation occurs.

Any person aggrieved by this Order of the Central Valley Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with California Water Code section 13320. The State Water Board must receive the petition by 5:00 p.m., within 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations, and instructions applicable to filing petitions, may be found at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml, or will be provided upon request.

By 14 August, you must contact Dane S. Johnson of this office at (559) 445-5525 to discuss your proposed work plan and technical report.

All required technical information must be submitted to the attention of:

Dane S. Johnson
Central Valley Water Board
1685 E Street

Fresno, CA 93706

In addition, all information is to be copied to the Division, to the attention of:

Steven R. Bohlen, State Oil and Gas Supervisor
Department of Conservation, DOGGR
801 K Street
Sacramento, CA 95814-3500

Based on the information submitted in the work plan and/or technical report, additional information or action may be required.

Be advised that sections 13260 and 13264 of the California Water Code require any person who proposes to discharge waste that could affect waters of the state to submit a Report of Waste Discharge for any new discharge or change in the character, volume, or location of an existing discharge. Fluids produced by oil or gas extraction activities that can no longer be disposed of in the injection wells subject to this Order cannot be discharged to land or waters of the state prior to the issuance of Waste Discharge Requirements, and cannot be discharged to waters of the United States prior to the issuance of an National Pollutant Discharge Elimination System (NPDES) Permit. Failure to comply with these requirements may constitute a misdemeanor under Water Code section 13265 or a felony under Water Code section 13387, and may also subject Chevron U.S.A. Inc., to judicial or administrative civil liabilities. It is strongly recommended that you contact Central Valley Water Board staff to discuss any proposed changes to the discharge of the fluids that had previously been disposed of in an injection well subject to this Order.

Any questions regarding this matter should be directed to me at (559) 445-5116 or at Clay.Rodgers@waterboards.ca.gov.



Clay L. Rodgers
Assistant Executive Officer

Enclosure: Attachment A

ATTACHMENT A

Water Quality Analysis

Groundwater samples collected from wells and injection zones shall be analyzed by a laboratory certified by the Environmental Laboratory Accreditation Program, using current applicable EPA-approved analytical methods for water for the following:

- A. Total dissolved solids
- B. Metals listed in California Code of Regulations, title 22, section 66261.24, subdivision (a)(2)(A)
- C. Benzene, toluene, ethylbenzene, and xylenes
- D. Total petroleum hydrocarbons for crude oil
- E. Polynuclear aromatic hydrocarbons (including acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[a]pyrene, benzo[g,h,i]perylene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorene, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene)
- F. Radionuclides listed under California Code of Regulations, title 22, Table 64442
- G. Methane
- H. Major and minor cations (including sodium, potassium, magnesium, and calcium)
- I. Major and minor anions (including nitrate, chloride, sulfate, alkalinity, and bromide)
- J. Trace elements (including lithium, strontium, boron, iron, and manganese)

Water Quality Reporting

Water quality information shall be submitted in a technical report that includes, at a minimum:

- A. Site plan with locations of well(s) sampled.
- B. Description of field sampling procedures.
- C. Table(s) of analytical results organized by well number (including API number).
- D. Copies of analytical laboratory reports, including quality assurance/quality control procedures and analytical test methods.
- E. Waste management and disposal procedures.



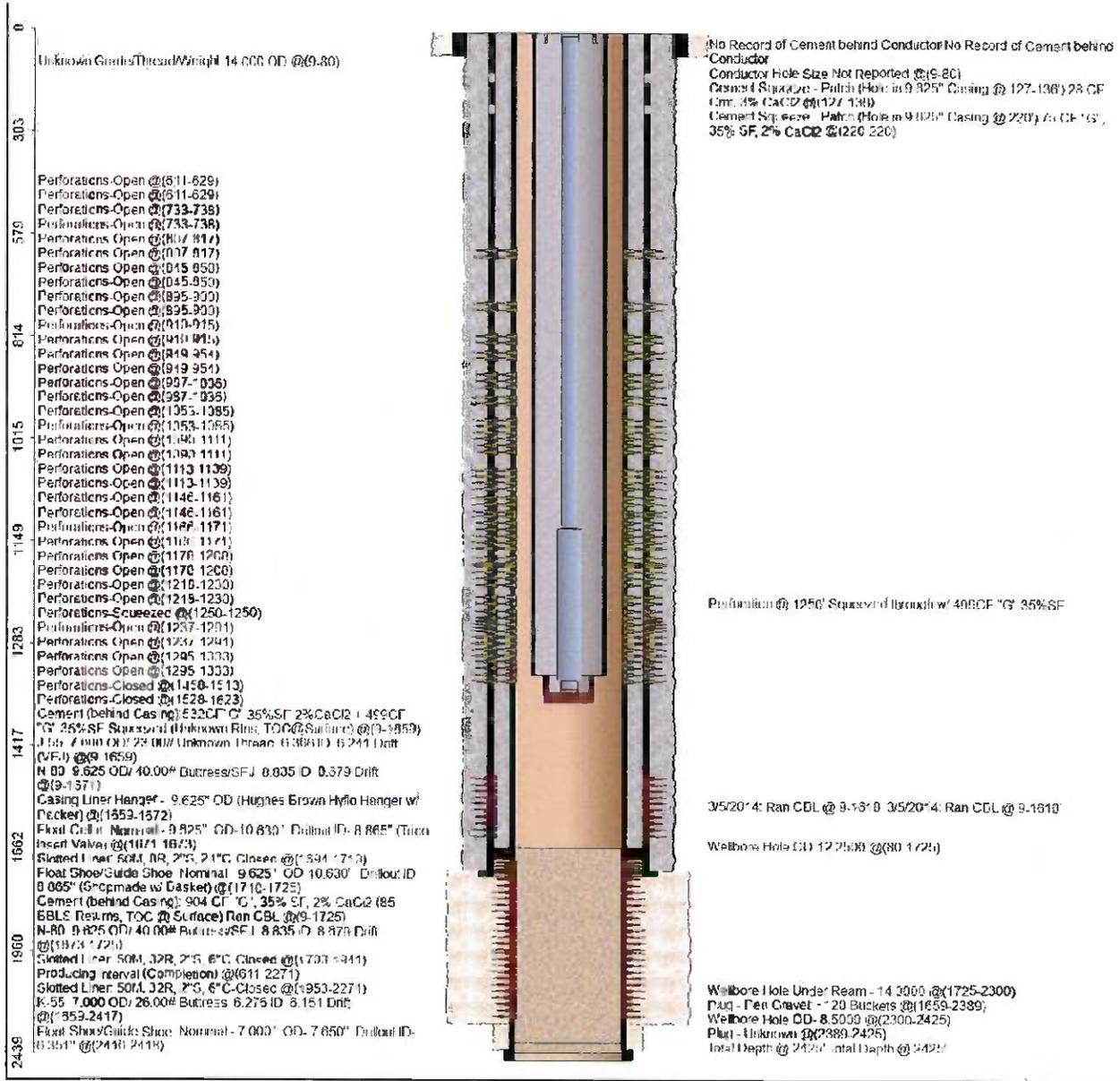
APPENDIX B

Wellbore Diagrams

Chevron U.S.A. Inc. Wellbore Diagram : AN D1-31

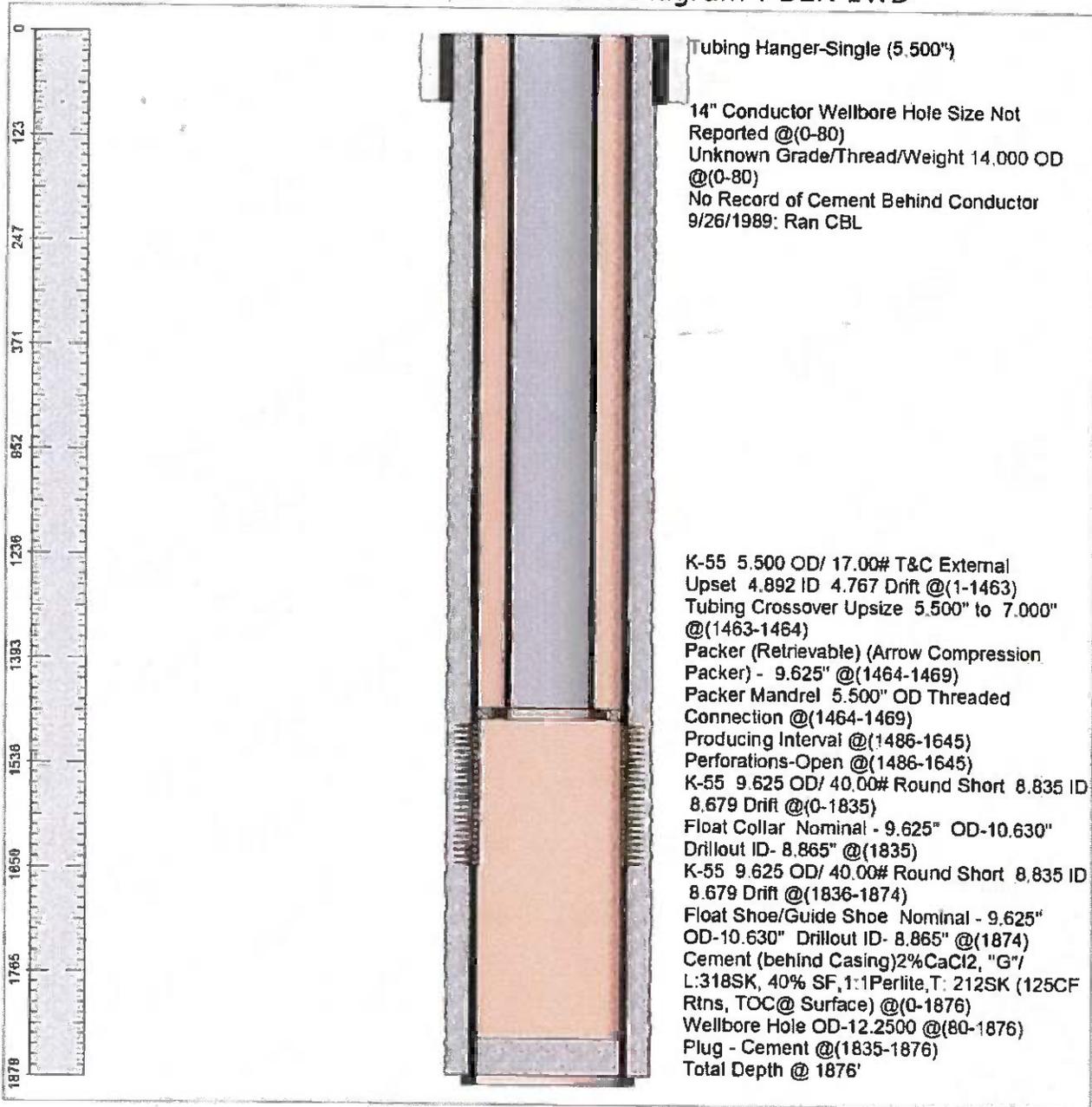


[DOGGR Lease Name] American Naphtha [EC Well No.] D1-31
 [Lease] AMERICAN NAPHTHA [Well Name] AN D1-31 [Field] KERN RIVER
 [Location] American Naphtha/D1-31 [Sec.] N/A [Blk] _____ [Survey] N/A
 [County] Kern [St.] California [Refno] _____ [API] 0402975045 [Cost Center] UCA520500
 [Section] 31 [Township] 28S [Range] 28E
 [Base Meridian] MD [Current Status] INACTIVE [Dead Man Anchors Test Date] NONE
 [Directions] _____

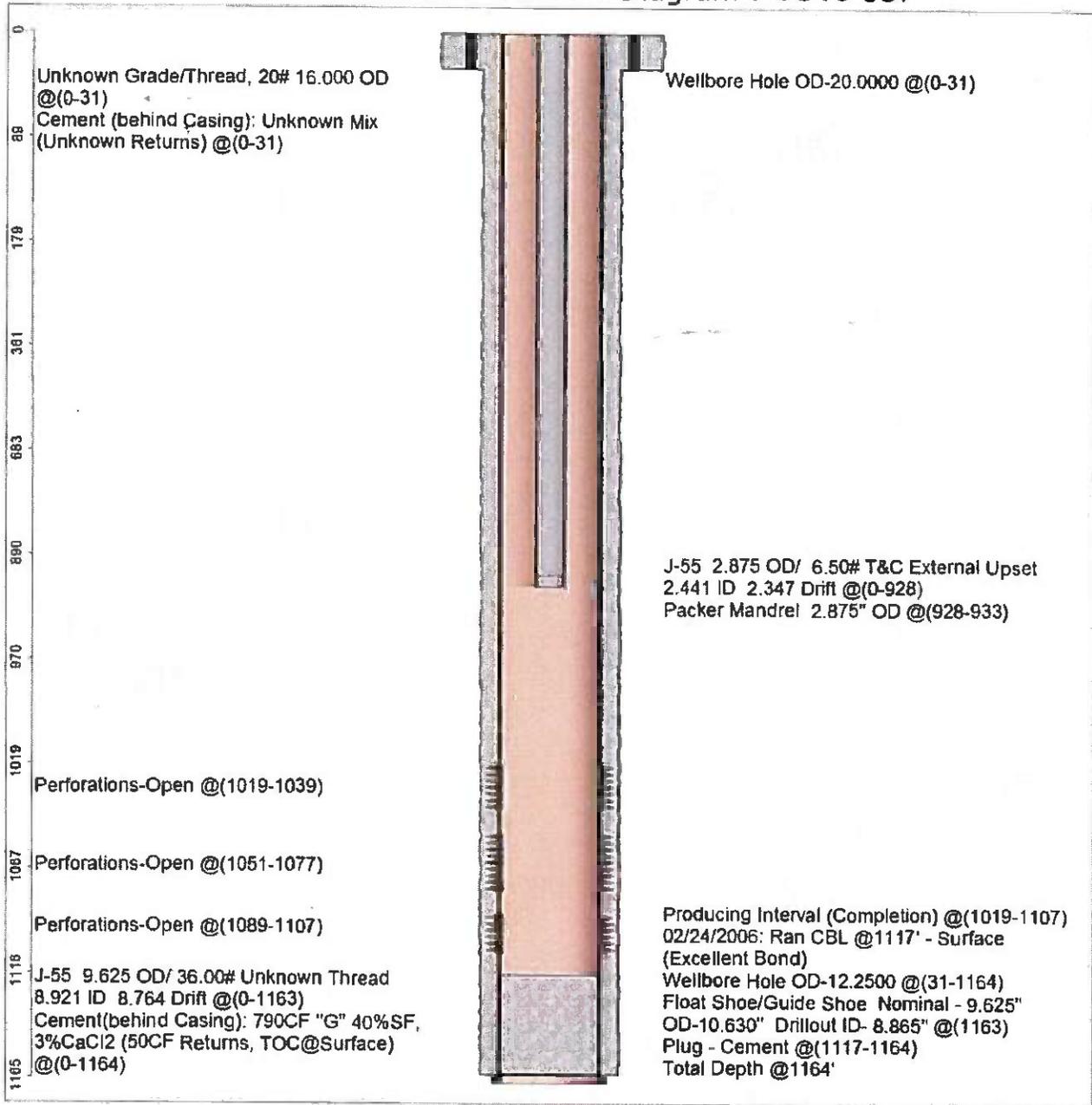


[Ground Elevation (MSL)] 618.20 [Spud Date] 04/25/1985 [Compl. Date] 05/03/1985
 [Well Depth Datum] Derrick Floor [Elevation (MSL)] 627.20 [Correction Factor] 9.00
 [Last Updated by] ckrx [Date] 08/18/2014 [TD] 2425.00 [PBTD] N/A
 [null] null [null] null

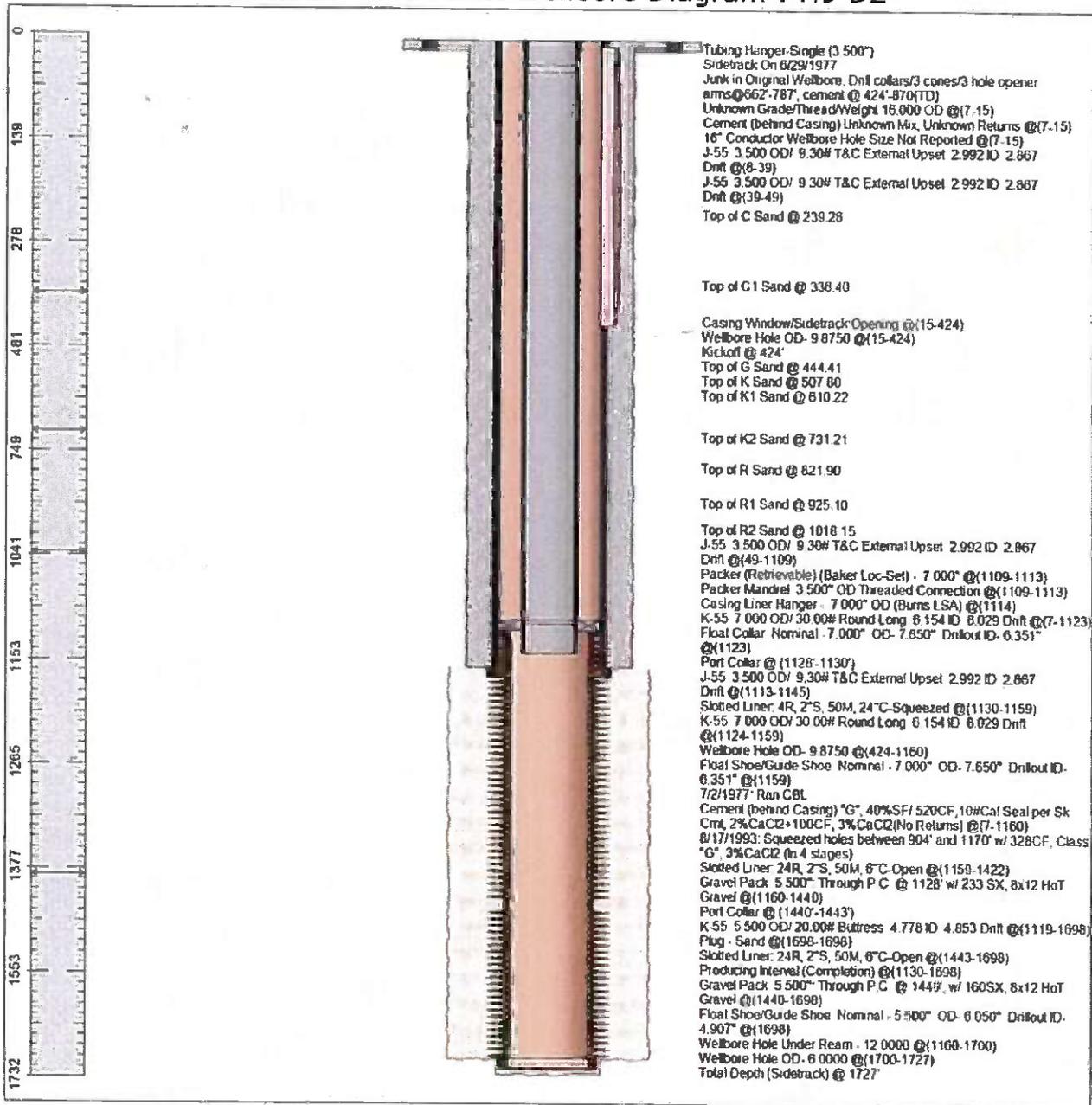
Chevron U.S.A. Inc. Wellbore Diagram : BER 1WD



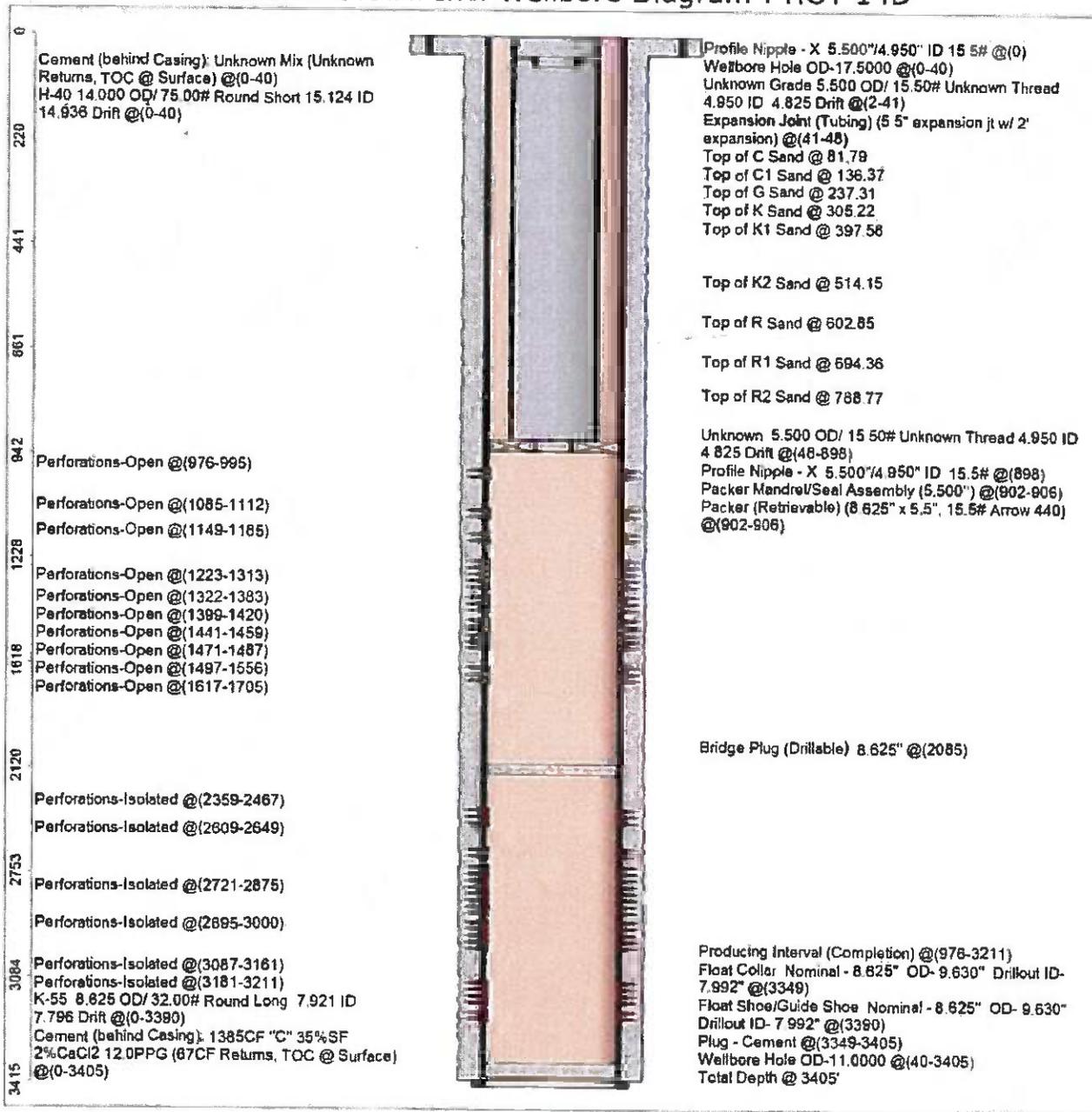
Chevron U.S.A. Inc. Wellbore Diagram : GOV3 557



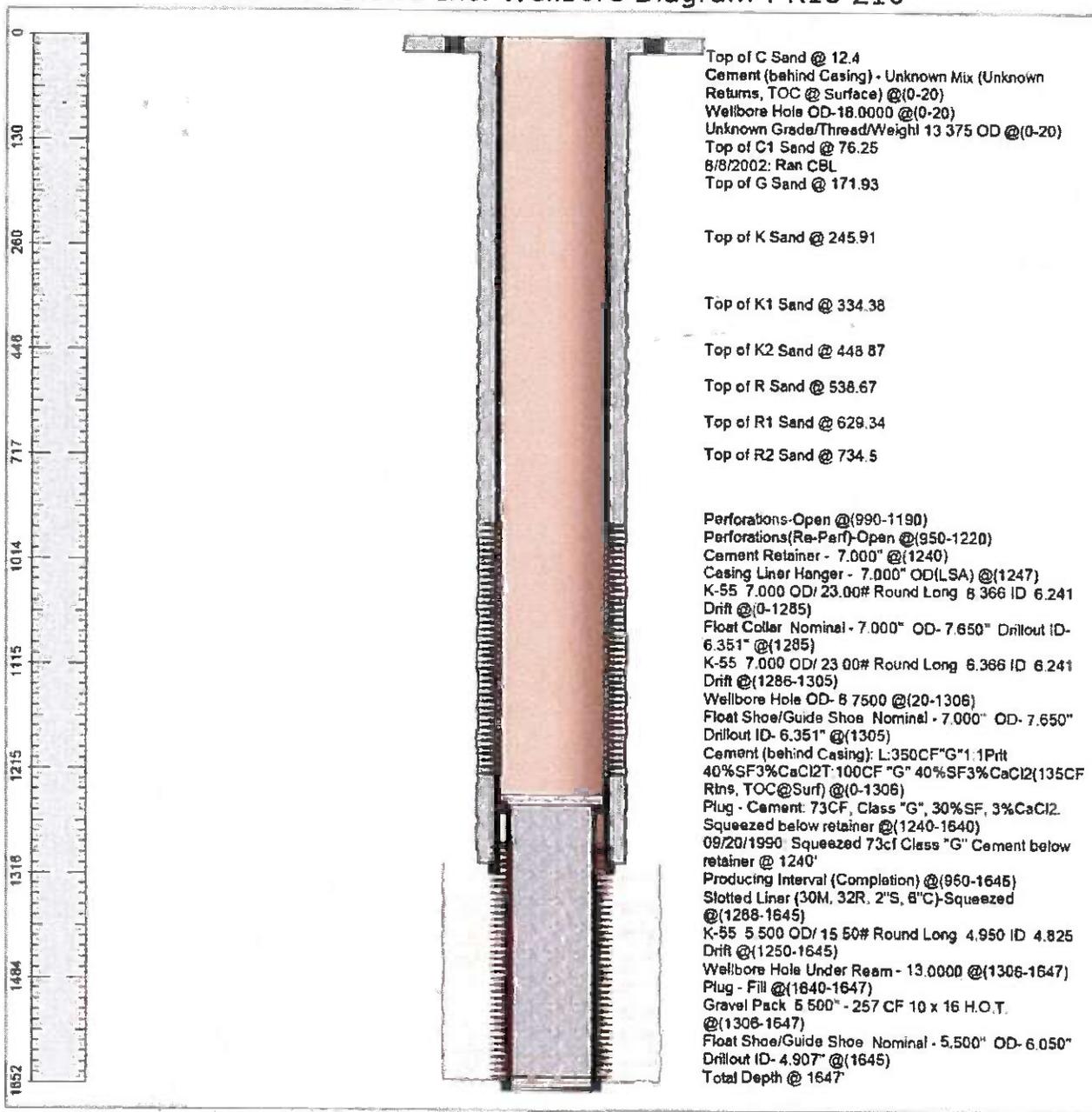
Chevron U.S.A. Inc. Wellbore Diagram : H9 D2



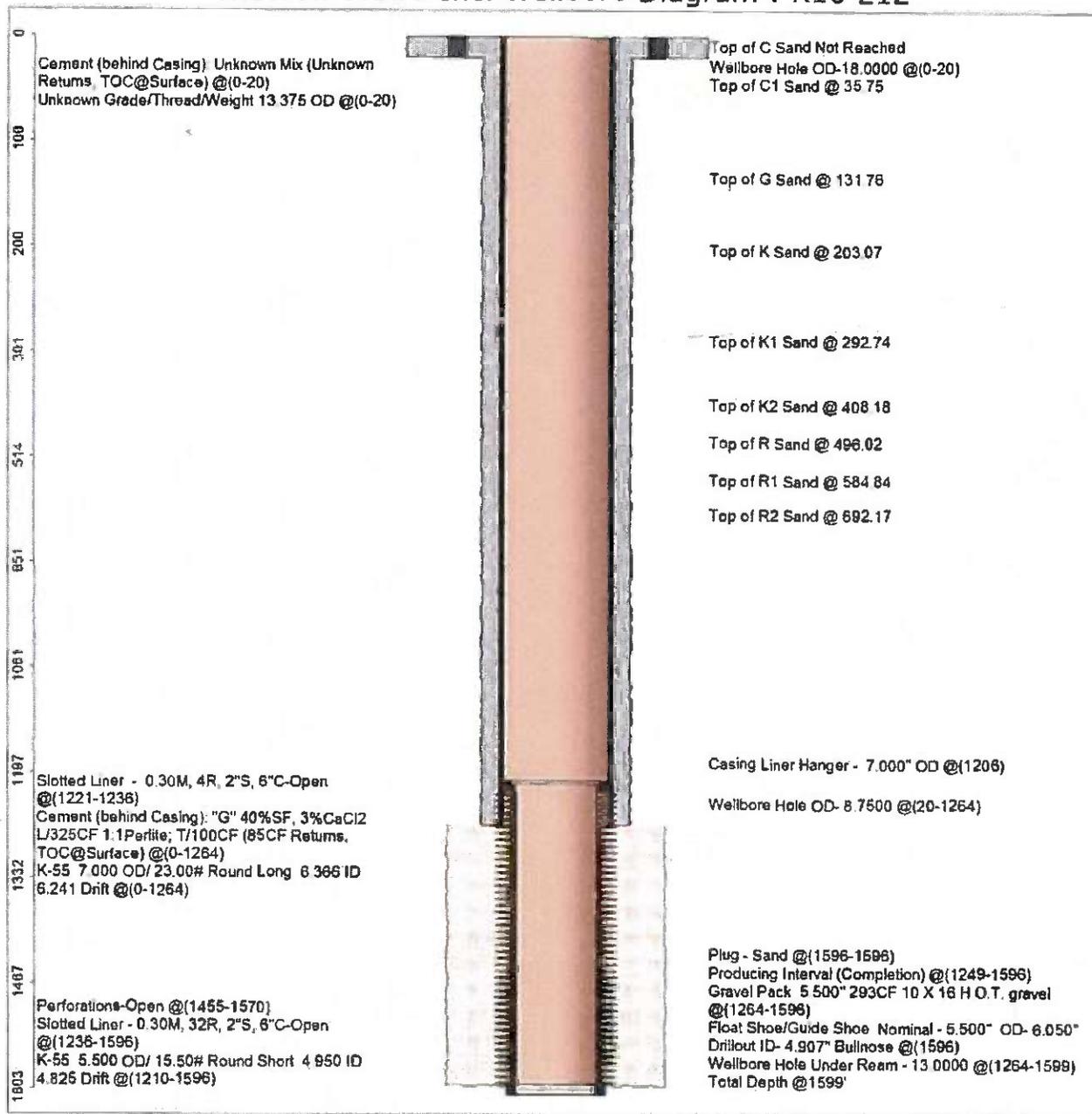
Chevron U.S.A. Inc. Wellbore Diagram : HOT 14D



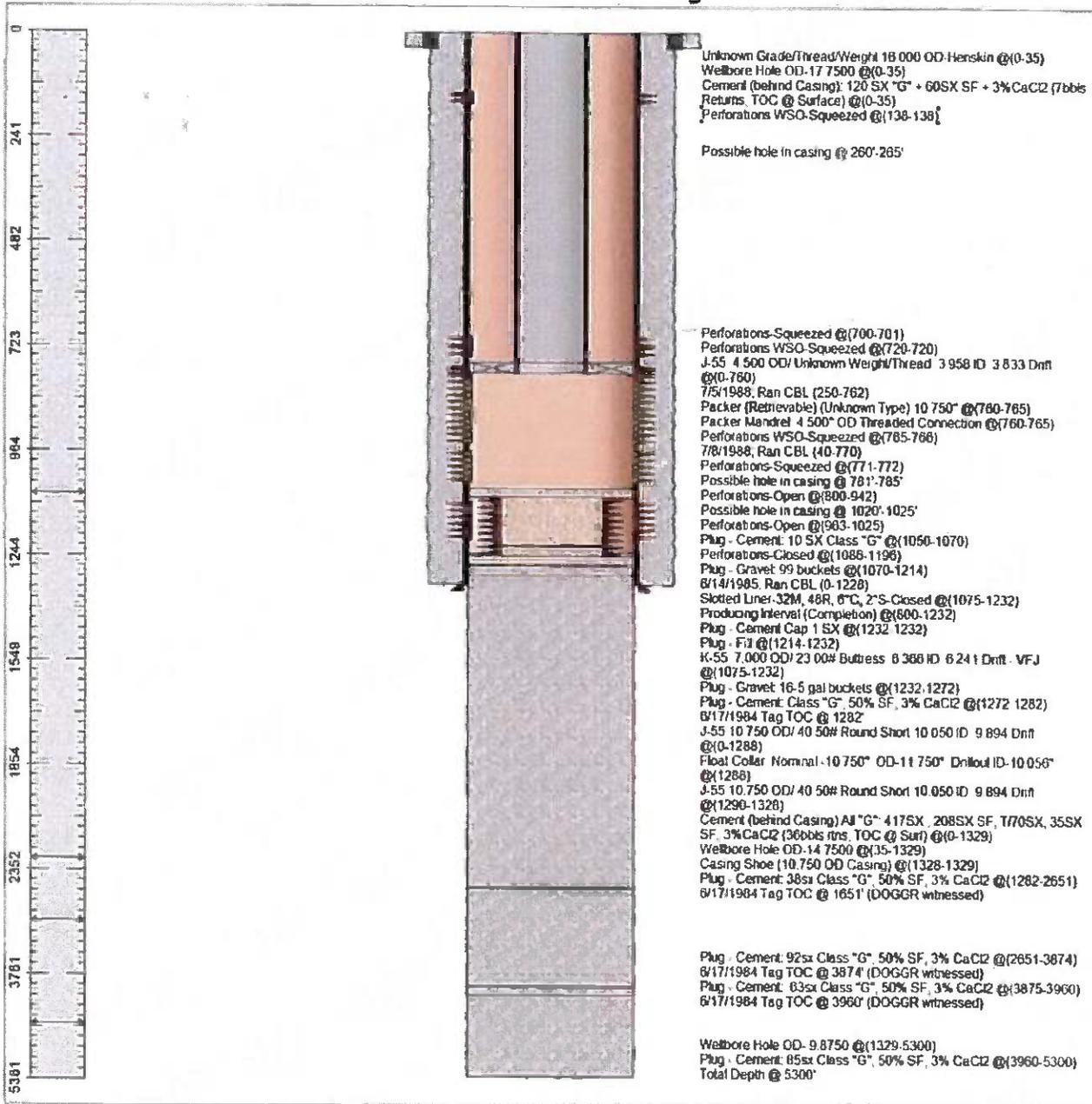
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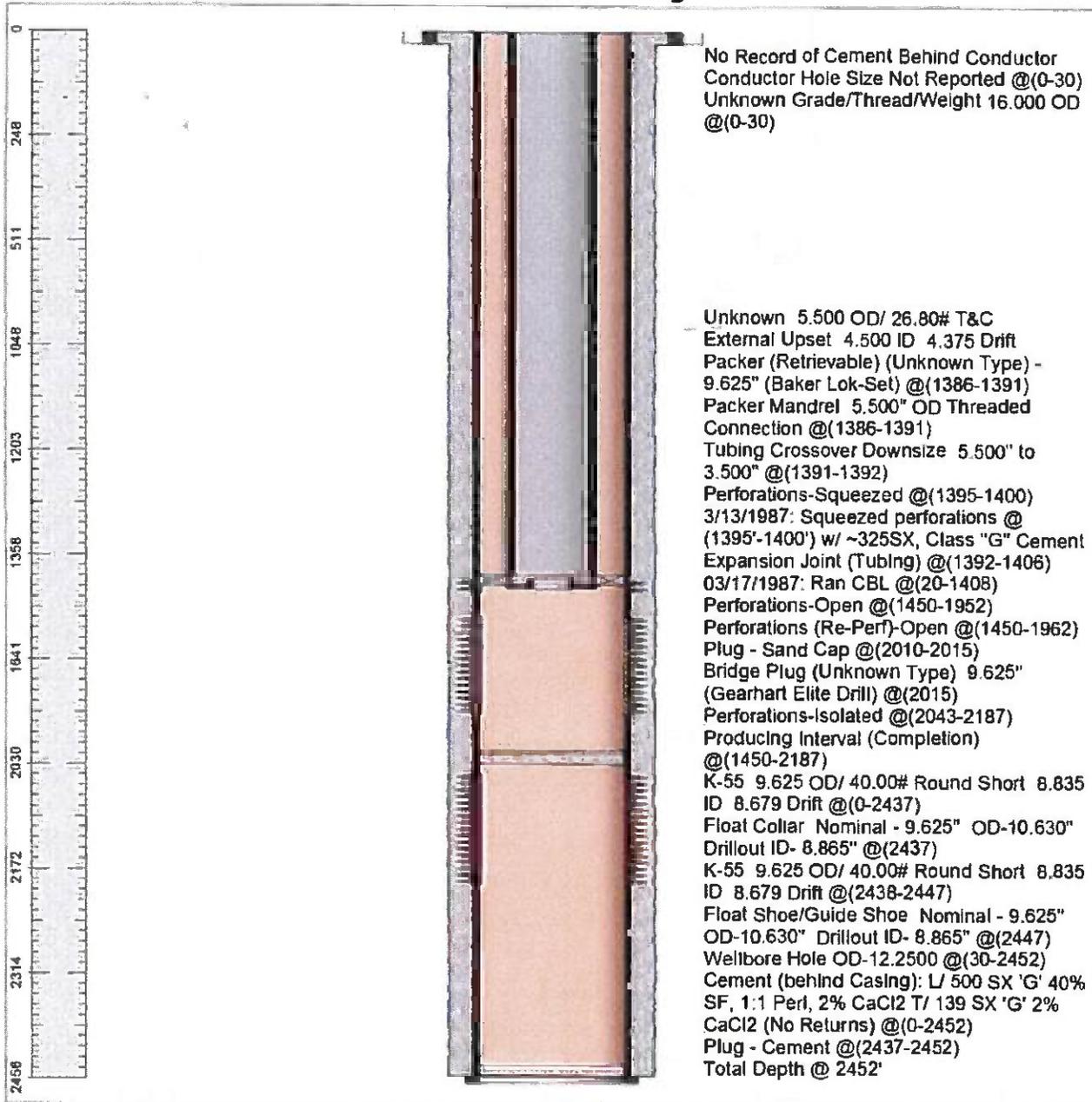
Chevron U.S.A. Inc. Wellbore Diagram : K10 212



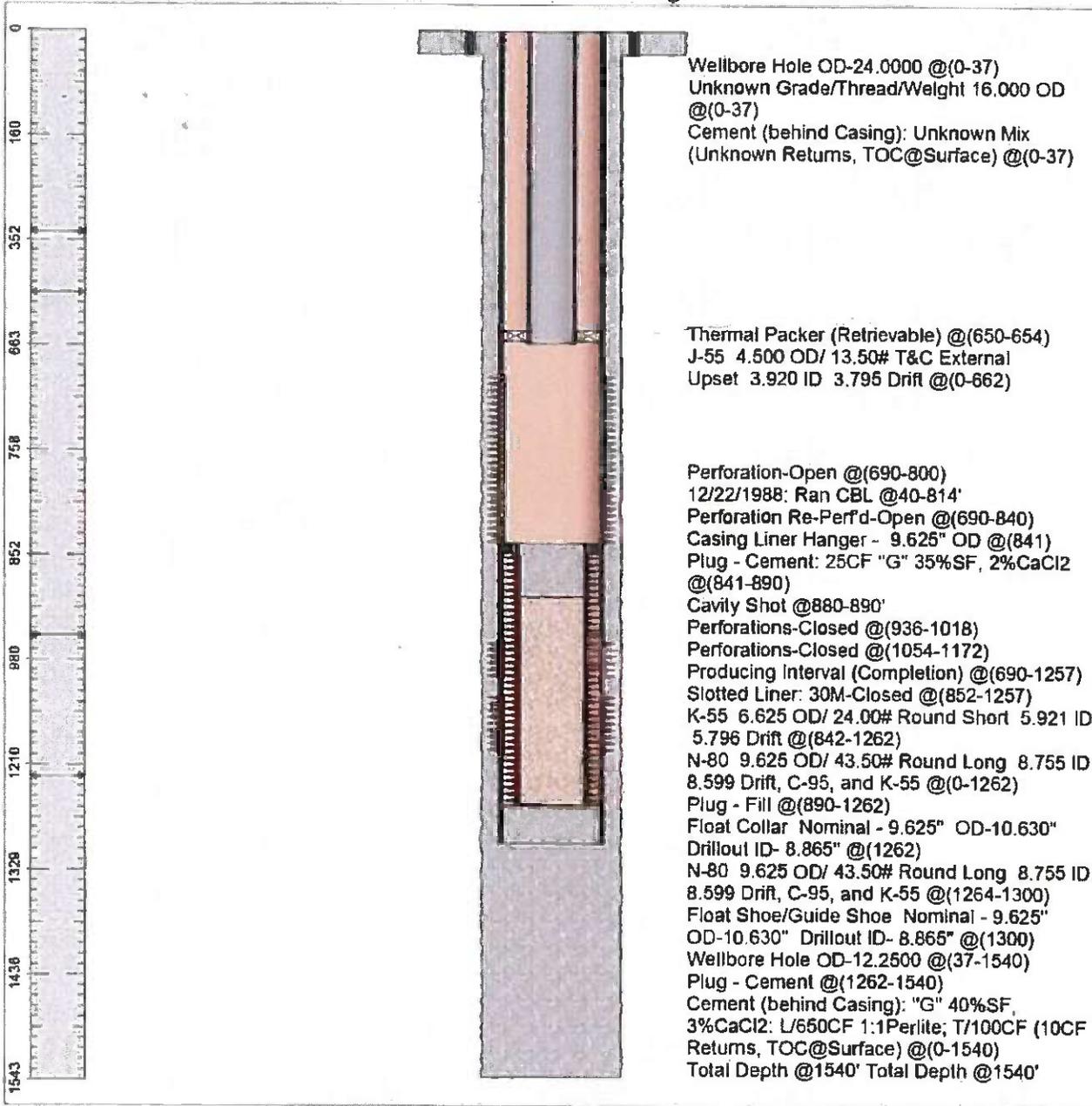
Chevron U.S.A. Inc. Wellbore Diagram : K10 2X



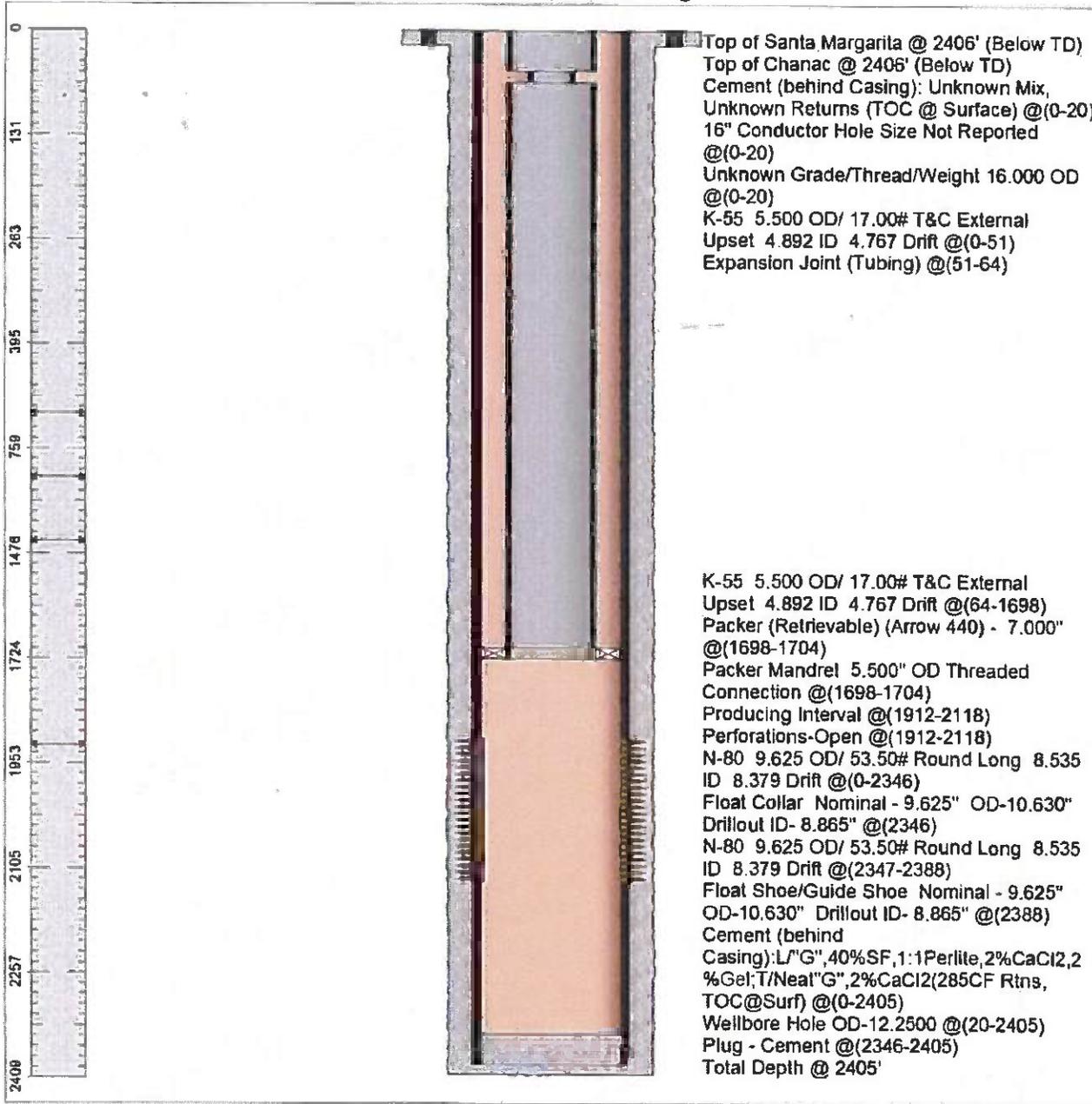
Chevron U.S.A. Inc. Wellbore Diagram : MAY 1WD



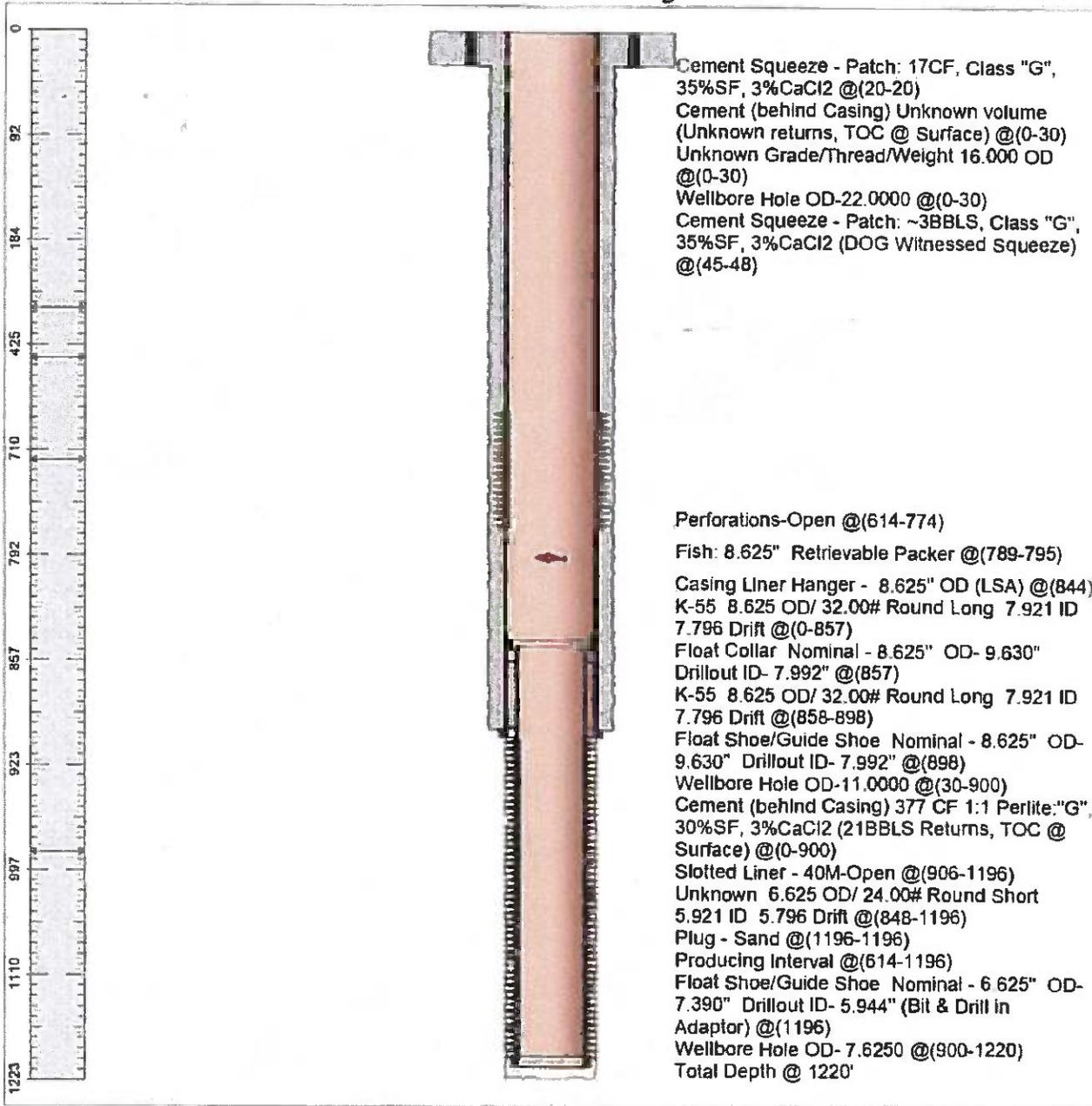
Chevron U.S.A. Inc. Wellbore Diagram : MCM 1WD



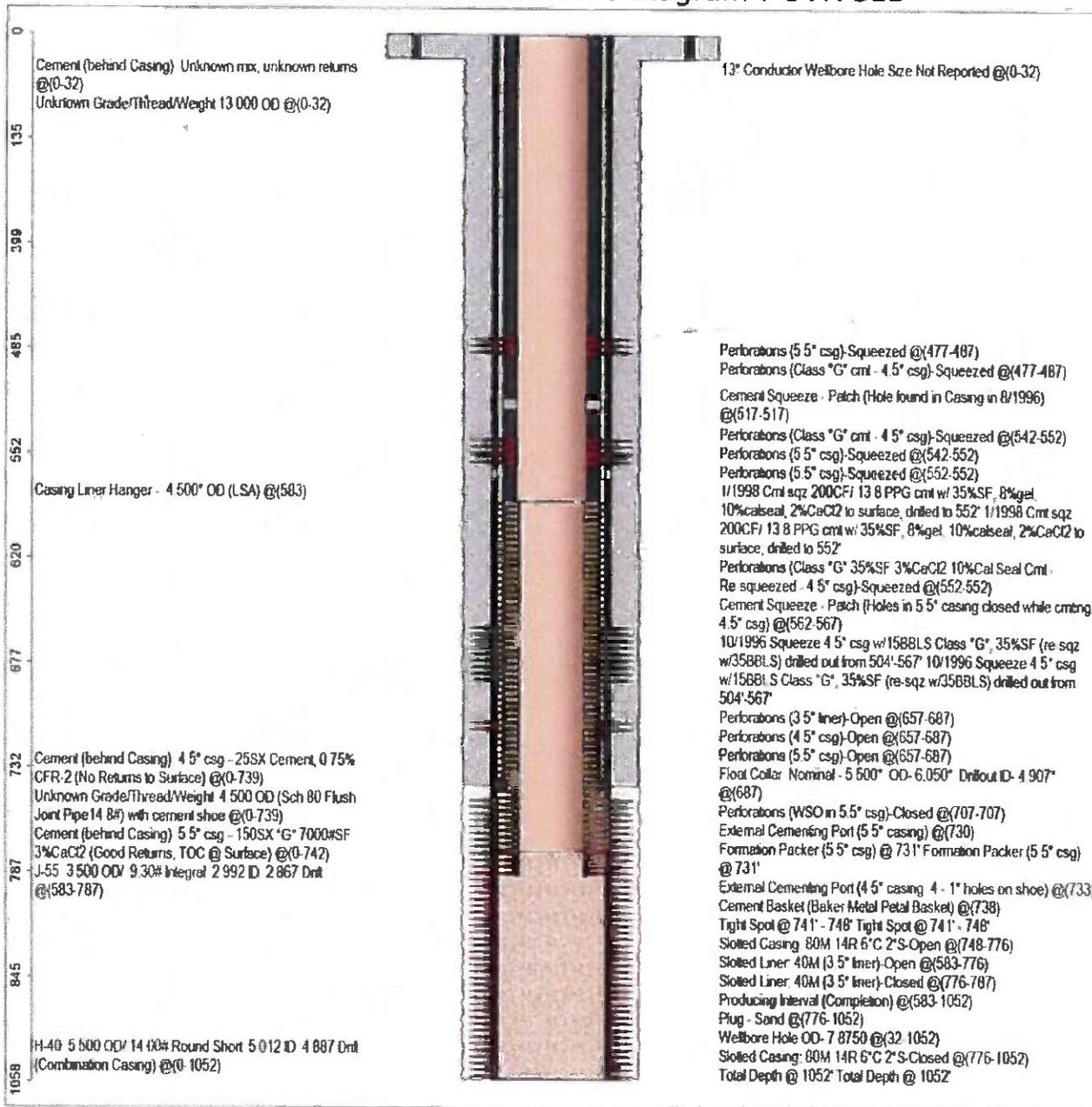
Chevron U.S.A. Inc. Wellbore Diagram : OR 1WD



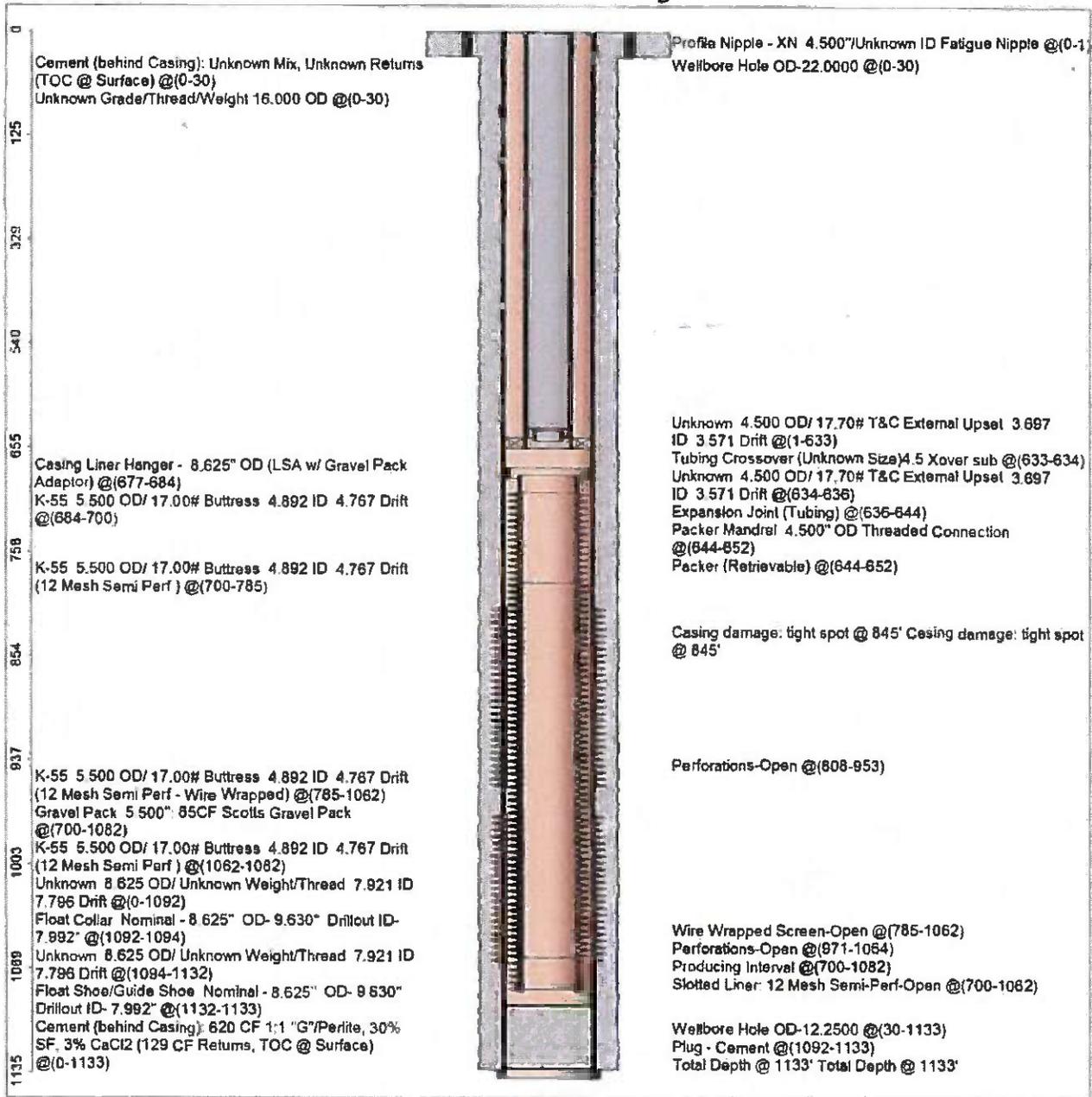
Chevron U.S.A. Inc. Wellbore Diagram : OVR 34WD



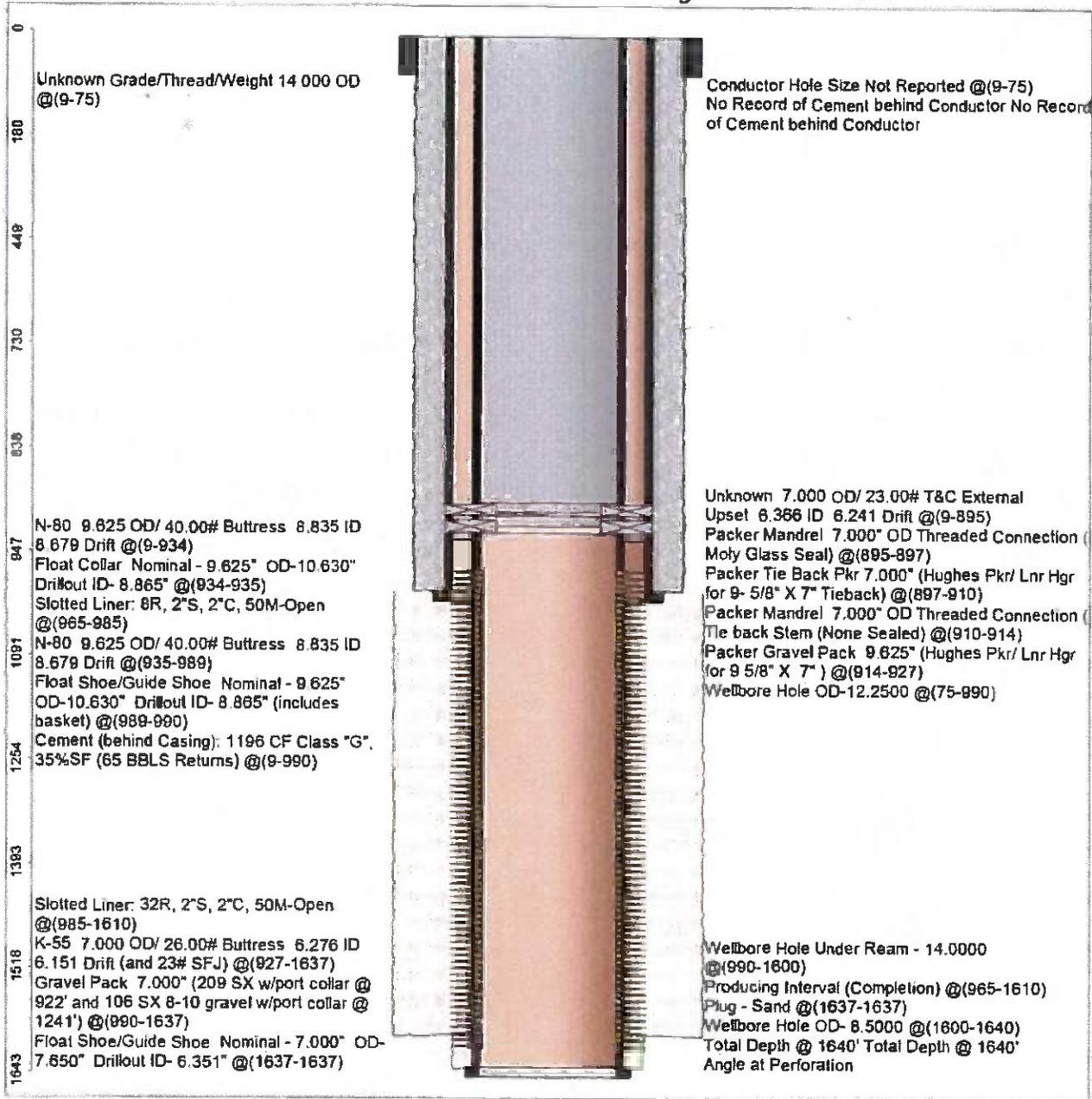
Chevron U.S.A. Inc. Wellbore Diagram : OVR 31D



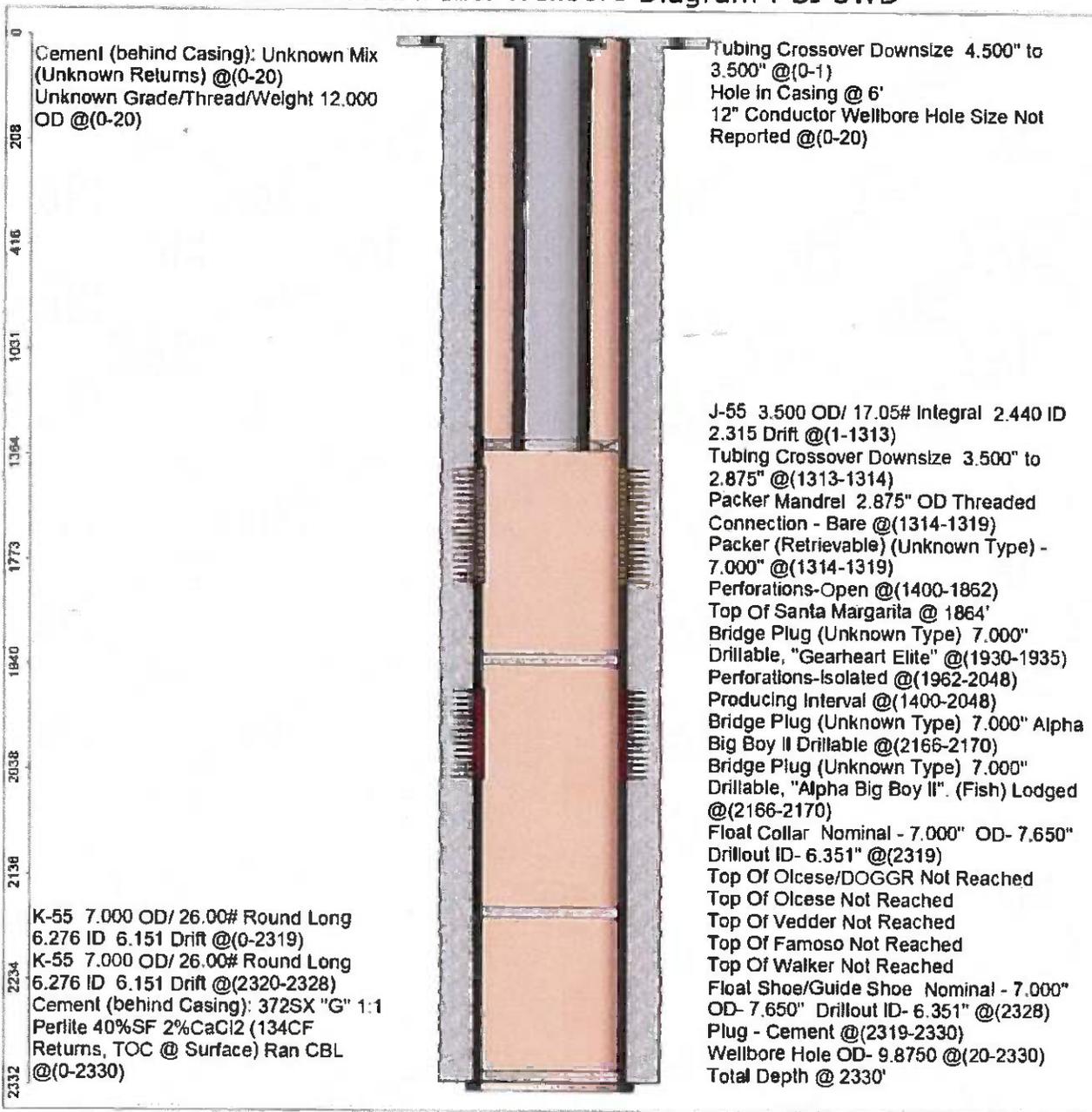
Chevron U.S.A. Inc. Wellbore Diagram : OVR 35WD



Chevron U.S.A. Inc. Wellbore Diagram : S3 D3-3



Chevron U.S.A. Inc. Wellbore Diagram : SJ 3WD





APPENDIX C

API 02975045 Well Record

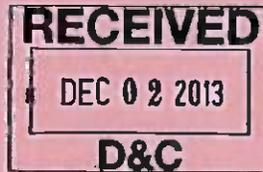


DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS & GEOTHERMAL RESOURCES
4800 Stockdale Hwy., Suite 100 Bakersfield, CA 93309 - 0279
PERMIT TO CONDUCT WELL OPERATIONS

No. P413-8194

| | Old | New |
|------------|------------|------------|
| FIELD CODE | <u>340</u> | <u>340</u> |
| AREA CODE | <u>00</u> | <u>00</u> |
| POOL | <u>08</u> | <u>05</u> |

Mr. Kelsey Helburg
Chevron U.S.A. Inc. (C5640)
P.O. Box 1392
Bakersfield, CA 93302



Bakersfield, California
November 26, 2013

Your proposal to **Rework/Convert to Producer** well "American Naphtha" D1-31, A.P.I. No. **029-75045**, Section **31, T. 28S, R. 28E, MD B. & M.**, Kern River field, -- area, **Kern River** pool, **Kern** County, dated **11/12/2013**, received **11/14/2013** has been examined in conjunction with records filed in this office.

THE PROPOSAL IS APPROVED PROVIDED:

1. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.
2. Blowout prevention equipment, as defined by this Division's publication No. M07, shall be installed and maintained in operating condition and meet the following minimum requirements:
 - a. Class II 2M on the 9 5/8" casing.
 - b. A 2M lubricator for wireline & perforating operations.
3. A diligent effort shall be made to clean out to **1483'**.
4. The wellbore shall be flushed by pumping at least one casing volume of lease water from approved **cleanout depth' effective depth** to the surface prior to commencing plugging operations.
5. During placement of the bentonite plug(s), wellbore water temperature shall be maintained at, or below 120° Fahrenheit.
6. A minimum 24 hour hydration period is required after the placement of a bentonite zone plug.
7. **THIS DIVISION SHALL BE NOTIFIED TO:**
 - a. Witness the clean-out depth at **1483'**.
8. The 7" casing is cemented with sufficient cement to fill behind the casing from the shoe to the surface.

NOTE:

1. Use of sodium bentonite as a plugging material, shall conform to the "Bentonite Plugging Guidelines Operational Field Rules".

SCANNED

Blanket Bond Dated:8/22/2002

Tim Kustic
State Oil & Gas Supervisor

Engineer Martha Winkler
Direct (661) 334-3668
Office (661) 322-4031

By Amie A. [Signature]

MM/bgr

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.

Records for work done under this permit are due within 90 days after the work has been completed or the operations have been suspended.

OG111



APPENDIX D

AMEC Environment & Infrastructure, Inc., Protocols



PROTOCOL

WATER LEVEL, WELL DEPTH, AND FLOATING PRODUCT MEASUREMENTS

1.0 INTRODUCTION

This protocol describes the procedures to be followed during water level, well depth, and free product measurements. The procedures presented herein are intended to be of general use and may be supplemented by a work plan and/or health and safety plan. As the work progresses and if warranted, appropriate revisions may be made by the project manager. Detailed procedures in this protocol may be superseded by applicable regulatory requirements.

2.0 WATER LEVEL AND WELL DEPTH MEASUREMENTS

A DAILY FIELD RECORD will be completed for each day of fieldwork. Water levels will be recorded on a WATER LEVEL MONITORING RECORD. Following review by the project manager, the original records will be kept in the project files.

Water level measurements at a site will be taken as quickly as practical, to best represent the potentiometric surface across the site at a single time. If pressure is suspected or has developed inside the well casing, the well will be allowed to stand without a cap for a few minutes or until the water level stabilizes before taking the water level measurement. Water level measurements will be recorded to the nearest hundredth (0.01) foot, and well depth measurements will be noted to at least the nearest half (0.5) foot. Equipment placed in the wells for water level and well depth measurements will be cleaned prior to reuse, as discussed in Section 4.0. Care will be taken not to drop foreign objects into the wells and not to allow the tape or sounding device to touch the ground around the well during monitoring.

2.1 WATER LEVEL MEASUREMENTS

Water level measurements will be performed by one of the following methods:

A. Wetted-Tape Method

A steel surveyor's tape will be prepared by coating several feet of the lower end of the tape with chalk or water-finding paste. A weight is attached to the lower end of the steel tape to keep it taut. The tape is lowered into the well until a foot or two of the chalked portion is submerged.

A tape without weight can be used if the well opening or pump casing clearance is too small and restricts the passage of the weight. The proper length to lower the tape may have to be determined experimentally. Measurement will be done as follows:

1. Lower and hold the tape at an even foot mark at the measuring point (MP) and note this tape reading.
2. Remove the steel tape from the well. Add or subtract the wetted length from the even foot mark noted in Step 1, as appropriate for your tape, and record this as water level below MP on the WATER LEVEL MONITORING RECORD.

B. Electric Sounder Method

An electric sounder consists of a contact electrode suspended by an insulated electric cable from a reel that has an ammeter, a buzzer, a light, or other closed circuit indicator attached. The indicator shows a closed circuit and flow of current when the electrode touches the water surface. Electric sounders will be calibrated periodically by measuring each interval and remarking them where necessary.

The procedure for measuring water levels with an electric sounder is as follows:

1. Turn sounder on, and check that it is working.
2. Lower the electric sounder cable into the well until the ammeter or buzzer indicates a closed circuit. Raise and lower the electric cable slightly until the shortest length of cable that gives the maximum response on the indicator is found.
3. With the cable in this fixed position, note the length of cable at the MP.
4. If the electric cable is not graduated between foot markings, use a pocket steel tape measure (graduated in hundredths of a foot) to interpolate between consecutive marks. Care must be taken to ensure that the tape measurements are subtracted from the graduated mark footage value when the water level hold point (determined in Step 3) is below the graduated mark and added when it is above the mark. Record the resulting value as water level below MP on the WATER LEVEL MONITORING RECORD.

2.2 WELL DEPTH MEASUREMENTS

The depth of a well will be measured by sounding with a weighted steel surveying tape or an electric sounding line, weighted when possible. Procedures to be followed are described below.

1. Measure the distance between the zero mark on the end of the measuring line and the bottom of the weight.
2. Lower the weighted measuring line into the well until the line becomes slack or there is a noticeable decrease in weight, which indicates the line is touching the bottom of the well. Raise the line slowly until it becomes taut (this may have to be done several times to determine the taut point) and, with the line in this fixed position, note the reading at the MP. Add the distance described in Step A to this reading, and record the resulting value as well depth. This procedure will be performed before and after initial well development or as necessary to determine well casing depth.
3. Record the well depth value on a WATER LEVEL MONITORING RECORD.



3.0 FLOATING PRODUCT MEASUREMENTS

Floating product level/thickness will be measured using an interface probe or steel tape and paste. The electric sounder and bailer method is limited to checking the wells for the presence or absence of floating product. Procedural details are provided below.

All floating product level measurements shall be recorded to the nearest hundredth foot (0.01 foot). All equipment placed in the wells for floating product level measurement will be cleaned prior to reuse, as discussed in Section 4.0. Care will be taken not to drop foreign objects into the wells and not to allow the measuring device to touch the ground around the well during monitoring.

3.1 INTERFACE PROBE METHOD

The floating product-water interface probe consists of a electrode suspended by a graduated tape from a reel that has a light and two-toned audible signals. Audible and visual signals occur when the electrode touches the floating product surface and then the water surface.

The procedure for measuring floating product levels using the interface probe is as follows:

1. Turn interface meter on, and check that it is working.
2. Lower the interface meter into the well slowly until the meter signals an interface. Note if the interface is oil or water.
3. Raise and lower the meter slightly until the shortest length of cable that gives the maximum response on the meter is found.
4. With the cable in this fixed position, note the length of cable at the measuring point.
5. If the interface recorded above was oil, slowly lower the meter until a water interface signal is given.
6. Repeat steps 3 and 4 above.
7. Turn the probe off and store in a case after cleaning.

3.2 ELECTRIC SOUNDER AND BAILER METHOD

The procedure for checking present of floating product using an electric sounder and an acrylic bailer is as follows:

1. Measure the water level with the electric sounder as described in Section 2.1.
2. Suspend a clean acrylic bailer on a line and slowly lower the bailer into the well until it partially intersects the groundwater surface.
3. Slowly pull the bailer to the surface.
4. Let the bailer stand for several minutes.
5. Observe the surface of the water within the bailer. Measure the thickness of the product in the bailer to the nearest 0.01 foot and record the value on the sampling



record. If the product is less than 0.01 foot thick, the amount should be recorded as less than 0.01 foot. If only a sheen is observed or no floating product is seen, these observations should be recorded.

3.3 STEEL TAPE AND PASTE METHOD

1. Measure the water level with an electric sounder as described in Section 2.1.
2. Spread a thin layer of gasoline or oil-finding paste on one side of a steel surveyor's tape, beginning at the zero-foot mark and extending up the tape about 1-foot more than the anticipated thickness of the floating product.
3. Spread a thin film of water-finding paste on the opposite side of the tape, beginning at the zero-foot mark and extending up the tape about 1 foot.
4. Slowly lower the tape into the well until the zero-foot mark is located, about 6 inches below the water level (the tape reading at the measuring point should be 6 inches greater than the actual depth to water). Take care not to touch the sides of the well with the tape.
5. Slowly remove the tape from the well. The pastes will have changed color upon contact with the water or the floating product. The product thickness is the difference between the tape reading at the point where water-finding paste indicates the water level and the point where the gasoline or oil-finding paste indicates the top of the floating product.

4.0 EQUIPMENT CLEANING

Steel tapes, electric well sounders, and acrylic bailers will be cleaned after measurements in each well. Cleaning procedures will be as follows:

1. Wipe floating product off with disposable towels. Rinse probe or portion of instrument that was immersed in well water with a solution of laboratory-grade detergent and potable water.
2. Rinse with potable water.
3. Dry with a clean paper towel.
4. The interface probe may also be cleaned with acetone at this stage.

Solutions resulting from cleaning procedures will be collected and stored properly for future disposal by the client, unless other arrangements have been made.

Attachments: Daily Field Record
Water Level Monitoring Record



PROTOCOL

SAMPLING OF GROUNDWATER MONITORING WELLS AND WATER SUPPLY WELLS

1.0 INTRODUCTION

This protocol describes the procedures to be followed during sampling of groundwater monitoring wells and water supply wells for laboratory chemical analysis. The laboratory must be certified by the appropriate regulating agency for the analyses to be performed.

The procedures presented herein are intended to be of general use and may be supplemented by a work plan and/or health and safety plan. As the work progresses and if warranted, appropriate revisions may be made by the project manager. Detailed procedures in this protocol may be superseded by applicable regulatory requirements.

2.0 SAMPLING

2.1 SAMPLE COLLECTION

A. Monitoring Wells

Methods for purging and sampling monitoring wells with dedicated and non-dedicated equipment are described in this Section. When practical, the purging and sampling technique adopted for a given site will remain consistent from one sampling event to the next.

A.1 Purging Monitoring Wells

A submersible pump, diaphragm pump, positive displacement pump, which may contain a bladder, or a bailer will be used for evacuating (purging) the monitoring well casing. If the well is to be sampled using equipment that must be separately introduced into the well, the purge intake will be located near the top of the water column for removal of at least one casing volume to remove stagnant water above the screened interval in the well casing; the pump may then be moved to the midscreen interval to complete the purging progress, if required. If a bailer is used to purge the monitoring well, it will be gently lowered into the well to reduce the potential for aeration of water. Purging will progress at a rate intended to minimize differential drawdown between the interior of the well screen and the filter material to limit cascading water along the inside of the well casing. Procedures for purging slowly recharging wells are discussed in Section A.3.

A minimum of four well casing volumes or one saturated borehole volume, whichever is greater, will be removed to purge the well prior to collection of groundwater samples if the well



will be purged with non-dedicated equipment. If a low-flow capacity pump is dedicated in the well, the micropurge method described in Section A.4 may be used to reduce the purge volume. If the well goes dry before four casing volumes are removed, the procedure discussed in Section A.3 will be followed. The saturated borehole volume is the volume of water in the well casing plus the volume of water in the filter pack. For a well with a dedicated pump and packer, a casing volume is defined as the volume of water in the well casing below the inflated packer.

Periodic observations of turbidity and measurements of temperature, pH, and specific electrical conductance (SEC) will be made with field equipment during purging to evaluate whether the water samples are representative of the target zone. Samples will be collected when: (1) a minimum of four sets of parameter readings have been taken; and (2) the temperature, pH, and SEC reach relatively constant values, and the turbidity has stabilized.

A.2 Sampling Monitoring Wells

The sampler will wear clean gloves appropriate for the chemicals of concern while collecting the sample. Samples will be collected directly in laboratory-prepared bottles from the sampling device.

Each sampling episode or day should generally begin with the well having the least suspected concentrations of target compounds. Successive wells should generally be sampled in sequence of increasing suspected concentration.

A Teflon[®] bailer, new disposable bailer, stainless steel positive displacement Teflon[®] bladder pump with Teflon[®] tubing, or a clean electric submersible pump with low-flow sampling capacity will be used to collect the water samples for laboratory chemical analysis.

If a bailer is being used to collect the sample, it will be gently lowered into the well below the point where the purge device was located. Samples will be collected in the following order: (1) volatile organic compounds; (2) semi-volatile organic compounds; (3) metals; (4) other analytes.

If a bladder pump or electric submersible pump is being used to sample the well for volatile compounds, the flow rate will be adjusted to either: (1) approximately 100 milliliters per minute; (2) a rate specifically selected for the well based on groundwater flow rates and well hydraulic conditions; or (3) as low as possible. This rate will be maintained until the discharge line has been purged and the sample collected.

A.3 Purging and Sampling Wells With Slow Recharge

Wells that recharge very slowly may be purged dry once, allowed to recharge, and then sampled as soon as sufficient water is available. In this case, at least two sets of parameter readings of field water quality should be taken, one initially and one after recharge.

A.4 Purging and Sampling Wells Using "Micropurge" Sampling Method

Based on current research, a low-flow-rate, reduced purge method may be used to purge and sample a well with a dedicated pump (Barcelona et al., 1994; Kearn et al., 1994). This method may be used if acceptable to applicable agencies. This method assumes the water within the screened interval is not stagnant, and a small change to the natural flow rate in the screened interval will result in samples with particulates and colloidal material representative of groundwater. The pump should be preset in the screen interval at least 24 hours before the sampling event. A minimum of two pump plus riser pipe volumes should be purged at a flow rate of approximately 100 milliliters per minute or as low as possible based on groundwater flow and well hydraulic conditions. Purging should progress until water quality parameters (pH, SEC, temperature) have reached relatively constant values. Dissolved oxygen readings are recommended, if practical.

B. Water Supply Wells

Water supply wells will be sampled by purging the wells for a period of time adequate to purge the pump riser pipe. Alternatively, if the volume of the riser pipe is unknown, the pressure tank will be drained until the pump cycles on, or the well may be purged until three successive field measurements performed 5 to 10 minutes apart have stabilized. If the well is currently pumping, the sample can be taken without purging the well. Water samples will then be collected from the discharge point nearest the well head. Samples will be collected directly into laboratory-prepared bottles.

C. Extraction Wells

Extraction wells will be sampled while extraction is occurring. Samples will be collected from an in-line sampling port after purging the sampling line. Samples will be collected directly into laboratory-prepared bottles.

A WELL SAMPLING AND/OR DEVELOPMENT RECORD will be used to record the following information:

- Sample I.D.
- Duplicate I.D., if applicable

- Date and time sampled
- Name of sample collector
- Well designation (State well numbering system for water supply wells, and unique sequential number for other wells)
- Owner's name, or other common designation for water supply wells
- Well diameter
- Depth to water on day sampled
- Casing volume on day sampled
- Method of purging (bailing, pumping, etc.)
- Amount of water purged
- Extraordinary circumstances (if any)
- Results of instrument calibration/standardization and field measurements (temperature, pH, specific electrical conductance) and observed relative turbidity
- Depth from which sample was obtained
- Number and type of sample container(s)
- Purging pump intake depth
- Times and volumes corresponding to water quality measurement
- Purge rate

2.2 SAMPLE CONTAINERS AND PRESERVATION

Appropriate pre-cleaned sample containers and preservatives for the analyses to be performed will be obtained from the subcontracted analytical laboratory. Frequently requested analyses and sample handling requirements are listed in Table 1.

2.3 SAMPLE LABELING

Sample containers will be labeled before or immediately after sampling with self-adhesive tags having the following information written in waterproof ink:

- Geomatrix
- Project number
- Sample I.D. number
- Date and time sample was collected
- Initials of sample collector



2.4 QUALITY CONTROL SAMPLES

In order to evaluate the precision and accuracy of analytical data, quality control samples, such as duplicates and blanks, will be periodically prepared. These samples will be collected or prepared and analyzed by the laboratory, as specified in the project Quality Assurance Project Plan (QAPP) or by the project manager.

2.5 HANDLING, STORAGE, AND TRANSPORTATION

Efforts will be made to handle, store, and transport supplies and samples safely. Exposure to dust, direct sunlight, high temperature, adverse weather conditions, and possible contamination will be avoided. Immediately following collection, samples will be placed in a clean chest that contains ice or blue ice (if cooling is required), and will be transported to the subcontracted laboratory as soon as practical, or in accordance with the project QAPP.

3.0 FIELD MEASUREMENTS

Field measurements of temperature, pH, and SEC will be performed on aliquots of groundwater that will not be submitted for laboratory analysis. Field water quality measurements and instrument calibration details will be recorded on the WELL SAMPLING AND/OR DEVELOPMENT RECORD.

3.1 TEMPERATURE MEASUREMENTS

Temperature measurements will be made with a mercury-filled thermometer or an electronic thermistor, and all measurements will be recorded in degrees Celsius.

3.2 PH MEASUREMENT

The pH measurement will be made as soon as possible after collection of the sample, generally within a few minutes. The pH will be measured by immersing the pH probe into an aliquot of groundwater.

The pH meter will be calibrated at the beginning of and once during each sampling day and whenever appropriate, in accordance with the equipment manufacturer's specifications, as outlined in the instruction manual for the specific pH meter used. Two buffers (either pH-4 and pH-7, or pH-7 and pH-10, whichever most closely bracket the anticipated range of groundwater conditions) will be used for instrument calibration.

3.3 SPECIFIC ELECTRICAL CONDUCTANCE MEASUREMENT

SEC will be measured by immersing the conductivity probe into an aliquot of groundwater. The probes used should automatically compensate for the temperature of the sample.



Measurements will be reported in units of micro-Siemens (μS) per square centimeter (equivalent to micromhos or μmhos) at 25 degrees Celsius.

The SEC meter will be calibrated at the beginning and once during each sampling day in accordance with the equipment manufacturer's specifications, as outlined in the instruction manual for the SEC meter used. The SEC meter will be calibrated with the available standardized potassium chloride (KCl) solution that is closest to the SEC expected in groundwater below the site.

4.0 DOCUMENTATION

4.1 FIELD DATA SHEETS

A DAILY FIELD RECORD will be completed for each day of fieldwork. A WELL SAMPLING AND/OR DEVELOPMENT RECORD will be used for each well to record the information collected during water quality sampling. Samples may also be recorded on a SAMPLE CONTROL LOG SHEET or in the DAILY FIELD RECORD as a means of identifying and tracking the samples. Following review by the project manager, the original records will be kept in the project file.

4.2 CHAIN-OF-CUSTODY PROCEDURES

After samples have been collected and labeled, they will be maintained under chain-of-custody procedures. These procedures document the transfer of custody of samples from the field to the laboratory. Each sample sent to the laboratory for analysis will be recorded on a CHAIN-OF-CUSTODY RECORD, which will include instructions to the laboratory for analytical services.

Information contained on the triplicate CHAIN-OF-CUSTODY RECORD will include:

- Project number
- Signature of sampler(s)
- Date and time sampled
- Sample I.D.
- Number of sample containers
- Sample matrix (water)
- Analyses required
- Remarks, including preservatives, special conditions, or specific quality control measures



- Turnaround time and person to receive laboratory report
- Method of shipment to the laboratory
- Release signature of sampler(s), and signatures of all people assuming custody.
- Condition of samples when received by laboratory

Blank spaces on the CHAIN-OF-CUSTODY RECORD will be crossed out between the last sample listed and the signatures at the bottom of the sheet.

The field sampler will sign the CHAIN-OF-CUSTODY RECORD and will record the time and date at the time of transfer to the laboratory or to an intermediate person. A set of signatures is required for each relinquished/reserved transfer, including transfer within Geomatrix. The original imprint of the chain-of-custody record will accompany the sample containers. A duplicate copy will be placed in the project file.

If the samples are to be shipped to the laboratory, the original CHAIN-OF-CUSTODY will be sealed inside a plastic bag within the ice chest, and the chest will be sealed with custody tape which has been signed and dated by the last person listed on the chain-of-custody. U.S. Department of Transportation shipping requirements will be followed and the sample shipping receipt will be retained in the project files as part of the permanent chain-of-custody document. The shipping company (e.g., Federal Express, UPS, DHL) will not sign the chain-of-custody forms as a receiver; instead the laboratory will sign as a receiver when the samples are received.

5.0 EQUIPMENT CLEANING

Bailers, sampling pumps, purge pumps, and other non-dedicated purging or sampling apparatus will be cleaned before and after sampling each well. Factory new and sealed disposable bailers may be used for sampling, but may not be reused. Thermometers, pH electrodes, and SEC probes that will be used repeatedly will be cleaned before and after sampling each well and at any time during sampling if the object comes in contact with foreign matter.

Purged waters and solutions resulting from cleaning of purging or sampling equipment will be collected and stored properly for future disposal by the client, unless other arrangements have been made.

Cleaning of reusable equipment that is not dedicated to a particular well will consist of the following:



- Bailers - the inside and outside of bailers will be cleaned in a solution of laboratory-grade detergent and potable water, followed by a rinse with deionized (DI) water. They may also be steam-cleaned, followed by a DI water rinse. If samples are to be collected for metals analysis, the Teflon bailer may be rinsed with a pH2 nitric acid solution followed by a double DI rinse.
- Purge Pumps - All downhole, reusable portions of purge pumps will be steam-cleaned on the outside. If the pump does not have a backflow check valve, the inside of the pump and tubing also should be steam-cleaned. For a purge pump with a backflow check valve, the interior of the pump and tubing may be cleaned by pumping a laboratory-grade detergent and potable water solution through the system followed by a potable water rinse, or by steam-cleaning.
- Water Quality Meters - All meters will be cleaned by rinsing the probe portions in DI water, and allowing to air dry.
- Bailer Tripod - The tripod cable will be steam-cleaned or rinsed with DI water.

Sample bottles and bottle caps will be cleaned by the subcontracted laboratory using standard EPA-approved protocols. Sample bottles and bottle caps will be protected from contact with solvents, dust, or other contamination. Sample bottles will not be reused.

6.0 REFERENCES

Barcelona, M.J., et al., 1994, Reproducible Well-Purging Procedures and VOC Stabilization Criteria for Ground-Water Sampling: *Groundwater*, January-February.

Kearl, P.M., et al., 1994, Field Comparison of Micropurging vs. Traditional Ground Water Sampling: *Ground Water Monitoring Review*, Fall.

Attachments: Water and Soil Analytical Methods and Sample Handling
Well Sampling and/or Development Record
Daily Field Record
Chain-of-Custody Record
Sample Control Log Sheet

TABLE 1
WATER AND SOIL ANALYTICAL METHODS AND SAMPLE HANDLING

| Parameter | Method | Water Containers ¹ | Preservation ¹ | Maximum Holding Time ¹ |
|---|---|--|---|---|
| Total Petroleum Hydrocarbons: - as diesel - as gasoline | GCFID (3550) ² GCFID (5030) ² | 2 - 1 liter amber glass 2 - 40 ml VOA glass | cool on ice HCL to pH 2 in water samples: cool on ice | 14 days (unacidified water, 7 days) 14 days (unacidified water, 7 days) |
| Benzene, Toluene, Xylene, and Ethylbenzene | EPA 8020 | 2 - 40 ml VOA glass | HCL to pH 2 in water samples: cool on ice | 14 days (unacidified water, 7 days) |
| Volatile Organics with BTEX | EPA 8021 ³ | 2 - 40 ml VOA glass | HCL to pH 2 in water samples: cool on ice | 14 days (unacidified water, 7 days) |
| Oil and Grease | 5520 E & F (soil) ⁴ 5520 C & F (water) ⁴ | 2 - 1 liter amber glass | H ₂ SO ₄ to pH <2 in water samples: cool on ice | 28 days |
| Volatile Organics | EPA 8010 EPA 8240 ⁵ | 2 - 40 ml VOA glass 2 - 40 ml VOA glass | cool on ice ⁶ HCl to pH 2 in water samples: cool on ice | 14 days (unacidified water, 7 days) 14 days (unacidified water, 7 days) |
| Semi-volatile Organics | EPA 8270 | 2 - 1 liter amber glass | cool on ice | 7 days for extraction, water 14 days for extraction, soil 40 days for analysis |
| Polynuclear Aromatic Hydrocarbons | EPA 8310 | 2 - 1 liter amber glass | cool on ice | 7 days, water 14 days, soil |
| Metals (dissolved) | EPA 7000 series for specific metal | 1 - 500 ml plastic | Water Samples: field filtration (0.45 micron filter) and field acidify to pH 2 with HNO ₃ , except: Cr ⁶⁺ - cool on ice | 6 months, except: Hg - 28 days Cr ⁶⁺ - 24 hours, water; 24 hours after prep, soil |

Notes:

- ¹ All soil samples should be collected in full, clean brass liners, capped with aluminum foil or Teflon and plastic caps, and sealed with tape. If soil samples are to be analyzed for metals, they may be placed in laboratory-prepared clean glass jars. Soil should be cooled as indicated under Preservation and maximum holding times apply to both soil and water unless otherwise noted.
- ² For analysis in California, use California DHS recommended procedure as presented in LUFT manual using gas chromatography with a flame ionization detector. In other states, local requirements should be followed. Method 3660M is silica gel cleanup.
- ³ EPA Method 8021 is equivalent to 8010/8020 in series.
- ⁴ Method to be used in California Regional Water Quality Control Board North Coast and Central Valley Regions. In other areas, local requirements should be followed. Method 5520F is silica gel cleanup.
- ⁵ Chloroethylvinylether may be detected at concentrations below 50 parts per billion due to degradation of HCl. EPA Method 8260B was formerly 8240.
- ⁶ If EPA Methods 8010 and 8020 are to be run in sequence, HCl may be added. Check with the project manager before adding acid.

References:

U.S. EPA, 1986, Test Methods for Evaluating Solid Waste - Physical/Chemical Methods - SW-846, Third Edition, July, and final amendments.
California State Water Resources Control Board, 1989, Leaking Underground Fuel Tank (LUFT) Field Manual, Tables 3-3 and 3-4, October.
California Regional Water Quality Control Boards, North Coast, San Francisco Bay, and Central Valley Regions, 1990, Regional Board Staff Recommendations for Initial Evaluation and Investigation of Underground Tanks, 10 August.



San Joaquin Valley BU
Chevron North America Exploration
and Production Company
(a Chevron U.S.A. Inc. division)
1546 China Grade Loop
Bakersfield, CA 93308

**COPY VIA E-MAIL
ORIGINAL VIA OVERNIGHT MAIL**

August 25, 2014

Dane S. Johnson
Central Valley Water Board
1685 E Street
Fresno, CA 93706

RE: Order Pursuant to California Water Code Section 13267, Issued to Chevron
U.S.A. Inc., dated August 11, 2014

Dear Mr. Johnson:

This letter and attached Feasibility Report And Time Schedule for Injection Well Groundwater Sampling for Kern River Oil Field ("Report") are submitted in response to the "Order Pursuant to California Water Code Section 13267" dated August 11, 2014 ("Order") issued by the Central Valley Regional Water Quality Control Board ("RWQCB") to Chevron U.S.A. Inc. ("Chevron"). The Report supplements the Injection Well Groundwater Sampling Work Plan for Kern River Oil Field ("Work Plan"), which was submitted to the RWQCB as required on August 18, 2014. The Report also outlines all of the work completed since Chevron received the Order, and documents the infeasibility of completing all of the well work, sample collection, sample analysis, and development of a technical report by the September 4, 2014 deadline set in the Order.

As further described in the Report, there are multiple and significant issues, including surface and subsurface work for 15 wells, that must be resolved before each of the 15 wells can be sampled because these wells were not designed or constructed to obtain groundwater samples. Chevron has taken numerous steps to expedite the time to complete the work required by the Order including securing a second rig to complete the well sampling work and locating a laboratory to reduce the turnaround time from 22 days to seven days for the entire suite of testing. However, due to the complexity and the availability of the specialized contractors needed to perform the sampling in addition to the large number of wells for which sampling is required, it is impossible to meet the September 4, 2014 deadline.

Based on the expeditious time schedule included in the Report and assuming that the Work Plan and Report are approved as written by the RWQCB by no later than September 2, 2014, the earliest date upon which a technical report with the consolidated analyses of the groundwater samples for each of the 15 wells subject to the Order will be available is November 13, 2014. Therefore, Chevron hereby respectfully requests an extension of the deadline for submission of the analytical technical report from September 4, 2014 until November 13, 2014. In advance of submitting the consolidated analyses, Chevron will submit each of the laboratory analytical reports on the groundwater samples to the RWQCB immediately following receipt of the reports

August 25, 2014

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from the laboratory and completion of quality assurance review on the reports by Chevron's third party consultant. Chevron will also work to sample the seven active wells first before moving to the nine inactive wells.

Please note that Chevron has not yet received formal written feedback from the RWQCB on the Work Plan. Chevron's ability to meet the time schedule set forth in the Report is dependent on the RWQCB's expeditious approval of the Work Plan and Report, and/or the ability to address any potential issues or complexities raised by the RWQCB as part of that approval process.

Chevron's submittal of this letter and Report should not be construed as an acceptance or agreement by Chevron of the factual allegations contained in the Order, and Chevron hereby continues to reserve all rights and remedies available to it, including the ability to challenge those findings and/or appeal the Order.

If you need any additional information, please contact Sam Bulkeley at (661) 392-2385 or Abby Auffant at (661) 654-7535. Thank you for your courtesy and cooperation in this matter.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Sincerely,
Chevron U.S.A. Inc.

By: 

Gary Piron
Kern River Field Area Manager

Enclosure: Feasibility Report And Time Schedule for Injection Well Groundwater Sampling for
Kern River Oil Field

CC with Enclosure:
Clay L. Rodgers, Assistant Executive Officer
Central Valley Regional Water Quality Control Board
1685 E Street
Fresno, CA 93706

Steven R. Bohlen, State Oil and Gas Supervisor
Department of Conservation, DOGGR
801 K Street
Sacramento, CA 95814-3500



FEASIBILITY REPORT AND TIME SCHEDULE INJECTION WELL GROUNDWATER SAMPLING

Kern River Oil Field
Kern County, California

Prepared for:

Chevron U.S.A. Inc.
9525 Camino Media
Bakersfield, California 93311

Prepared by:

AMEC Environment & Infrastructure, Inc.
1281 East Alluvial Avenue, Suite 101
Fresno, California 93720
(559) 264-2535

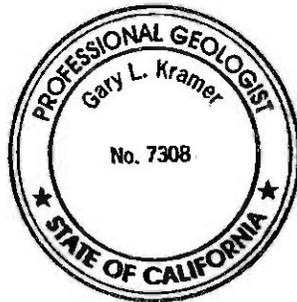
August 25, 2014

Project FR1416063A



**FEASIBILITY REPORT AND TIME SCHEDULE
INJECTION WELL GROUNDWATER SAMPLING**
Kern River Oil Field
Kern County, California

August 25, 2014
Project FR1416063A



This report was prepared by the staff of AMEC Environment & Infrastructure, Inc., under the supervision of the Geologist whose seal and signature appear hereon.

The findings, recommendations, specifications, or professional opinions presented in this report were prepared in accordance with generally accepted professional geologic practice and within the scope of the project. No other warranty, express or implied, is provided.

Gary L. Kramer, PG
Senior Associate Geologist

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FEASIBILITY REPORT AND TIME SCHEDULE INJECTION WELL GROUNDWATER SAMPLING

**Kern River Oil Field
Kern County, California**

EXECUTIVE SUMMARY

AMEC Environment & Infrastructure, Inc. (AMEC), has prepared this Feasibility Report and Time Schedule to evaluate the feasibility of complying with the time schedule requirements contained in the Central Valley Regional Water Quality Control Board's Section 13267 Order (Order) dated August 11, 2014, issued to Chevron U.S.A., Inc. (Chevron). Collection of groundwater samples from the 15 injection wells is not feasible in the time frame required by the Order. On behalf of Chevron, AMEC hereby submits this report with an alternative sampling methodology and time schedule.

This report contains:

- a description of the progress of work completed to date;
- additional well data collected to plan and undertake sampling activities;
- modifications to the groundwater sampling program based on a review of these new data;
- the time schedule for laboratory analysis, including limitations on laboratory turn around for analysis of radionuclide samples; and
- an expedited time schedule based on constraints related to well construction, laboratory turnaround, the number of wells that need to be sampled, and well depths.



FEASIBILITY REPORT AND TIME SCHEDULE INJECTION WELL GROUNDWATER SAMPLING

Kern River Oil Field
Kern County, California

1.0 INTRODUCTION

AMEC Environment & Infrastructure, Inc. (AMEC), has prepared this Feasibility Report and Time Schedule to evaluate the feasibility of complying with the time schedule requirements contained in the Central Valley Regional Water Quality Control Board's (RWQCB) Section 13267 Order (Order) dated August 11, 2014, issued to Chevron U.S.A., Inc. (Chevron). AMEC submitted the *Injection Well Groundwater Sampling Work Plan for Kern River Oil Field* (work plan) to the RWQCB on August 18, 2014, to comply with the work plan provision of the Order. The work plan described the general field procedures to be employed to purge and sample 15 of the 16 former injections wells, the analytical program, and reporting. Immediately upon receipt of the Order, Chevron initiated logistical activities, necessary to undertake the sampling required by the Order. Chevron discussed logistical and sampling issues with RWQCB staff on August 22, 2014, during a teleconference. This report incorporates RWQCB staff input regarding the work plan submittal and logistical issues.

This report contains:

- a description of the progress of work completed to date;
- additional well data collected to plan and undertake sampling activities;
- modifications to the groundwater sampling program based on a review of these new data;
- the time schedule for laboratory analysis, including limitations on laboratory turn around for analysis of radionuclide samples; and
- an expedited time schedule based on constraints related to well construction, laboratory turnaround, the number of wells that need to be sampled, and well depths.

2.0 LOCATION

The 16 injection wells are located on Chevron-operated properties within the Kern River Oil Field (Figure 1). The wells are located in Township 28 South, Range 28 East, Sections 18, 28, 29, 30, and 31 and in Township 29 South, Range 28 East, Sections 3, 5, 8, 9, and 10 within the Mount Diablo Base and Meridian (Figure 2).

3.0 WORK PROGRESS AND WELL DATA

Immediately upon receipt of the Order, Chevron initiated logistical activities, necessary to undertake sampling of each well as required in the Order. Table 1 of this report contains injection well construction information presented in the work plan. As part of the logistical activities, Chevron obtained additional well information which is compiled in Table 2. The additional logistical activities included the following:

- well site and well head inspections,
- assessment of well tubing/casing clearances and total well depths,
- evaluation of groundwater levels using a pressure bomb transducer, and
- identification of needed modifications to wellhead equipment and down-hole tubulars to provide sufficient clearance for groundwater sampling tools.

Note that injection well API 02975045 was converted into a producing oil well within the Kern River formation in February 2014 and cannot be sampled.

3.1 SITE SURVEY

Chevron and National Exploration Wells & Pumps (National) performed a site survey and wellhead inspection of each well in order to ascertain access to each well and any limitations the wellhead may have on deploying sampling equipment. The site survey also evaluated whether the well pads needed to be modified to accommodate development and sampling rigs. Site hazards such as overhead power lines and aboveground steam lines were also noted during the inspection. Table 3 summarizes observations made during the site survey. Photographs of each well head taken during the site survey are provided in Appendix A.

3.2 ASSESSMENT OF WELL TUBING

Chevron is coordinating with Pacific Process Systems, Inc. (PPS), in Bakersfield, California, to run gauge ring tests on the well tubing to measure internal clearances and to detect any obstructions that could prevent deployment of purging or groundwater sampling equipment. The gauge ring survey will be performed after Chevron modifies the well heads and/or valve trees to provide sufficient tubing clearance for sampling activities. The total depth of each well will be confirmed during the gauge ring survey.

3.3 MEASUREMENTS OF GROUNDWATER LEVELS

PPS obtained groundwater levels in each well by lowering a pressure bomb transducer down to the base of each well. Depth-to-groundwater measurements, water column height in each

well, and calculated wetted casing volumes are summarized in Table 2. Water level data reports are provided in Appendix B.

3.4 MODIFICATIONS OF WELL HEADS AND NECESSARY REPAIRS

Chevron has scheduled the modifications of each well head to provide sufficient clearance for purging and sampling equipment. These modifications include removing components of the wellheads and/or valve trees that may obstruct sampling equipment. Chevron also plans to remove tubing from wells if significant obstructions are encountered during the gauging survey that would prevent deployment of groundwater sampling equipment.

4.0 TIME CONSTRAINTS ON LABORATORY ANALYSIS

AMEC has contacted TestAmerica Laboratories, Inc. (TestAmerica), in Irvine, California, as to expectations for expedited turnaround for the analytical constituents listed in Section 7.0 of the work plan. TestAmerica has indicated that they can provide analytical results for all constituents in 5 business days. Analysis of radionuclides (Radium 226, Radium 228, and gross alpha) will be conducted at TestAmerica's St Louis Missouri laboratory. With travel time included, the radionuclides results can be provided within 7 business days of sampling. A copy of a letter from TestAmerica to AMEC documenting the expedited laboratory turnaround time is provided in Appendix C.

5.0 MODIFICATIONS TO GROUNDWATER SAMPLING PROCEDURES

This section outlines modifications to the groundwater purging and sampling procedures. The work plan originally proposed two alternative groundwater purging and sampling procedures: (1) purging and sampling by bailing, (2) or purging and sampling by pumping. AMEC is proposing to modify purging procedures and to add a third alternative procedure.

5.1 MODIFICATIONS TO PURGING PROCEDURES

Estimated casing volumes (three well volumes) for the injection wells range from about 940 to 10,220 gallons (Table 2). The large amount of purge water from some wells combined with low purge or bailer rates equates to long purge times. The purpose of purging the well casing is to remove stagnant water from the casing so that when groundwater samples are collected they are representative of formation water and not stagnant casing water. Field parameters (pH, electrical conductance, and temperature) are collected during purging to monitor changes in water quality as the well is purged. Typically, when groundwater in the casing is in equilibrium with the formation groundwater, field parameters monitored over time stabilize to constant levels. When using low-flow sampling procedures, stabilized field parameters are the criteria for when it is appropriate to collect groundwater samples. AMEC is proposing to purge wells of groundwater until the field parameters stabilize for a period of 30 minutes of bailing or

pumping and after five consecutive stabilized readings. This criterion should be adequate to obtain representative groundwater samples from the well.

5.2 THIRD ALTERNATIVE FOR GROUNDWATER SAMPLING

A third alternative procedure will be employed to purge and collect representative groundwater samples from four wells (API 20926346, API 02955750, API 02967907, and API 03010793) perforated in both the Chanac and Santa Margarita formations. This alternative is proposed based on further evaluation of the configuration of mechanical components of these wells (tubing and packers) that prevent the deployment of additional well packers to isolate the formations or because the perforations are continuous through both the Chanac and Santa Margarita formations.

Groundwater samples in these wells will be obtained from each zone (Chanac and Santa Margarita formations) using low flow sampling techniques. To reduce disturbance of the water column in the well, a bladder pump will first be lowered to the center of the perforated zone adjacent to the Chanac Formation. The bladder pump will be purged using low-flow techniques at a rate of 100 to 500 milliliters per minute. Field parameters consisting of pH, electrical conductance, and temperature will be measured during purging and recorded in the field notes. The volume of groundwater purged will also be recorded. Groundwater samples will be collected after field parameters have stabilized for a period of 30 minutes of pumping and after five consecutive stabilized readings. After field parameters stabilize, groundwater samples will be collected from the pump discharge and decanted into clean laboratory-provided containers, packed on ice, and transported to a California Environmental Laboratory Accreditation Program laboratory using chain-of-custody procedures for the laboratory analysis listed in Section 7.0 of the work plan.

After the Chanac formation groundwater samples are collected, the bladder pump will be lowered to the center of the perforations in the Santa Margarita formation. The purging and sampling procedure will then be repeated.

6.0 REVISIONS TO FIELD QUALITY ASSURANCE QUALITY CONTROL PROGRAM

RWQCB staff have requested additional field quality assurance/quality control (QA/QC) samples. AMEC will submit one travel blank sample per day of sampling and increase the number of field blanks and duplicates to one per every five groundwater samples collected.

7.0 RESIDUAL MANAGEMENT

Groundwater purge water and decontamination water generated during purging and sampling will be disposed into existing active permitted Underground Injection Control wells in the Kern

River Formation. Chevron will arrange for stored purge water to be transferred into its existing water disposal infrastructure at Kern River Oil Field.

8.0 FEASIBILITY

Based on the detailed well file review and the surveys taken since the issuance of the Order, there are multiple and significant issues that must be resolved before each well can be sampled because these wells were not designed or constructed to obtain groundwater samples, making the deadline contained in the Order infeasible. Specifically, 6 of the 15 wells will require a rig to pull the tubing and clean out the wellbores prior to groundwater sampling. The time required to complete that work will be dependent on the issues encountered while executing the work. It will take approximately 2 to 4 days of well work for each of these six wells just to make the well accessible for sampling. In addition to the well work, construction activities on the valve trees for all of the wells is estimated to take a minimum of 1 to 2 days per well. National has rescheduled other work so that rig activities can start on September 8, 2014. To further expedite the schedule, a second rig to support this effort will be added with a start date of September 15, 2014. For these reasons, the work required to access the fluid required for groundwater sampling cannot start until at least September 8, 2014, which is 4 calendar days after the current deadline in the Order for completion of all aspects of the sampling work.

Using the stabilization sampling procedure described herein, the groundwater sampling of 15 wells has been reduced to an estimated 3 days per well from the original time needed to purge three casing volumes prior to sampling. Due to the well depth, traditional sampling methods and equipment cannot be used. For all of these reasons, including that the previously submitted work plan has not yet been approved by the RWQCB, it is physically impossible to sample all 15 wells and obtain laboratory results in the 10 days remaining before the deadline contained in the Order. However, Chevron is undertaking every effort to obtain these samples in the shortest time that can be practically and safely achieved.

9.0 TIME SCHEDULE

AMEC has compiled an expedited time schedule based on the significant constraints associated with the complexities of well construction and related mechanical components; depths of wells (850 to 2,100 feet below ground surface); limitations of pumping and bailing rates associated with tubing, well diameters, and depth; constraints on turnaround time for laboratory analysis of radiological constituents; and the number of wells that need to be sampled. Specific measures that will be undertaken to expedite the project work include:

- Active or recently active injection wells will be sampled first as recommended by RWQCB staff if no technical issues are identified.
- The sampling rig will be mobilized to begin purging and sampling as soon as the first well head has been modified to provide sufficient tubing clearance for sampling equipment.
- Chevron will complete the well head and subsurface work concurrently with the work being completed by National to obtain groundwater samples so as to expedite the time schedule outlined below.
- The groundwater sampling schedule will be arranged with the wells presenting the least technical difficulties for sampling scheduled first and proceeding to those with more technical difficulty. This will allow work to continue as Chevron waits for RWQCB approval on wells requiring special sampling considerations.
- National will mobilize a second sampling rig to the site on or about September 15, 2014, or as soon as one becomes available. The groundwater sampling order will be arranged so that wells in close proximity to one another can be sampled consecutively if possible. This will reduce travel time between well sites for field personnel monitoring field parameters and collecting groundwater samples at each well location.
- All samples gathered will be submitted for expedited testing of all required constituents by TestAmerica.

Each task and its anticipated duration are listed in the following table. The table also outlines the schedule for the first interim data transmittal.

| Task | Start Date | Completion Date | Duration (Days) | Status |
|--|------------|-----------------|---|-----------|
| Detailed well file review | 08/14/2014 | 08/22/2014 | 9 days | Completed |
| Well head and site inspections | 08/20/2014 | 08/20/2014 | 1 day | Completed |
| Measure depth to groundwater | 08/22/2014 | 08/25/2014 | 4 days | Completed |
| Modifications to well heads to provide access and tubing removal (as needed) | 08/27/2014 | 09/15/2014 | 18 days (concurrent work not including Labor Day holiday) | Scheduled |
| Gauge Ring survey of well tubing | 08/27/2014 | 09/17/2014 | 15 business days | Scheduled |
| Groundwater sampling | 09/08/2014 | 10/15/2014 | 28 days | Scheduled |
| Initial laboratory analysis | 09/10/2014 | 09/17/2014 | 5 business days | |
| First interim data transmittal | 09/17/2014 | 09/22/2014 | 3 days | |
| Final laboratory analysis | 10/16/2014 | 10/27/2014 | 7 days | |
| Final technical report | 10/27/2014 | 11/13/2014 | 14 days | |



10.0 INTERIM REPORTING AND FINAL TECHNICAL REPORT

Groundwater samples will be submitted to TestAmerica at the end of each field day. AMEC and Chevron will review and QA/QC the analytical reports for each well sample as they are received. Chevron will submit interim data transmittals to the RWQCB within 3 days of receiving individual analytical reports. The interim data transmittal will contain a description of the well sampled, amount of groundwater purged, depth to groundwater, location map, and a copy of the complete analytical report and laboratory QA/QC package.

A full technical report incorporating and tabulating all of the sample analyses for the 15 injection wells will not be submitted until all of the analytical reports, including those for the radionuclides, are available. Once all the analytical data are received, AMEC will prepare a final technical report that will include:

- a site plan with locations of wells sampled,
- a description of field procedures,
- tables of complete analytical results for all wells organized by well API number, and
- copies of analytical reports including QA/QC procedures and analytical test methods.



TABLE 3

WELL AND SITE INSPECTION FINDINGS

Kern River Oil Field
Kern County, California

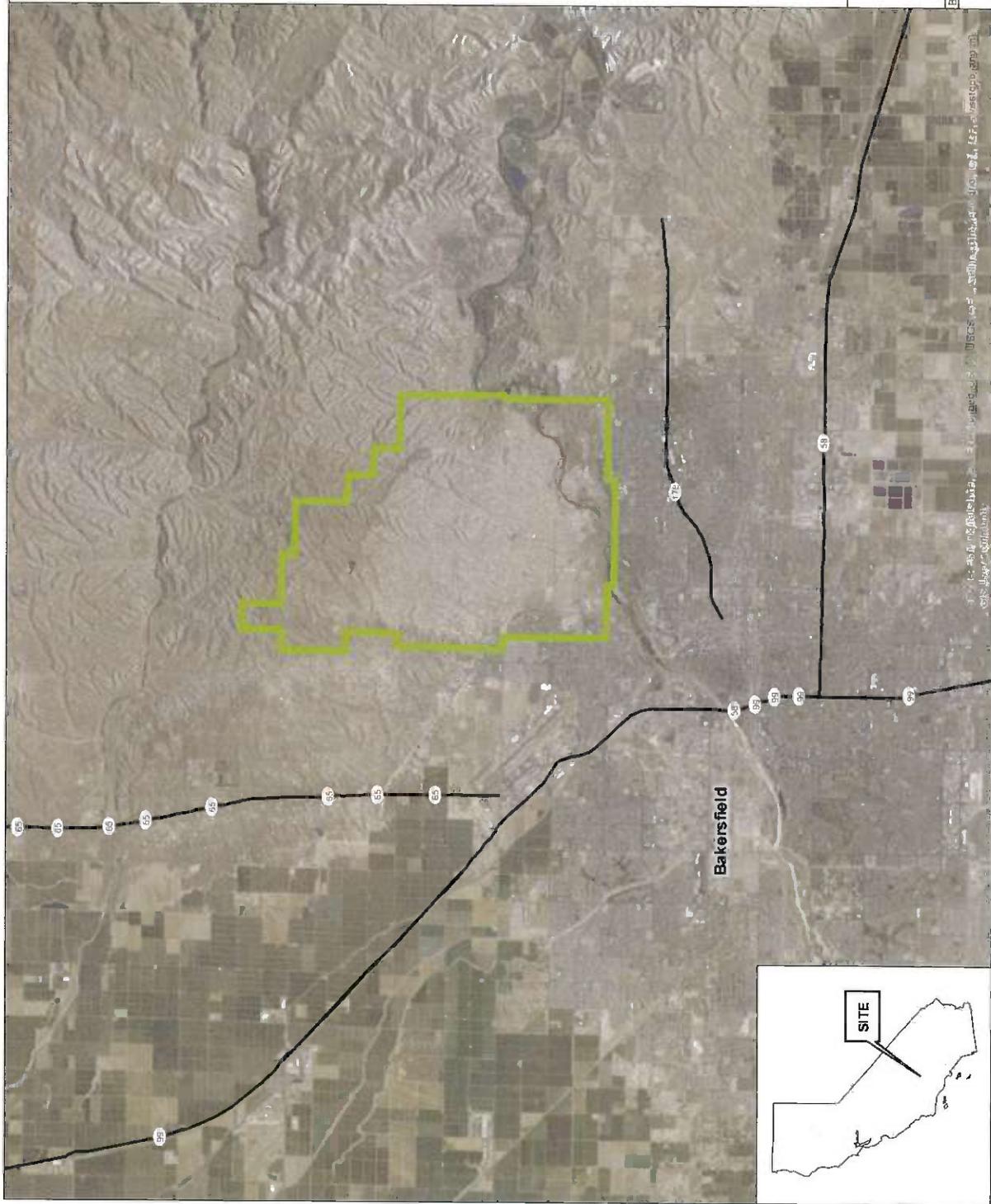
| Lease Name | Well No | Section | API Number | Last Injected Date | Tubing Hanger Langel/ Well Head Issues | Power Lines | Dirt Work | Rerouting Steam Lines |
|-------------------|--------------|---------|----------------------|--------------------|---|--------------------|---|---|
| San Joaquin | WD 3 | 5 | 02970045 | Active | - Height of swab valve=6' - Trip hazard at cellar gratings; needs replacement | Possible quad move | Minimal | |
| May | WD-1 | 8 | 02976159 | Feb-90 | - Height of swab valve=6' - Cellar gratings need replacement - Cameron to check master and swab valves | Move quad | Requires medium dirt work | |
| Hutchkiss | 14D-10 | 10 | 03010793 | Nov-12 | - Height of swab valve=9' - Existing opening 5-1/2" - Cameron to service all valves | OK | Not required | |
| KCL-10 | 210 | 10 | 02977806 | Jul-01 | - No tree; need to install 3" full opening valves | OK | No dirt work required | |
| KCL-10 | 212 | 10 | 02977807 | Jul-01 | - Remove injection line | OK | Not required | |
| KCL-10 | 2X | 10 | 02972050 | Sep-00 | - Cut and cap injection line - 2-1/2" opening valve; requires 5" opening gate valve - Cameron to check all valves - Possible MoC | OK | Dirt work required to fill up near the well | Steam line close by; turnoff injection to KCL 615 before work |
| McManus Section 3 | 1 WD D3-3 | 3 3 | 02973297 02975049 | Apr-14 Apr-14 | - Requires 5" opening gate valve - Height of swab valve=6' - Well has 6" valve-no issues - Cameron to service all valves | OK OK | OK Level ground-minimum dirt work | |
| H.H. & F. | 2D | 9 | 02955750 | Dec-04 | - 1-1/2" opening; check profile hanger - Check packing glands and rams - May require MoC | OK | Minimal dirt work required | |
| Overland | 31D | 28 | 02926346 | Nov-00 | - 4" opening - Cameron to service valves - Remove injection line - Dig out cellar for access to casing valves - 5" gate valve required - Requires MoC | OK | OK | |
| Overland | 35WD | 28 | 02971717 | Nov-00 | - Requires MoC | OK | OK | |
| Overland | 34WD | 28 | 02967907 | Nov-00 | - Requires 5" opening gate valve - Cameron to service all valves | OK | OK | |
| Pearl E. Berry | WD-1 | 29 | 02984592 | Apr-14 | - Height of swab valve=6-1/2" - 4" valve (3-1/2" opening) of valve - Cameron to service swab and master valves - Remove injection line - Replace one bull valve with needle valve at casing | OK | OK | |



TABLE 3
WELL AND SITE INSPECTION FINDINGS

| Lease Name | Well No | Section | API Number | Last Injected Date | Tubing Hanger Lange/ Well Head Issues | Power Lines | Dirt Work | Rerouting Steam Lines |
|---------------------|---------|---------|------------|--------------------|--|-------------|-----------|-----------------------|
| Orient | WD 1 | 30 | 02980421 | Feb-14 | - 600-4" tree - Service master and swab valves - 4" valve (3-1/2" opening) - Remove injection spool | OK | OK | |
| Government 3 | 557 | 18 | 02973218 | Aug-12 | - Restricted access to the well - 2-1/2" - May require to change plate - Replace bull plug | OK | OK | |
| American Naphtha | D1-31 | 31 | 02975045 | Jan-03 | - Producter | | | |

** Crew will require orientation for KR (HES)



Explanation

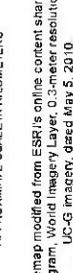
Field boundary for Kern River Oil Field



APPROXIMATE SCALE IN MILES



APPROXIMATE SCALE IN KILOMETERS



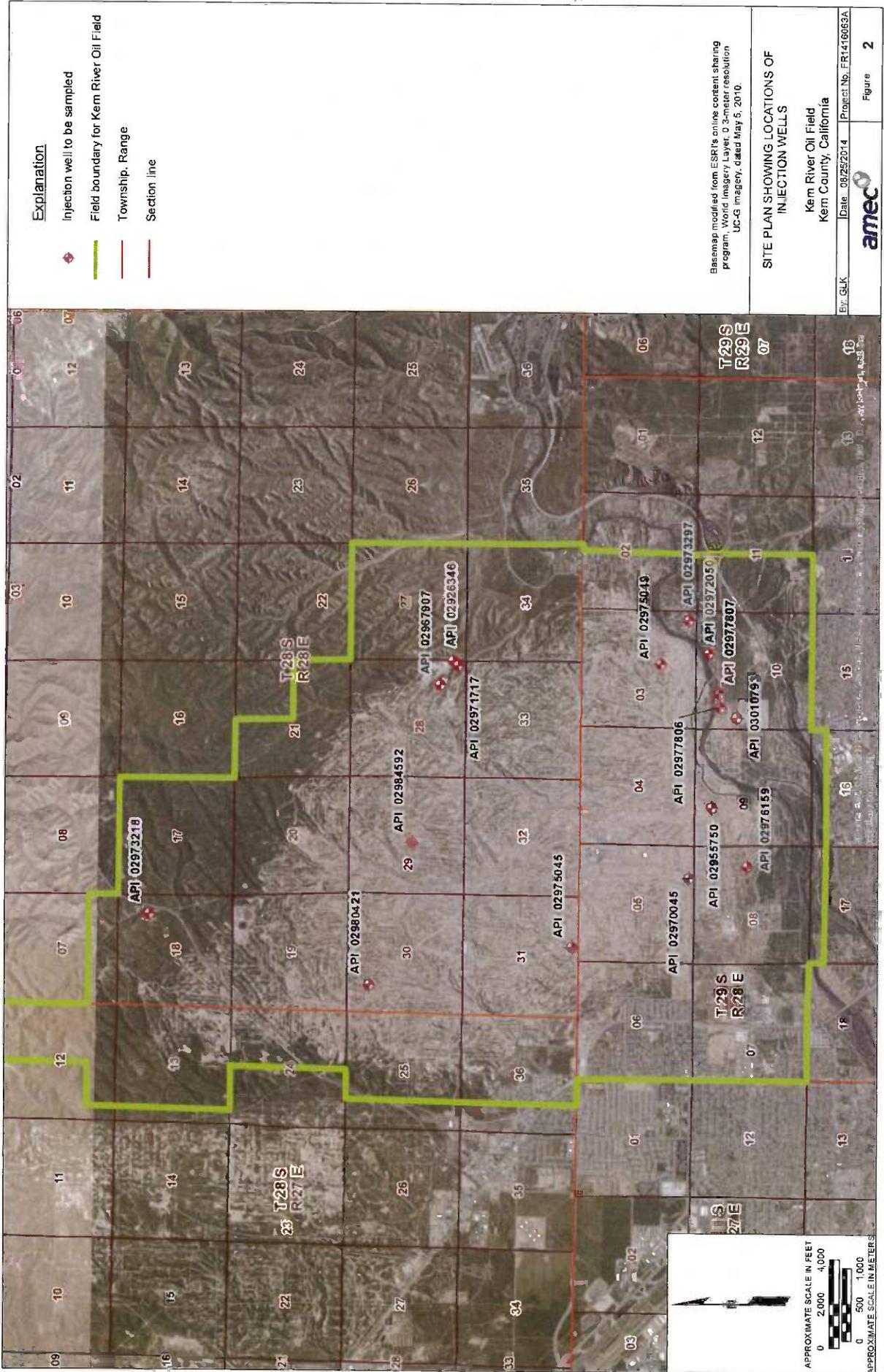
Basemap modified from ESRI's online content sharing program, World Imagery Layer, 0.3-meter resolution UC-G imagery, dated May 5, 2010

SITE LOCATION MAP
 Kern River Oil Field
 Kern County, California

By: GLK Date: 08/25/2014 Project No: FR1415063A



Figure 1



Explanation

- ◆ Injection well to be sampled
- Field boundary for Kern River Oil Field
- Township, Range
- Section line

Basemap modified from ESRI's online content sharing program, World Imagery Layer, 0.3-meter resolution UC-G Imagery, dated May 5, 2010.

SITE PLAN SHOWING LOCATIONS OF INJECTION WELLS

Kern River Oil Field
Kern County, California

| | | |
|---------|------------------|------------------------|
| By: GJK | Date: 08/25/2014 | Project No. FRI416663A |
|---------|------------------|------------------------|





APPENDIX A

Site Inspection Photographs



API 02926346 Overland 31D



API 02970045 San Joaquin WD3



API 02973218 Government 3 557



API 02955750 H.H. & F. 2D



API 02971717 Overland WD35



API 02967907 Overland 34WD



API 02972050 KCL-10

PHOTOGRAPHS FROM WELL
AND SITE SURVEY
Kern River Oil Field
Kern County, California

By: GLK Date: 08/25/2014 FRI1416069A



Figure A1



Photo 8

API 02973297 McManus 1



Photo 11

API 02976155 May WD-1



Photo 9

API 02975045 American Naphtha D1-31



Photo 12

API 02977806 KCL-10 210



Photo 10

API 02975049 D3-3



Photo 13

API 02977807 KCL-10 212

PHOTOGRAPHS FROM WELL
AND SITE SURVEY
Kern River Oil Field
Kern County, California

By: OLK | Date: 08/25/2014 | File: FR1416053A

Figure A2





Photo 14
API 02580421 Orient WD 1



Photo 15
API 02584592 Pearl E. Berry WD-1



Photo 16
API 03010793 Hotchkiss 14D-10

PHOTOGRAPHS FROM WELL
AND SITE SURVEY
Kern River Oil Field
Kern County, California

By: CLK Date: 09/25/2014 FR1418032A

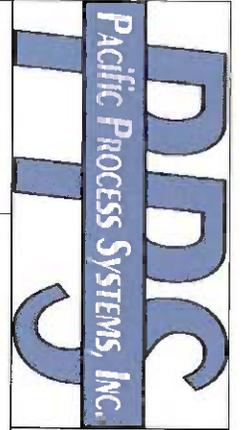


Figure A3



APPENDIX B

Water Level Data Reports



PRESSURE / TEMPERATURE SURVEY

| | |
|---|---|
| Company CHEVRON Well OVERLAND 31D Field KERN RIVER County KERN State CA | Company CHEVRON Well OVERLAND 31D Field KERN RIVER County KERN State CA |
| Location: API #: 040292634600 | |
| SEC TWP 28S RGE 28E | Elevation K.B. D.F. G.L. |
| Permanent Datum Log Measured From Drilling Measured From | GL GL KB |

| | |
|------------------------------|-------------|
| Date | 8/23/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 540 FT |
| Bottom Logged Interval | 540 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 11:10 AM |
| Maximum Recorded Temperature | 105 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any Interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any Interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

RAN PT SURVEY
 TAG @ 540 FT
 MAX TEMP 105 @ 535 FT
 FLUID LEVEL @ 512 FT
 PRES 24 PSI

| | |
|---------------------|--|
| Database File | c:\users\crawson\desktop\warrior surveys\overland 31d--8-23-2014\kr overland 31wd.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 11:03:55 2014 |
| Charted by | Depth in Feet scaled 1:900 |

0 PRES (psi) 50

0 TEMP (degF) 150

50
100
150
200
250
300
350
400
450
500
550

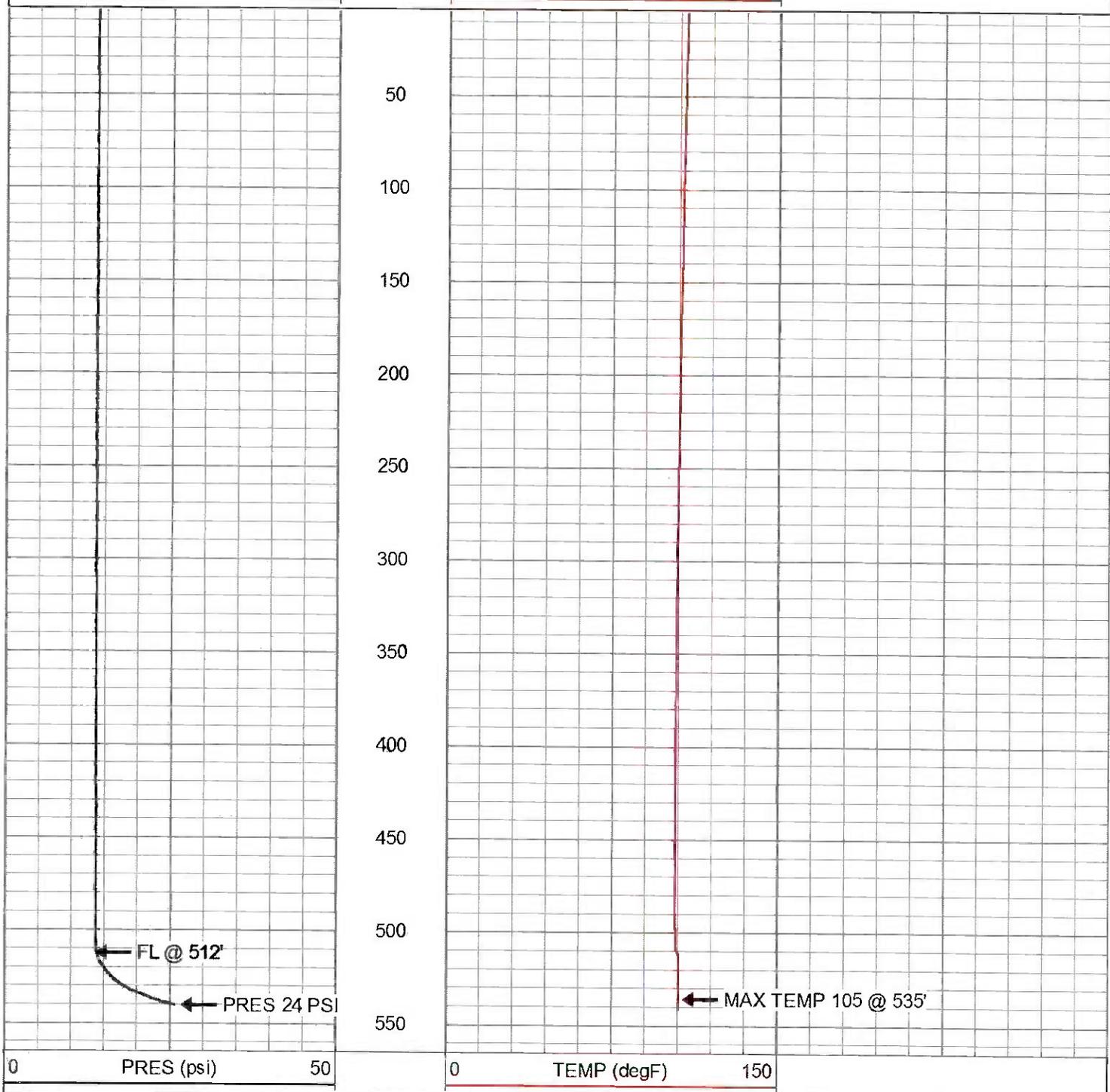
FL @ 512'

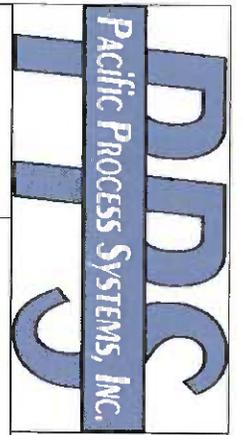
PRES 24 PSI

MAX TEMP 105 @ 535'

0 PRES (psi) 50

0 TEMP (degF) 150





PRESSURE / TEMPERATURE SURVEY

Company CHEVRON
 Well H.H. & F. 2D
 Field KERN RIVER
 County KERN
 State CA

Company CHEVRON
 Well H.H. & F. 2D
 Field KERN RIVER
 County KERN State CA

Location: API #: 040295575000

| | | | |
|------------------------|----|-----------|----------------|
| Permanent Datum | GL | Elevation | Other Services |
| Log Measured From | GL | | |
| Drilling Measured From | KB | | |

| | |
|------------------------------|-------------|
| Date | 8/23/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 533 FT |
| Bottom Logged Interval | 533 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmt @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 5:15 PM |
| Maximum Recorded Temperature | 213 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

<<< Fold Here >>>

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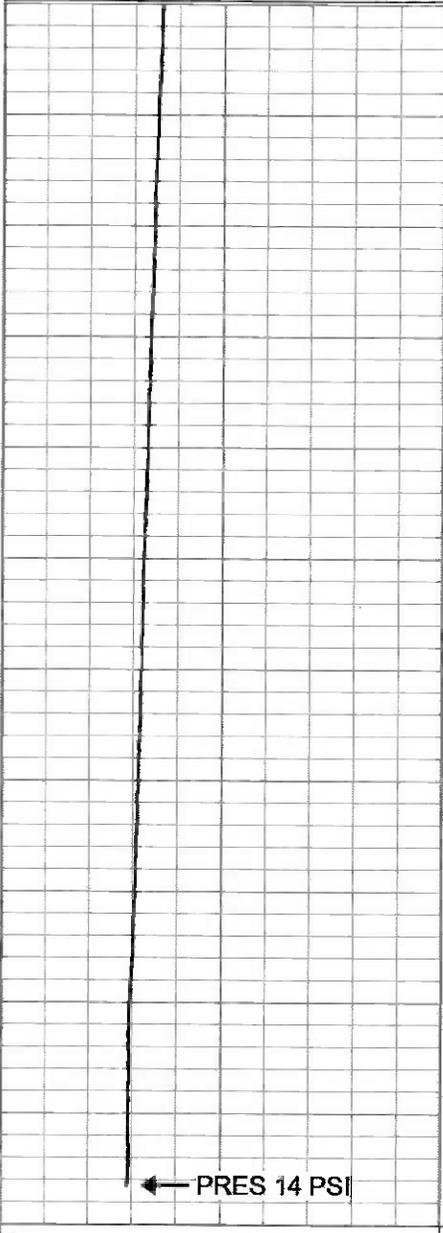
Comments

RAN PT SURVEY
 TAG @ 533 FT
 MAX TEMP 213 @ 530 FT
 PRES 14 PSI

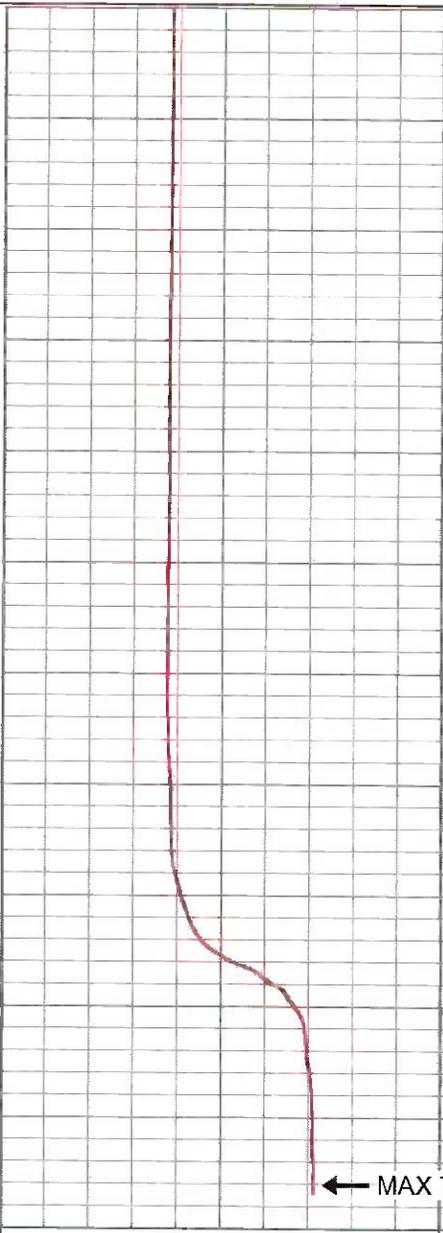
| | |
|---------------------|---|
| Database File | c:\users\crawson\desktop\warrior surveys\kr hfh-9 2d.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 17:01:58 2014 |
| Charted by | Depth in Feet scaled 1:1000 |

0 PRES (psi) 50

0 TEMP (degF) 300

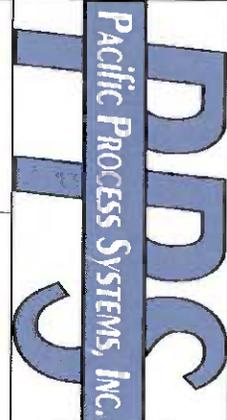


50
100
150
200
250
300
350
400
450
500
550



0 PRES (psi) 50

0 TEMP (degF) 300



PRESSURE / TEMPERATURE SURVEY

Company CHEVRON
 Well OVERLAND 34WD
 Field KERN RIVER
 County KERN
 State CA

Company CHEVRON
 Well OVERLAND 34WD
 Field KERN RIVER
 County KERN State CA

Location: API #: 040296790700

| | | | |
|------------------------|----|-----------|----------------------|
| Permanent Datum | GL | Elevation | Other Services |
| Log Measured From | GL | | |
| Drilling Measured From | KB | Elevation | K.B. D.F. G.L. |
| | | | |

| | |
|------------------------------|-------------|
| Date | 8/23/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 568 FT |
| Bottom Logged Interval | 568 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| PH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 10:00 |
| Maximum Recorded Temperature | 119 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

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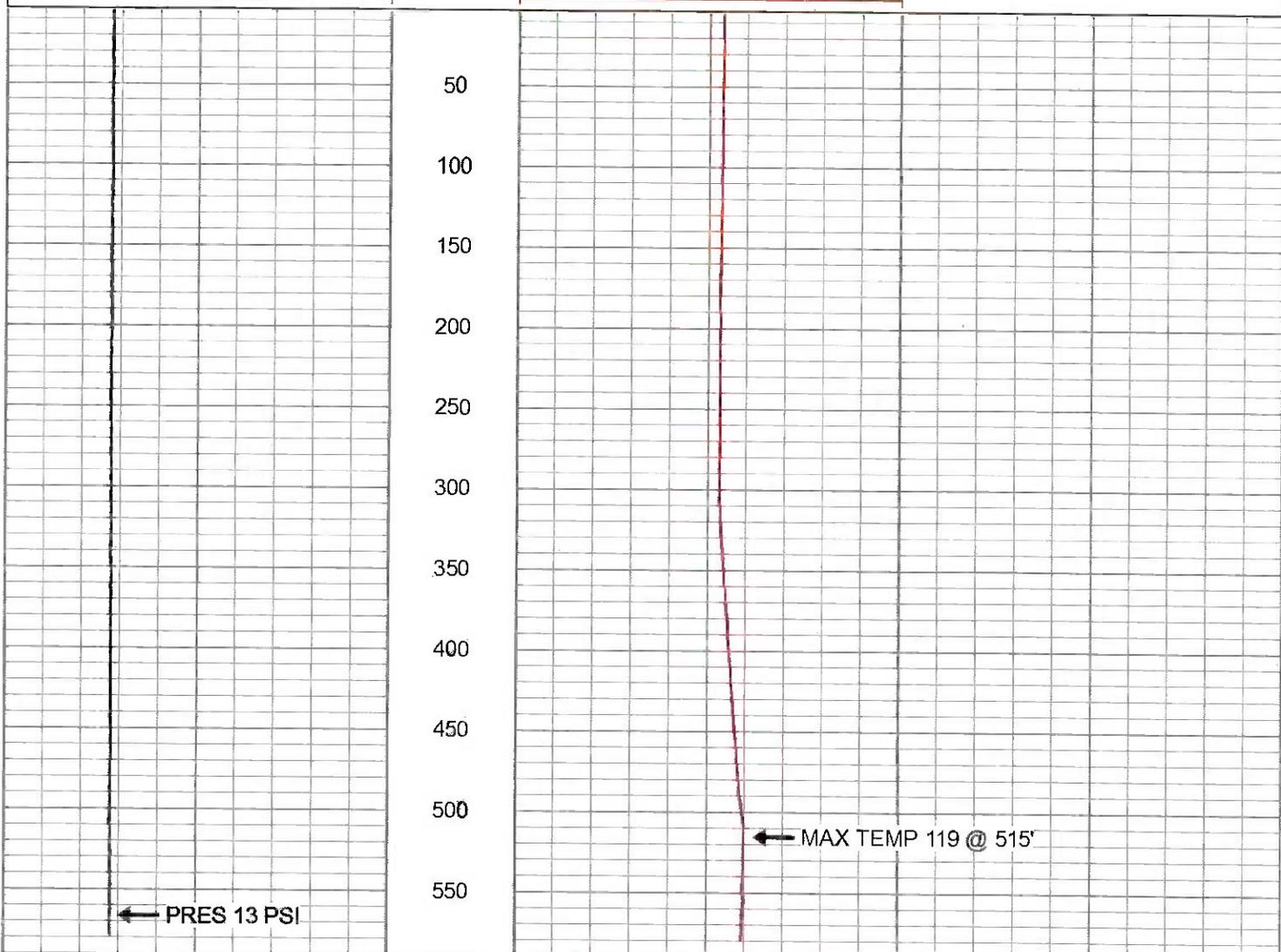
Comments

RAN PT SURVEY
 TAG @ 568 FT
 MAX TEMP 119 @ 515
 PRES 13 PSI

| | |
|---------------------|--|
| Database File | c:\users\crawson\desktop\warrior surveys\kr overland 34wd.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 09:58:24 2014 |
| Charted by | Depth in Feet scaled 1:1200 |

0 PRES (psi) 50

0 TEMP (degF) 200

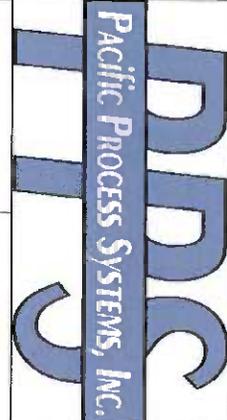


0 PRES (psi) 50

0 TEMP (degF) 200

← PRES 13 PSI

← MAX TEMP 119 @ 515'



PRESSURE / TEMPERATURE SURVEY

Company CHEVRON
 Well SAN JAOQUIN -WD3
 Field KERN RIVER
 County KERN
 State CA

Company CHEVRON
 Well SAN JAOQUIN -WD3
 Field KERN RIVER
 County KERN State CA

Location: API #: 040297004500

| | | | |
|------------------------|----|-----------|----------------|
| Permanent Datum | GL | Elevation | Other Services |
| Log Measured From | GL | | |
| Drilling Measured From | KB | | |

| | |
|------------------------------|-------------|
| Date | 8/24/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 1913 FT |
| Bottom Logged Interval | 1913 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 3:00 PM |
| Maximum Recorded Temperature | 219 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

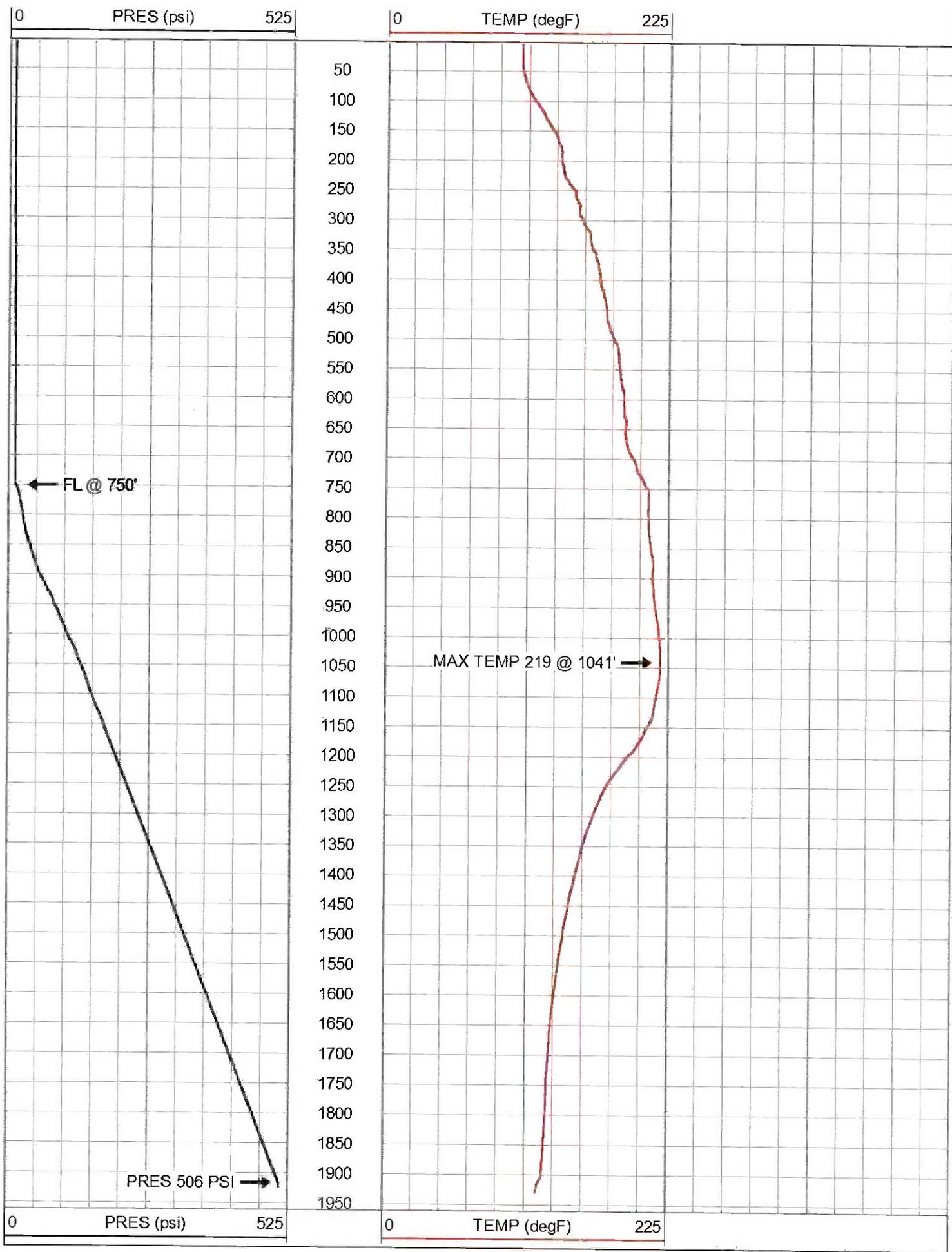
<<< Fold Here >>>

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Comments

RAN PT SURVEY
 TAG @ 1913 FT
 MAX TEMP 219 @ 1041 FT
 FLUID LEVEL @ 750 FT
 PRES 506 PSI

Database File c:\users\crawson\Desktop\warrior surveys\kr sj wd3.db
 Dataset Pathname pass1
 Presentation Format pt-template
 Dataset Creation Sun Aug 24 14:27:35 2014
 Charted by Depth in Feet scaled 1:2400





PRESSURE / TEMPERATURE SURVEY

| | |
|--|--|
| Company CHEVRON Well OVERLAND 35WD Field KERN RIVER County KERN State CA | Company CHEVRON Well OVERLAND 35WD Field KERN RIVER County KERN State CA |
| Location: API #: 040297171700 | |
| Permanent Datum SEC TWP 28S RGE 28E Log Measured From GL Drilling Measured From KB | Elevation KB, D.F., G.L. |

| | |
|------------------------------|-------------|
| Date | 8/23/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 566 FT |
| Bottom Logged Interval | 566 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 12:13 PM |
| Maximum Recorded Temperature | 96 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

<<< Fold Here >>>

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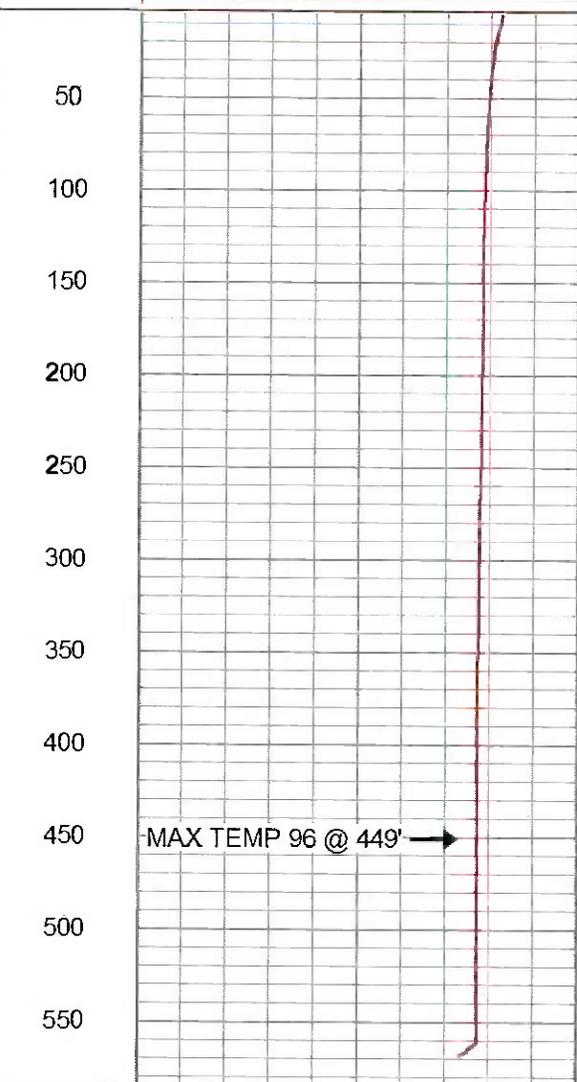
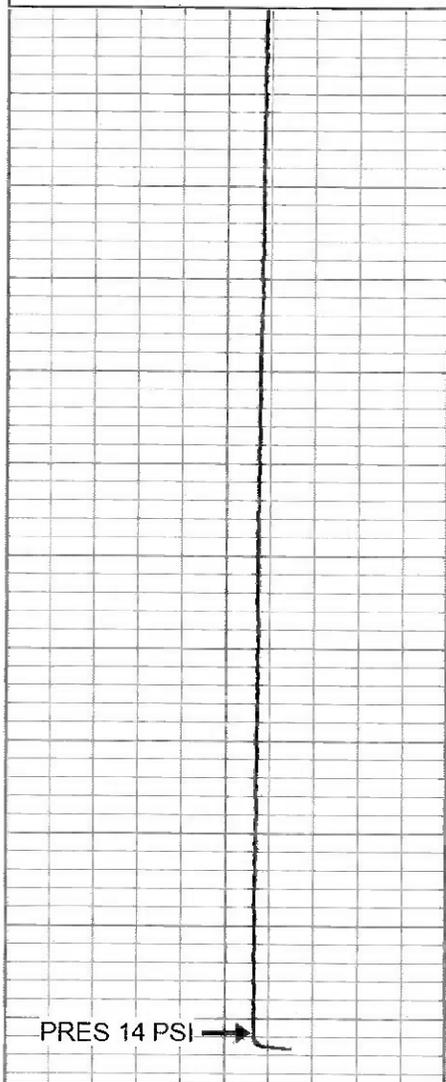
Comments

RAN PT SURVEY
 TAG @ 566 FT
 MAX TEMP 96 @ 449 FT
 PRES 14 PSI

| | |
|---------------------|--|
| Database File | c:\users\crawson\desktop\warrior surveys\kr overland 35wd.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 11:57:29 2014 |
| Charted by | Depth in Feet scaled 1:1200 |

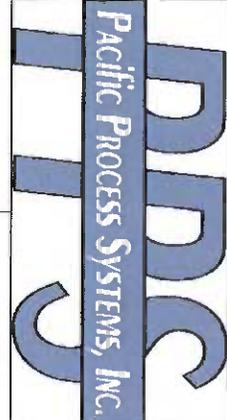
0 PRES (psi) 25

0 TEMP (degF) 125



0 PRES (psi) 25

0 TEMP (degF) 125



PRESSURE / TEMPERATURE SURVEY

| | |
|--|--|
| Company CHEVRON Well KCL-10 2X Field KERN RIVER County KERN State CA | Company CHEVRON Well KCL-10 2X Field KERN RIVER County KERN State CA |
| Location: API #: 040297205000 | |
| SEC TWP 29S RGE 28E | |
| Permanent Datum Log Measured From Drilling Measured From | GL GL KB |
| Elevation | |
| KB, D.F., GL. | |

| | | | |
|------------------------------|-------------|--|--|
| Date | 8/24/2014 | | |
| Run Number | ONE | | |
| Depth Driller | | | |
| Depth Logger | 998 FT | | |
| Bottom Logged Interval | 998 FT | | |
| Top Log Interval | 0 FT | | |
| Casing Driller | | | |
| Casing Logger | | | |
| Bit Size | | | |
| Type Fluid in Hole | | | |
| Density / Viscosity | | | |
| pH / Fluid Loss | | | |
| Source of Sample | | | |
| Rm @ Meas. Temp | | | |
| Rmf @ Meas. Temp | | | |
| Rmc @ Meas. Temp | | | |
| Source of Rmf / Rmc | | | |
| Rm @ BHT | | | |
| Time Circulation Stopped | | | |
| Time Logger on Bottom | 1:20 PM | | |
| Maximum Recorded Temperature | 107 DEG F | | |
| Equipment Number | 315 | | |
| Location | BAKERSFIELD | | |
| Recorded By | E. ANDERSON | | |
| Witnessed By | NO WITNESS | | |

<<< Fold Here >>>

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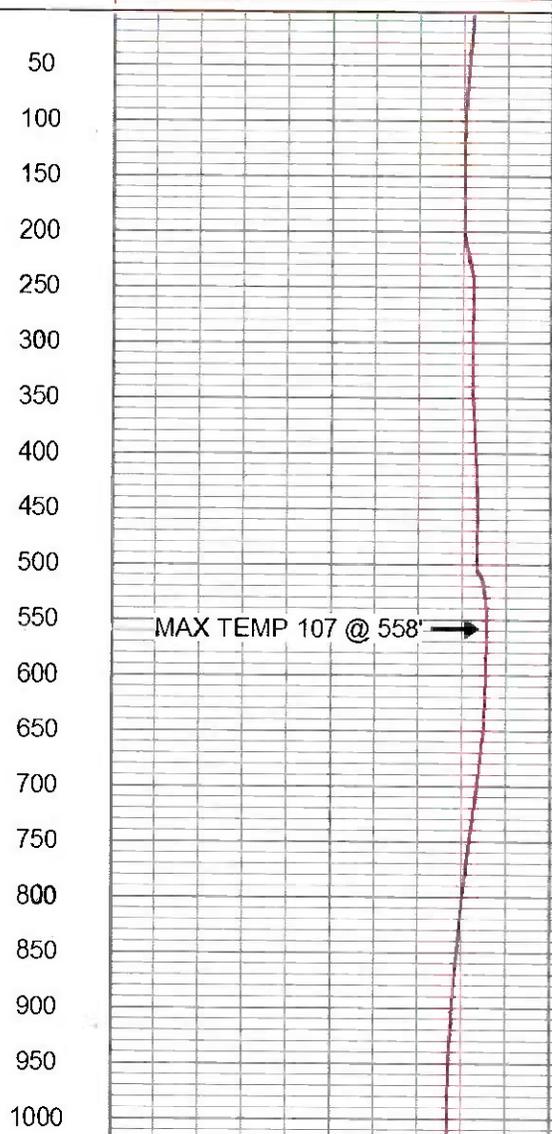
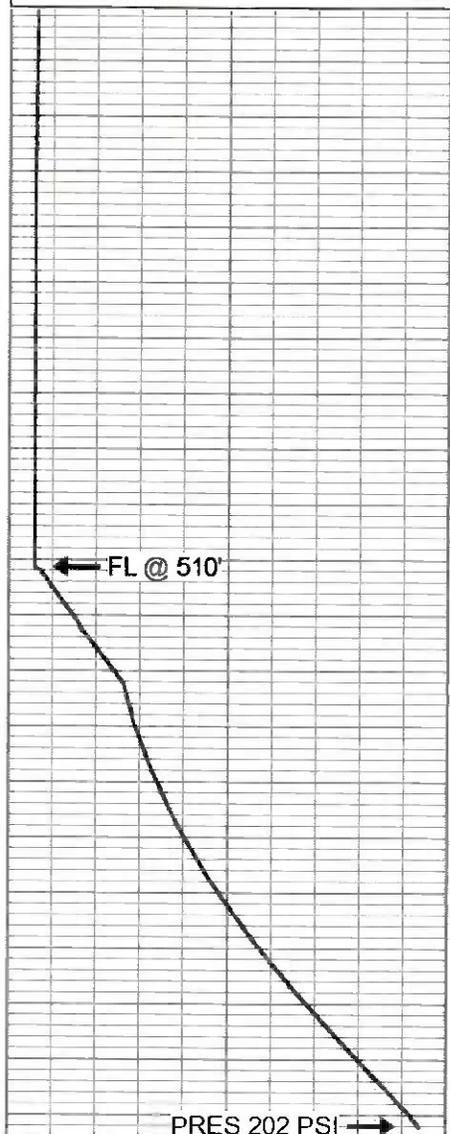
Comments

RAN PT SURVEY
 TAG @ 998 FT
 MAX TEMP 107 @ 558 FT
 FLUID LEVEL @ 510 FT
 PRES 202 PSI

| | |
|---------------------|--|
| Database File | c:\users\crawson\Desktop\warrior surveys\kr kcl-10 2x.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sun Aug 24 13:01:12 2014 |
| Charted by | Depth in Feet scaled 1:2000 |

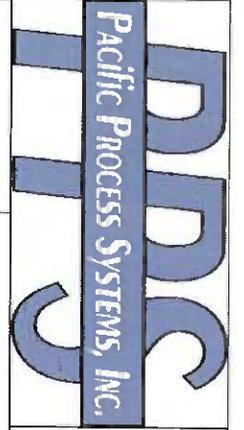
0 PRES (psi) 225

0 TEMP (degF) 125



0 PRES (psi) 225

0 TEMP (degF) 125



PRESSURE / TEMPERATURE SURVEY

| | |
|--|---|
| Company CHEVRON Well SECTION 3 D3-3 Field KERN RIVER County KERN State CA | Company CHEVRON Well SECTION 3 D3-3 Field KERN RIVER County KERN State CA |
| Location: API #: 040297504900 | |
| Permanent Datum SEC TWP 29S RGE 28E Log Measured From GL Drilling Measured From KB | Elevation KB D.F. G.L. |

| | |
|------------------------------|-------------|
| Date | 8/24/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 1373 FT |
| Bottom Logged Interval | 1373 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmt @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 4:30 PM |
| Maximum Recorded Temperature | 106 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

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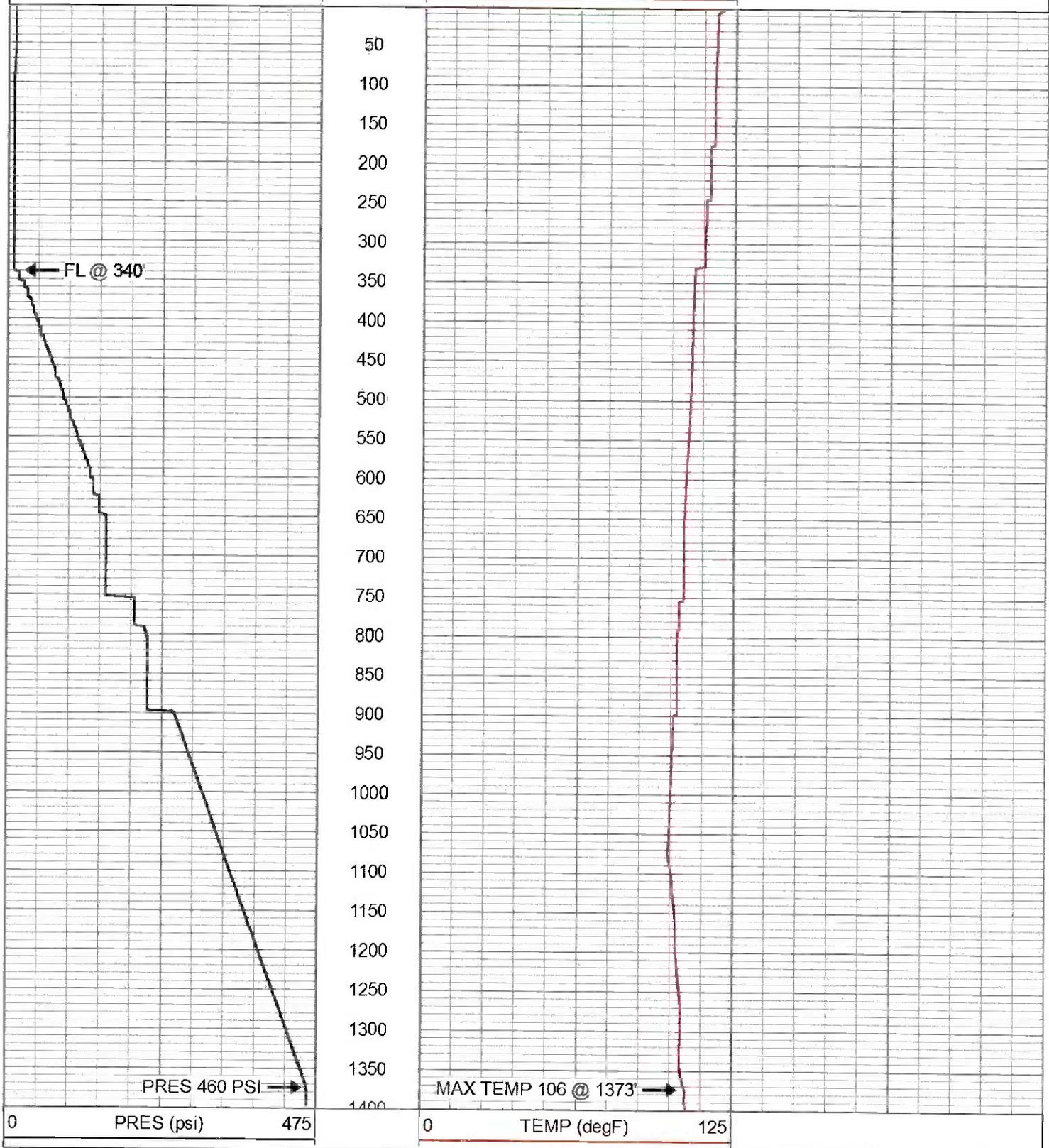
Comments

RAN PT SURVEY
 TAG @ 1373 FT
 MAX TEMP 106 @ 1373 FT
 FLUID LEVEL @ 340 FT
 PRES 460 PSI

| | |
|---------------------|--|
| Database File | c:\users\crawson\desktop\warrior surveys\kr sec3 d3-3.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sun Aug 24 16:07:53 2014 |
| Charted by | Depth in Feet scaled 1:2000 |

0 PRES (psi) 475

0 TEMP (degF) 125



0 PRES (psi) 475

0 TEMP (degF) 125



PRESSURE / TEMPERATURE SURVEY

Company CHEVRON
 Well KCL-10-210
 Field KERN RIVER
 County KERN
 State CA

Company CHEVRON
 Well KCL-10-210
 Field KERN RIVER
 County KERN State CA

Location: API #: 040297780600

SEC TWP 29S RGE 28E

Permanent Datum GL
 Log Measured From GL
 Drilling Measured From KB

Other Services
 Elevation
 KB,
 D.F.,
 G.L.

| | | | |
|------------------------------|-------------|--|--|
| Date | 8/23/2014 | | |
| Run Number | ONE | | |
| Depth Driller | | | |
| Depth Logger | 1153 FT | | |
| Bottom Logged Interval | 1153 FT | | |
| Top Log Interval | 0 FT | | |
| Casing Driller | | | |
| Casing Logger | | | |
| Bit Size | | | |
| Type Fluid in Hole | | | |
| Density / Viscosity | | | |
| pH / Fluid Loss | | | |
| Source of Sample | | | |
| Rm @ Meas. Temp | | | |
| Rmt @ Meas. Temp | | | |
| Rmc @ Meas. Temp | | | |
| Source of Rmf / Rmc | | | |
| Rm @ BHT | | | |
| Time Circulation Stopped | | | |
| Time Logger on Bottom | 2:10 PM | | |
| Maximum Recorded Temperature | 240 DEG F | | |
| Equipment Number | 315 | | |
| Location | BAKERSFIELD | | |
| Recorded By | E. ANDERSON | | |
| Witnessed By | NO WITNESS | | |

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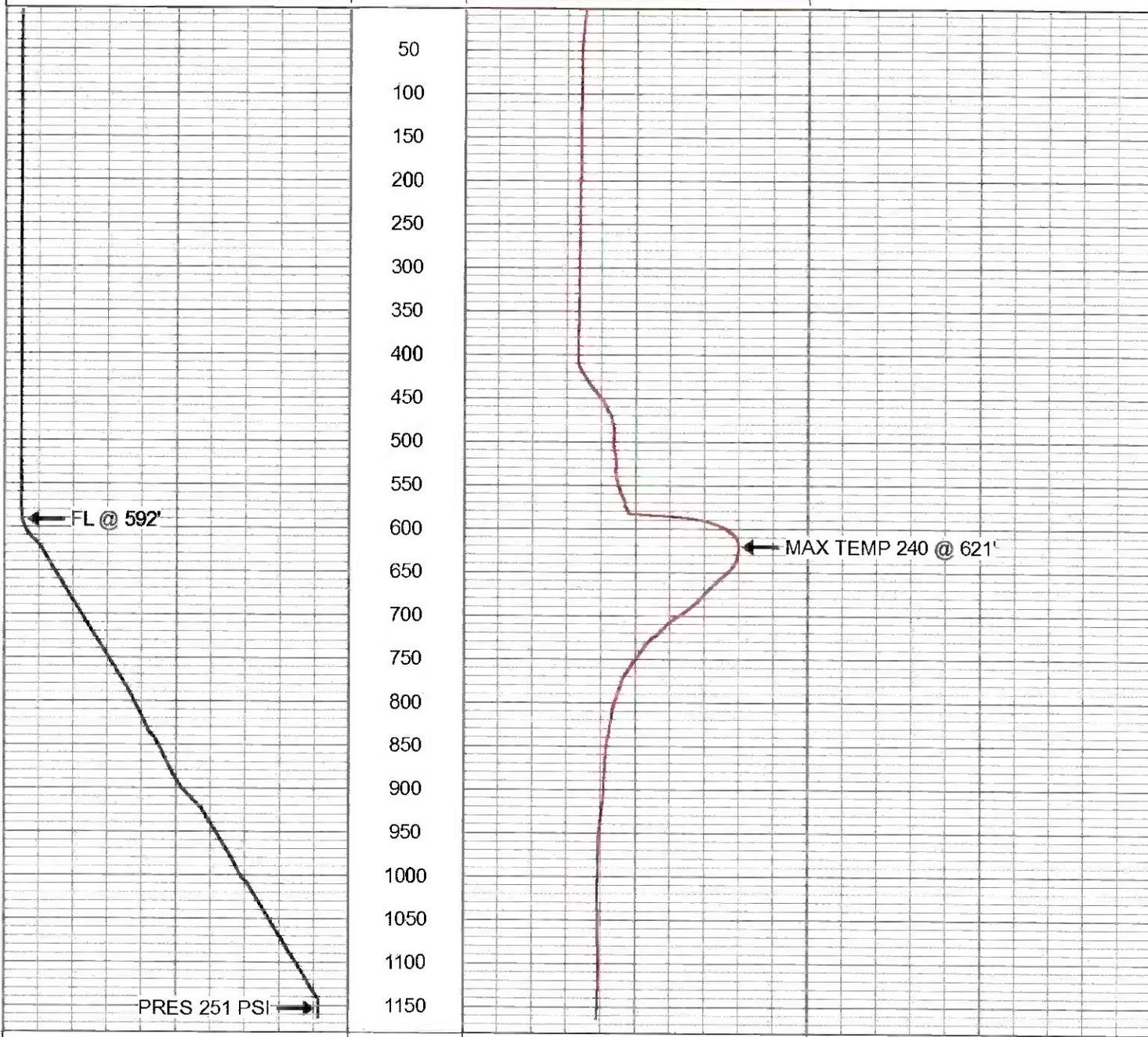
Comments

RAN PT SURVEY
 TAG @ 1153 FT
 MAX TEMP 240 @ 621 FT
 FLUID LEVEL @ 592 FT
 PRES 251 PSI

Database File c:\users\crawson\Desktop\warrior surveys\kr kcl-10-210.db
 Dataset Pathname pass1
 Presentation Format pt-template
 Dataset Creation Sat Aug 23 13:37:51 2014
 Charted by Depth in Feet scaled 1:2000

0 PRES (psi) 275

0 TEMP (degF) 300



0 PRES (psi) 275

0 TEMP (degF) 300



PRESSURE / TEMPERATURE SURVEY

| | |
|---|---|
| Company CHEVRON Well KCL-10-212 Field KERN RIVER County KERN State CA | Company CHEVRON Well KCL-10-212 Field KERN RIVER County KERN State CA |
| Location: _____ API #: 040297780700 | Other Services _____ |
| Permanent Datum _____ Log Measured From _____ Drilling Measured From _____ | Elevation _____ K.B. _____ D.F. _____ G.L. _____ |
| SEC _____ TWP 29S RGE 28E | Elevation _____ |

| | | | |
|------------------------------|-------------|--|--|
| Date | 8/23/2014 | | |
| Run Number | ONE | | |
| Depth Driller | | | |
| Depth Logger | 1539 FT | | |
| Bottom Logged Interval | 1539 FT | | |
| Top Log Interval | 0 FT | | |
| Casing Driller | | | |
| Casing Logger | | | |
| Bit Size | | | |
| Type Fluid in Hole | | | |
| Density / Viscosity | | | |
| pH / Fluid Loss | | | |
| Source of Sample | | | |
| Rm @ Meas. Temp | | | |
| Rmf @ Meas. Temp | | | |
| Rmc @ Meas. Temp | | | |
| Source of Rmf / Rmc | | | |
| Rm @ BHT | | | |
| Time Circulation Stopped | | | |
| Time Logger on Bottom | 3:30 PM | | |
| Maximum Recorded Temperature | 296 DEG F | | |
| Equipment Number | 315 | | |
| Location | BAKERSFIELD | | |
| Recorded By | E. ANDERSON | | |
| Witnessed By | NO WITNESS | | |

<<< Fold Here >>>

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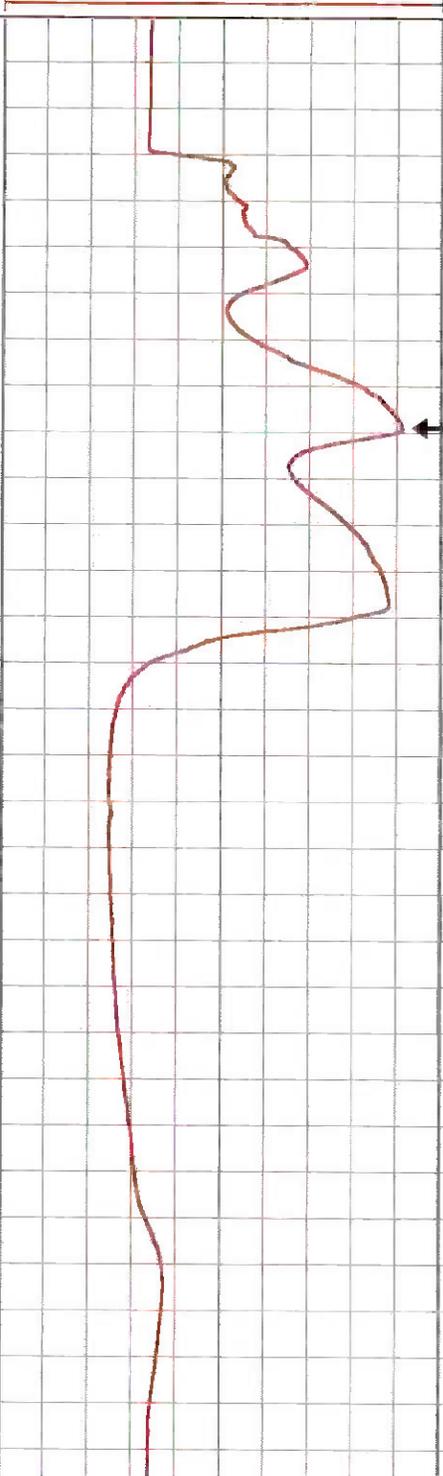
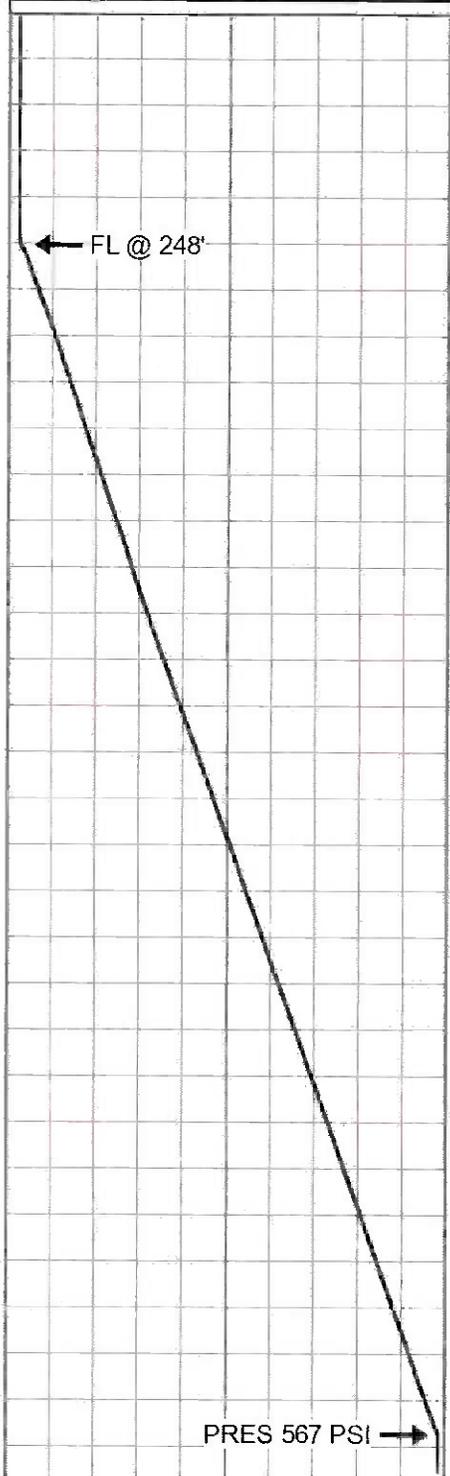
Comments

RAN PT SURVEY
 TAG @ 1539 FT
 MAX TEMP 296 @ 446 FT
 FLUID LEVEL @ 248 FT
 PRES 567 PSI

| | |
|---------------------|---|
| Database File | c:\users\crawson\desktop\warrior-surveys\kr kcl-10-212.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 15:00:52 2014 |
| Charted by | Depth in Feet scaled 1:2400 |

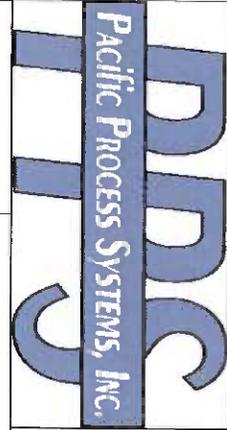
0 PRES (psi) 575

0 TEMP (degF) 325



0 PRES (psi) 575

0 TEMP (degF) 325



**PRESSURE / TEMPERATURE
SURVEY**

| | | | |
|------------------------|-------------|----------------|----------------------|
| Company | CHEVRON | Company | CHEVRON |
| Well | ORIENT WD 1 | Well | ORIENT WD 1 |
| Field | KERN RIVER | Field | KERN RIVER |
| County | KERN | County | KERN |
| State | CA | State | CA |
| Location: | | API # : | 040298042100 |
| Permanent Datum | SEC | TWP | 28S |
| Log Measured From | GL | RGE | 28E |
| Drilling Measured From | KB | Elevation | |
| | | Elevation | K.B. D.F. G.L. |
| Date | 8/23/2014 | Other Services | |

| | |
|------------------------------|-------------|
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 2186 FT |
| Bottom Logged Interval | 2186 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 8:00 AM |
| Maximum Recorded Temperature | 222 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

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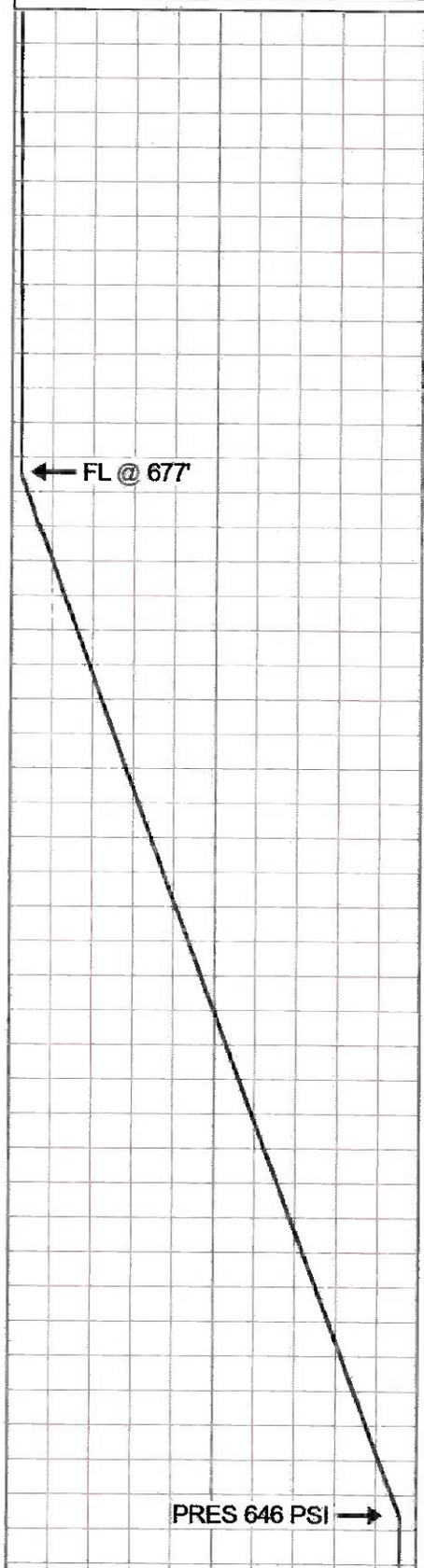
Comments

**RAN PT SURVEY
 TAG @ 2186 FT
 MAX TEMP 222 @ 1168 FT
 FLUID LEVEL @ 677 FT
 PRES 646 PSI**

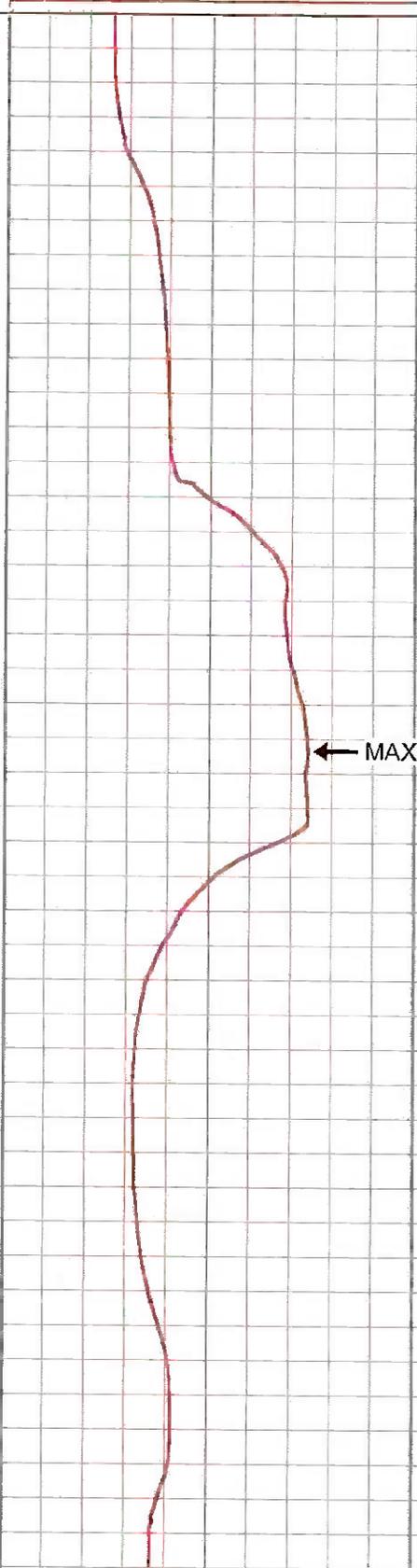
| | |
|---------------------|---|
| Database File | c:\users\crawson\desktop\warrior surveys\kr orient wd1.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sat Aug 23 07:24:22 2014 |
| Charted by | Depth in Feet scaled 1:3000 |

-10 PRES (psi) 675

0 TEMP (degF) 300



50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
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1650
1700
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1800
1850
1900
1950
2000
2050
2100
2150
2200
2250



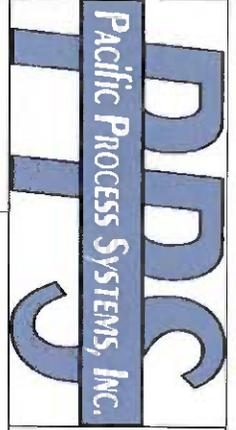
-10 PRES (psi) 675

0 TEMP (degF) 300

← MAX TEMP 222 @ 1168'

← FL @ 677

PRES 646 PSI →



PRESSURE / TEMPERATURE SURVEY

Company CHEVRON
 Well PEARL E. BERRY WD1
 Field KERN RIVER
 County KERN
 State CA

Company CHEVRON
 Well PEARL E. BERRY WD1
 Field KERN RIVER
 County KERN State CA

Location: API #: 040298459200

| | | | |
|------------------------|----|-----------|--|
| Permanent Datum | GL | Elevation | Other Services K.B. D.F. G.L. |
| Log Measured From | GL | | |
| Drilling Measured From | KB | | |
| | | | |

| | |
|------------------------------|-------------|
| Date | 8/24/2014 |
| Run Number | ONE |
| Depth Driller | |
| Depth Logger | 1787 FT |
| Bottom Logged Interval | 1787 FT |
| Top Log Interval | 0 FT |
| Casing Driller | |
| Casing Logger | |
| Bit Size | |
| Type Fluid in Hole | |
| Density / Viscosity | |
| pH / Fluid Loss | |
| Source of Sample | |
| Rm @ Meas. Temp | |
| Rmf @ Meas. Temp | |
| Rmc @ Meas. Temp | |
| Source of Rmf / Rmc | |
| Rm @ BHT | |
| Time Circulation Stopped | |
| Time Logger on Bottom | 6:00 PM |
| Maximum Recorded Temperature | 216 DEG F |
| Equipment Number | 315 |
| Location | BAKERSFIELD |
| Recorded By | E. ANDERSON |
| Witnessed By | NO WITNESS |

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

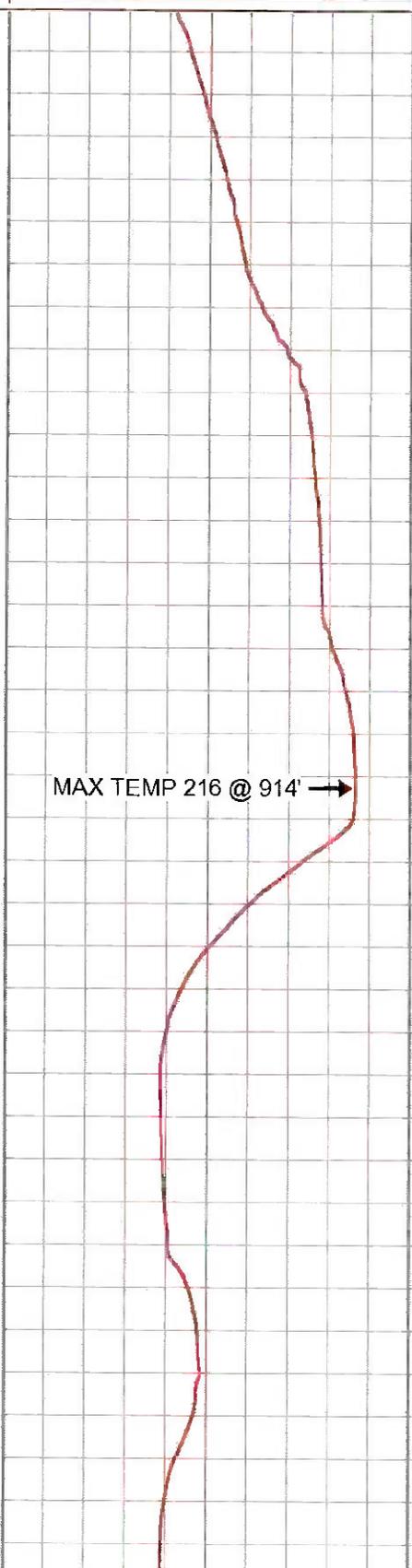
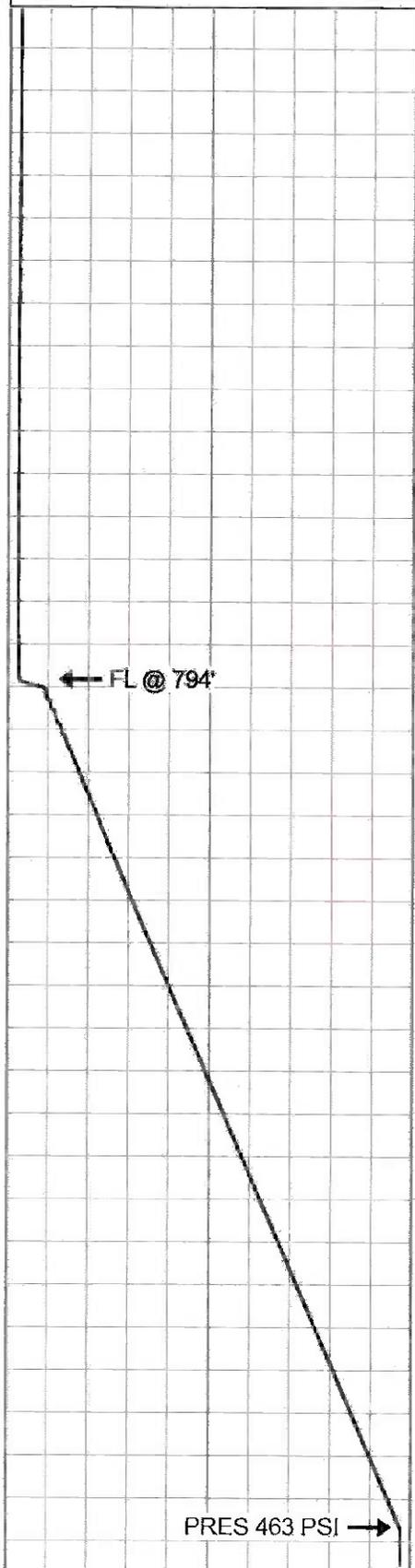
Comments

RAN PT SURVEY
 TAG @ 1787 FT
 MAX TEMP 216 @ 914 FT
 FLUID LEVEL @ 794 FT
 PRES 463 FT

| | |
|---------------------|---|
| Database File | c:\users\crawson\desktop\warrior surveys\peal e. berry wd1--8-24-2014\kr peal e. berry wd1.db |
| Dataset Pathname | pass1 |
| Presentation Format | pt-template |
| Dataset Creation | Sun Aug 24 17:25:55 2014 |
| Charted by | Depth in Feet scaled 1:2400 |

0 PRES (psi) 475

0 TEMP (degF) 250



0 PRES (psi) 475

0 TEMP (degF) 250

← FL @ 794'

MAX TEMP 216 @ 914' →

PRES 463 PSI →



APPENDIX C

TestAmerica's Analytical Proposal

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

8/25/2014

Timothy G. Souther
AMEC Environment & Infrastructure, Inc.
1281 E Alluvial Ave, Ste 101
Fresno, CA 93720

Re: Chevron Kern River

Hello Mr. Souther,

TestAmerica has reviewed the scope of work and understands a five business day turn is required for this project.

For the Rad Chem analysis, the turn around time is normally 22 business days; however, with a sample schedule and the understanding that samples will be submitted in batches of 2 to 3 over a series of weeks we are able to commit to a five day rush turn around time from when samples are received at the laboratory. Please note to assist in the turn around time, we respectfully request that you ship samples from the field to our St. Louis facility which will run the radiological analysis. The remaining analysis will need to be sent to Irvine

Please coordinate with Patty Mata before samples are sent to the laboratories as she will be the TestAmerica Project Manager overseeing the logistics and deliverables of this project.

TestAmerica St. Louis address is listed below for radiological analysis.

13715 Rider Trail North, Earth City, MO 63045

TestAmerica Irvine for the remaining analysis.

17461 Derian, Suite 100, Irvine CA 92614

If we can be of further assistance, please let us know. Have a great day and thank you for your continued business,

Thank you,



Kirk Miltimore
Laboratory Director

Appendix E
Regional Board
Correspondence

Central Valley Regional Water Quality Control Board

5 September 2014

Mr. Gary Piron
Chevron, U.S.A, Inc.
1546 China Grade Loop
Bakersfield, CA 93308

REVIEW OF CHEVRON, U.S.A, INC. FEASIBILITY REPORT AND TIME SCHEDULE INJECTION WELL GROUNDWATER SAMPLING WORK PLAN, KERN RIVER OIL FIELD, KERN COUNTY, CALIFORNIA

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff received a submittal entitled *Feasibility Report And Time Schedule Injection Well Groundwater Sampling* dated 26 August 2014 (feasibility report). The feasibility report was prepared by AMEC Environment & Infrastructure Inc. (AMEC) on behalf of Chevron, U.S.A. Inc. (Chevron) in response to the Central Valley Water Board's Section 13267 Order dated 11 August 2014 (Order). Chevron is the operator of the injection wells identified as API numbers 02926346, 02955750, 02967907, 02970045, 02971717, 02972050, 02973218, 02973297, 02975045, 02975049, 02976159, 02977806, 02977807, 022980421, 02984592 and 03010793 (hereinafter "injection wells subject to the Order"). Staff's comments are presented in the enclosed memorandum.

Staff conditionally concurs with the modifications to groundwater sampling procedures provided that:

- Chevron proposes a method to characterize the groundwater quality of the historical injection zones related to injection well API No. 02975045 (Chanac and Santa Margarita formations).
- A registered Civil Engineer or Professional Geologist certifies that the alternative sampling procedures utilized have produced representative groundwater samples for analysis.
- Chevron needs to address the impacts of the excessive formation temperatures on sample integrity.
- Chevron needs to address the sample collection methods for Injection Well API 02926346 and demonstrate why it's infeasible to collect formation water samples from both the Chanac and Santa Margarita formations.
- Chevron needs to clarify, for each well subject to the Order, whether the perforation intervals below existing plugs were utilized for oil production, waste disposal injection, or both. If the lower perforation intervals were utilized for injection, Chevron needs to identify: the injection zone(s)/formation(s); methodology for characterization of the groundwater in the injection zone(s); and/or a justification why it should be excluded from characterization.

Feasibility Review and Time Schedule:

Alternative time schedules are at the discretion of the Assistant Executive Officer of the Central Valley Water Board. A time extension to the requirements of the Order will not be granted by the Assistant Executive Officer. In addition to the interim data reports, Chevron needs to submit all available data in accordance with the timelines stipulated in the Order.

If you have any questions, please contact Ryan West at (559) 445-6188 or by e-mail at Ryan.West@waterboards.ca.gov.



DANE S. JOHNSON
Senior Engineering Geologist
PG No. 4239

Enclosure: Memorandum

cc: Steve Fields, California Division of Oil, Gas, and Geothermal Resources, Bakersfield
Kern County Environmental Health Services Department, Bakersfield

Central Valley Regional Water Quality Control Board

TO: DANE S. JOHNSON 
Senior Engineering Geologist

FROM: MATTHEW R. HARLOW 
Water Resource Control Engineer
PE No. 78670

DATE: 5 September 2014

SUBJECT: **REVIEW OF CHEVRON, U.S.A, INC. FEASIBILITY REPORT AND TIME SCHEDULE
INJECTION WELL GROUNDWATER SAMPLING WORK PLAN, KERN RIVER OIL
FIELD, KERN COUNTY, CALIFORNIA**

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff received a submittal entitled *Feasibility Report And Time Schedule, Injection Well Groundwater Sampling* dated 26 August 2014 (feasibility report). The feasibility report was prepared by AMEC Environment & Infrastructure Inc. (AMEC) on behalf of Chevron, U.S.A. Inc. (Chevron) in response to the Central Valley Water Board's Section 13267 Order dated 11 August 2014 (Order). Chevron is the operator of the injection wells identified as API numbers 02926346, 02955750, 02967907, 02970045, 02971717, 02972050, 02973218, 02973297, 02975045, 02975049, 02976159, 02977806, 02977807, 022980421, 02984592 and 03010793 (hereinafter "injection wells subject to the Order"). The injection wells subject to the Order are located in the Kern River Oil Field, Kern County, California. My comments are summarized below.

Background

The California Division of Oil, Gas, and Geothermal Resources (Division) determined that the injection wells subject to the Order have been injecting fluids produced by oil and gas extraction activities into aquifers that may not have been properly designated as exempt aquifers under the Federal Safe Drinking Water Act (42 U.S.C. § 300f et seq.). The Order issued by the Central Valley Water Board required Chevron to submit information regarding the quality of groundwater within the zone(s) where fluids have been injected using the injection wells subject to the Order.

As part of the reporting requirements, Chevron was required to submit a work plan that adequately describes the procedures to collect a representative groundwater sample from the injection zone(s) for the injection wells subject to the Order. Pursuant to the Order, Chevron submitted a work plan dated 18 August 2014 which included procedures to collect groundwater samples from 15 of the 16 wells subject to the Order. The work plan was conditionally approved by the Central Valley Water Board staff on 22 August 2014 with stipulation that Chevron address groundwater characterization for injection well API No. 02975045 and quality assurance/quality control (QA/QC) protocols.

The Order allows for the submittal of a technical report by 25 August 2014 to demonstrate the infeasibility of collecting a representative sample within the required timeframe. In accordance with this provision, Chevron submitted the feasibility report which provided details regarding the following:

Chevron's work progress; time constraints due to laboratory analysis; modifications to sampling procedures; revisions to field QA/QC program; residual management; time schedule; and interim reporting and final technical report.

Feasibility Report

According to the feasibility report, Chevron has implemented logistical activities to prepare the injection wells for sampling. Initial activities included well site inspections, assessment of the tubing and casing, evaluation of groundwater, and the identification of modifications required to conduct sampling. Chevron has scheduled the modifications to each well to provide sufficient clearance for the deployment of sampling equipment.

Chevron has contracted with TestAmerica laboratories, Inc. (TestAmerica) for the analysis of the constituents required by the Order. TestAmerica indicated that the expedited turn-around time for analysis of the constituent list, except for radionuclides, is five business days. Analysis of the radionuclides (Radium 226, Radium 228, and gross alpha) will be provided within seven business days from sampling.

Based on field findings, Chevron proposed modifications to the groundwater sampling procedures previously approved in the 18 August 2014 work plan. Chevron proposed to conduct low-flow sampling procedures and purge the wells of groundwater until the field parameters stabilize for a period of 30 minutes of bailing or pumping and after five consecutive stabilized readings. Chevron indicated that this criterion should be adequate to obtain representative groundwater samples from the well. Additionally, Chevron proposed an alternative sampling procedure for injection wells (API Nos. 02926346, 02955750, 02967907, and 03010793) which are perforated in both the Chanac and Santa Margarita formations. Chevron proposed to utilize low-flow bladder pumps to collect samples from the center of the perforation intervals in both the Chanac and Santa Margarita formations. A sample from each interval will be collected utilizing low-flow sampling procedures.

Chevron indicated that it would increase the number of samples collected as part of the QA/QC program. The QA/QC program will include a travel blank sample per each day of sampling and field blanks duplicates collected per every five groundwater samples.

The feasibility report indicated that, due to multiple and significant issues that must be resolved before each well could be sampled, the deadlines contained in the Order were infeasible. Chevron provided a time schedule for each task and its anticipated duration. Chevron proposed submitting interim data transmittals within 3 days of receiving the analytical reports and a full technical report after all data is available. Based on the schedule, the anticipated date for the submission of the final technical report is 11 November 2014.

Comments

Alternate Sampling Methods:

Chevron proposed alternative sampling methods to include low-flow, also referred to as micro-purge, sampling techniques utilizing either a bladder pump or bailer. The feasibility report indicated that groundwater samples would be collected after field parameters stabilize for a period of 30 minutes of bailing or pumping and after five stabilized readings. The utilization of micro-purge techniques has become a common practice for the collection of groundwater samples. Micro-purge methods typically

include flow rates between 0.1 to 0.5 liters/minute which approximates the flow rate of groundwater within the formation. This reduces the necessity to purge the stagnant volume from the well and turbidity within the sample is minimized. The utilization of a bailer for sampling does not have the same benefits as the micro-purge bladder pumps. Bailing will create agitation within the well column, increase sample turbidity, and increase the volume required for purging prior to sample collection. Additionally, the 30 minute time period recommended by Chevron is not applicable to bailing a well and should not be utilized as a guideline for sampling.

A review of the water level data reports included in the feasibility report indicates that temperatures in the injection wells subject to the Order range between 96 and 296 degrees Fahrenheit (F). Excessive temperatures within the well can have detrimental impacts regarding the preservation of sample integrity. Concentrations of volatile organic compounds and other constituents may be significantly impacted by the observed temperatures. Vaporization of the water content may lead to off-gassing of the volatile constituents and increased concentrations of the constituents remaining in solution. Chevron needs to address the impacts of the excessive injection well temperatures on sample integrity and how it intends to demonstrate that a representative sample has been collected from the formation water.

A review of the operating specifications for typical bladder pumps indicates that operating temperatures range between -20 to 150 degrees F. Additionally, staff noted that a polyvinylchloride (PVC) bailer was to be used in at least one well. If the operating parameters of the sample collection device are exceeded, the device might fail or otherwise contaminate the sample. Chevron needs to review the pump and bailer operating parameters prior to implementation of these methods.

Injection Well API No. 02926346:

Table 2 of the feasibility report indicates that injection well API No. 02926346 will be bailed to collect a combined sample for the Chanac and Santa Margarita formations. The feasibility report indicates that either a tubing restriction exists or fill is covering perforations at an approximate depth of 583 feet. Chevron recommended pulling the tubing and utilizing a 3.5 inch bailer to purge and sample from the injection well. However, typical bladder pumps are smaller than the recommended bailer and should be deployable in this case. If the restriction prohibits the use of a bladder pump to independently sample for each injection zone, then Chevron needs to provide a justification that it is infeasible to independently sample each injection formation interval.

Previous Perforation Intervals

A review of the construction diagrams for injection wells API Nos. 02970045, 02973297, 02976159, and 03010793 indicates that perforation intervals exist below the current plugged depth. During a teleconference between Staff and Chevron on 29 August 2014, Chevron indicated that these four wells were utilized for injection at the lower intervals prior to the installation of the plug. Chevron submitted a description of the injection operations at these intervals via email on 29 August 2014. Injection wells API 02970045 and API 02976159 were used for extended operations and were completed in the Santa Margarita formation. Injection well API 02973297 was previously completed in both the Chanac and Santa Margarita formations and was utilized for extended operations before a plug was installed above the Santa Margarita interval. These injection wells are currently completed in the Chanac formation with a drillable plug set above the Santa Margarita formation. Injection well API 03010793 was previously completed in the lower Santa Margarita (2,359 to 3,211 feet). Chevron performed an injectivity test with production water in this interval prior to setting a drillable plug at

2,015 feet. The well was subsequently completed in the Chanac and Santa Margarita formations with continuous perforations between 991 to 1,720 feet.

Following the 29 August 2014 teleconference, staff identified that injection well API No. 02977807 was previously completed in the Santa Margarita formation with a slotted liner between 1,288 to 1645 feet. Chevron submitted a description of the injection operations for this well in a 3 September 2014 email. The well was utilized for injection in this interval prior to the installation of a permanent cement plug in 1990. The well was subsequently recompleted in the Chanac formation.

For each injection well subject to the Order with previous perforation intervals, Chevron needs to: identify the formation, methodology for characterization of the groundwater, or a justification why it should be excluded from characterization.

Feasibility Review and Time Schedule:

Alternative time schedules are at the discretion of the Assistant Executive Officer of the Central Valley Water Board. Staff previously discussed with Chevron the submittal of interim data reports as stated in the feasibility report. Chevron indicated that it will submit all other information according to the deadlines contained in the Order.

Recommendation

Staff recommends conditional approval of the modifications to groundwater sampling procedures provided that:

- Chevron proposes a method to characterize the groundwater quality of the historical injection zones related to injection well API No. 02975045 (Chanac and Santa Margarita formations).
- A registered Civil Engineer or Professional Geologist certifies that the alternative sampling procedures utilized have produced representative groundwater samples for analysis.
- Chevron needs to address the impacts of the excessive formation temperatures on sample integrity.
- Chevron needs to address the sample collection methods for Injection Well API 02926346 and demonstrate why it's infeasible to collect formation water samples from both the Chanac and Santa Margarita formations.
- For each injection well subject to the Order with previous perforation intervals, Chevron needs to: identify the formation; methodology for characterization of the groundwater; or a justification why it should be excluded from characterization.

Feasibility Review and Time Schedule:

As previously mentioned, alternative time schedules are at the discretion of the Assistant Executive Officer of the Central Valley Water Board. In addition to the interim data reports, Chevron needs to submit all available data in accordance with the stipulated timelines in the Order.

Appendix F
Declaration of
Margarito Guzman

DECLARATION OF MARGARITO GUZMAN IN SUPPORT OF PETITION FOR REVIEW OF REGIONAL BOARD ORDER

I, Margarito Guzman, make this Declaration in Support of the Petition for Review by Chevron U.S.A. Inc. of the August 11, 2014 "Order Pursuant to California Water Code Section 13267" ("Order") issued by the Central Valley Regional Water Quality Control Board ("Regional Board").

1. I am the Technical Team Supervisor for the Kern River Field at Chevron U.S.A. Inc. ("Chevron"), to whom the Order was directed and which is the Petitioner in this matter. My office is located at the Kern River Field in Bakersfield, California.

2. The Order requires Chevron to obtain new groundwater samples from 16 specifically identified current and former wastewater injection wells that were permitted for injection by the California Division of Oil, Gas and Geothermal Resources ("DOGGR") pursuant to the Underground Injection Control ("UIC") program at the time injection occurred. Of those 16 wells, only 7 are currently used for injection, and one of the wells subject to the Order (API #02975045) has been converted to a production well.

3. Upon receipt of the Order, Chevron immediately began working to secure the contractors and equipment needed to conduct the required groundwater sampling. Because the injection wells were not constructed for the purpose of obtaining groundwater samples, significant work is required to be able to obtain groundwater samples from those wells. In some cases, multiple injection zones must be sampled within the same well.

4. Due to the significant amount of work needed, and the amount of time necessary to conduct sampling at each well, I am informed and believe that the cost to comply with the Order's groundwater sampling requirements for 15 wells (not including the well that has been converted to production) is estimated to be a minimum of \$1,000,000. This cost estimate includes, but is not limited to, the contractor services and equipment needed to obtain the sample, the environmental consultant needed to collect the sample and develop the required technical

report, the analytical testing, and the pre-sampling well work that must be performed to access each well for sampling. This estimate does not include any work associated with downhole damage or other well conditions that may be encountered once work commences, or difficulties encountered in the attempt to obtain the groundwater sample.

5. For the well that has been converted to a production well (API #02975045), I am informed and believe that to obtain a representative groundwater sample from that well or other existing nearby wells, drilling through the existing plug or deepening of other nearby production wells to reach the water injection zones would cost approximately \$300,000. This cost estimate does not include the loss of production from the well, or the risk of losing the ability to produce from that well in the future. Alternatively, I am informed and believe that it would be an even higher cost to drill a new well to obtain a groundwater sample. The cost of a possible new well has not yet been quantified.

All of the statements in this Declaration are known to me of my own personal knowledge to be true and correct, except as to matters stated on information and belief. As to statements provided on information and belief, I believe them to be true based on due inquiry and the information available to me at the time of this Declaration.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this Declaration is executed by me on September 10, 2014, at Bakersfield, California.


Margarito Guzman

Appendix G
Relevant Pages of
DOGGR Annual
Reports

SUMMARY OF OPERATIONS CALIFORNIA OIL FIELDS

FIFTY-FIRST ANNUAL REPORT OF THE
STATE OIL AND GAS SUPERVISOR

ISSUED BY

STATE OF CALIFORNIA

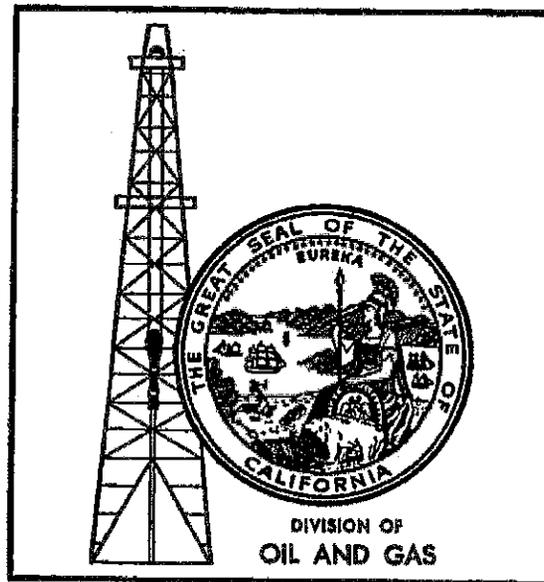
THE RESOURCES AGENCY

DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Vol. 51, No. 2

Sacramento, 1965



DIVISION OF
OIL AND GAS

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SUMMARY OF OPERATIONS—OIL FIELDS

TABLE 5—Continued
WATER DISPOSAL STATISTICS—1965

| Field, area and pool | Maximum number of disposal wells used | Water disposed (bbl.) | Cumulative disposal (bbl.) | Disposal started |
|------------------------------|---------------------------------------|-----------------------|----------------------------|------------------|
| District 4 | | | | |
| Bellevee | | | | |
| Main Area | | | | |
| Etchequin | 1 | 305,955 | 4,129,503 | May, 1948 |
| Bellevee, West | | | | |
| Etchequin | 1 | 418,413 | 662,246 | Jan., 1964 |
| Canfield Ranch | | | | |
| Geofford, East, Area | | | | |
| Etchequin | 4 | 1,517,909 | 16,270,244 | Aug., 1951 |
| Cola Levee, South | | | | |
| Tulare | 1 | 81,369 | 616,627 | Oct., 1960 |
| Deer Creek | | | | |
| Santa Margarita** | 0 | 0 | 2,328,776 | Dec., 1960 |
| Edison | | | | |
| Edison Groves Area | | | | |
| Orosco | 1 | 1,106,946 | 14,633,733 | |
| Main Area | 1 | 1,106,946 | 11,206,679 | Nov., 1956 |
| Schiff | | | 153,231 | Dec., 1953 |
| West Area | | | | |
| Wickert | | | 2,627,826 | Aug., 1956 |
| Fruitvale | | | | |
| Calloway Area | | | | |
| Etchequin | 6 | 7,279,235 | 26,236,143 | |
| Main Area | 1 | 418,291 | 2,778,308 | Oct., 1959 |
| Etchequin | 5 | 6,763,944 | 24,458,836 | June, 1958 |
| Greedy | 2 | 361,318 | 22,698,869 | Dec., 1959 |
| Etchequin | 3 | 0 | 1,232,195 | |
| Stevens** | 2 | 261,318 | 17,976,418 | Feb., 1964 |
| Kern River | | | | |
| Santa Margarita | 1 | 1,503,290 | 2,394,268 | April, 1964 |
| Los Lobos | | | | |
| Red Ridge | 1 | 1,677 | 1,977 | Dec., 1966 |
| Midway-Sanett | | | | |
| Allertum | 5 | 6,874,755 | 19,446,957 | July, 1959 |
| Mountain View | | | | |
| Arvin Area | 1 | 14,414 | 2,027,622 | |
| Kern River | 1 | 14,414 | 14,414 | Dec., 1966 |
| Arvin, West, Area | | | | |
| Kern River | 0 | 0 | 2,076,108 | March, 1966 |
| Paloma | | | | |
| Main Area | | | | |
| Tulare | 1 | 120,014 | 1,320,452 | April, 1967 |
| Playto | | | | |
| Creek Area | | | | |
| Santa Margarita** | 1 | 12,809 | 146,421 | Sept., 1964 |
| Rio Bravo | | | | |
| Blain Vachler | | | | |
| Rosedale | | | | |
| Main Area | | | | |
| Lower Stevens | 0 | 0 | 4,396,434 | June, 1962 |
| San Emidio Nose | | | | |
| Tulare & San Joaquin | 1 | 810,988 | 2,439,240 | July, 1960 |
| Strand | | | | |
| East Area | 2 | 50,208 | 631,755 | |
| Etchequin | 1 | 39,075 | 257,968 | July, 1963 |
| Main Area | | | | |
| Upper Stevens** | 1 | 11,133 | 423,770 | Dec., 1966 |
| Taljon | | | | |
| Western Area | 3 | 975,625 | 6,025,285 | |
| Transition-Santa Margarita** | 2 | 794,204 | 5,043,283 | Sept., 1960 |
| U. Fruitvale sand | 1 | 181,421 | 982,002 | Nov., 1960 |
| Tan Section | | | | |
| Main Area | | | | |
| Etchequin | 1 | 1,210,566 | 17,525,267 | Aug., 1960 |
| Union Avenue | | | | |
| Chasco | 1 | 218,123 | 1,848,169 | Aug., 1967 |
| District totals | 24 | 32,217,688 | 199,250,421 | |
| District 5 | | | | |
| Burrel | | | | |
| Burrel, Southeast | 1 | 1,191,661 | 11,705,735 | Oct., 1963 |
| Coalburg | 2 | 876,459 | 3,441,440 | July, 1963 |
| Coalburg | 7 | 4,704,849 | 10,987,224 | March, 1961 |

**65th ANNUAL REPORT
OF THE STATE
OIL & GAS SUPERVISOR**

1979



California Division of Oil & Gas

Publication No. PR06

INJECTION - 1979

| Field, area, and pool | API county code | Object type | Average number of wells | | | Gas (McF) | Air (McF) | Water (bbl) | Cumulative water (Mbbbl) | Water disposed (bbl) | Cumulative water disposed (Mbbbl) | |
|------------------------|-----------------|-------------|-------------------------|----------|---------|-----------|-----------|-------------|--------------------------|----------------------|-----------------------------------|--------|
| | | | Injecting | Standing | Shut-in | | | | | | | |
| KERN RIVER | 029 | SC | 1,701 | 12 | 5,310 | | | 152,995,419 | 1,460,315 | 7,173,539 | 162,330 | |
| | | | 170 | 1 | 4,785 | | | 18,553,887 | 493,698 | | | |
| | | | 1,505 | 10 | 532 | | | 131,523,560 | 956,358 | | | |
| | | | 27 | 16 | 8 | | | 2,916,772 | 10,266 | | | |
| | | | 13 | 2 | 18 | | | 119,318 | 119 | | | |
| NO POOL BREAKDOWN | | SF | 2 | 1 | 1 | | | | | | | |
| | | | 168 | 1 | 4,777 | | | 18,433,769 | 493,370 | | | |
| | | | 1,504 | 10 | 531 | | | 131,523,560 | 956,358 | | | |
| | | | 27 | 16 | 8 | | | 2,916,772 | 10,266 | | | |
| | | | 2 | 2 | 16 | | | | | | | |
| CHAMAC SANTA MARGARITA | | SF | 1 | | | | | | | | 110 | |
| | | | 2 | | | | | | | | 138,894 | |
| SANTA MARGARITA | | WD | 5 | | 4 | | | | 110,056 | 138,894 | | |
| VEADER | | WD | 4 | | 3 | | | | 1,761,333 | 21,525 | | |
| KETTLEMAN NORTH DOME | | | 5 | | 5 | | | | | 1,191,741 | 45,165 | |
| | | | 3 | | 4 | | | | | 720,497 | | |
| | | | 2 | | 2 | | | | | | 471,244 | |
| | | | 4 | | 4 | | | | | | | 6,152 |
| | | | 6 | | 3 | | | | | | 1,191,741 | 45,165 |
| KING CITY | 053 | WD | 5 | | 2 | | | | | 5,207,956 | 24,980 | |
| | | | 2 | | 1 | | | | | | 1,086,618 | 7,536 |
| THORUP | | ND | 3 | | 1 | | | | 6,119,310 | 17,395 | | |
| KIRBY HILL GAS | 095 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| DOMEENGINE | | GS | | | 3 | | | | | | | |
| | | | | | | | | | | | | |

Appendix H
Request to Prepare
Administrative
Record



Brian Wall
Senior Counsel

Environmental & Safety Law Group
Chevron Law Department
Chevron Corporation
6001 Bollinger Canyon Road
San Ramon, CA 94583
Tel 925 842 9328
Fax 925 842 8595
bwall@chevron.com

September 10, 2014

Clay L. Rodgers
Assistant Executive Officer
Central Valley Regional Water Quality Control Board
1685 E. Street
Fresno, CA 93706

Re: Petition for Review and Request to Prepare Administrative Record of Order Issued to Chevron U.S.A. Inc.

Dear Mr. Rodgers,

Attached herein is a copy of the Petition for Review, Request for Hearing and Request for Placement in Abeyance filed by Chevron U.S.A. Inc. ("Chevron") regarding the Order Pursuant to California Water Code Section 13267 ("Order") issued by the Regional Board to Chevron on August 11, 2014. Chevron is filing this Petition to protect its rights, but is requesting that the Petition be placed in abeyance as it continues to work with the Regional Board regarding the Order.

As part of the Petition for Review process, Chevron is required to request that the Regional Board prepare the administrative record. This letter serves that purpose. However, because Chevron is placing the Petition in abeyance, Chevron believes that work on the administrative record can and should be postponed unless and until such time as the Petition gets moved to active status. Chevron will inform you if that occurs.

Chevron looks forward to continuing to work with the Regional Board to satisfy its information needs while at the same time addressing the concerns raised in the Petition. If you have any questions, please contact me at (925) 842-9328.

Very truly yours,

A handwritten signature in black ink that reads "B Wall". The signature is written in a cursive, flowing style.

Brian Wall

Enclosures: