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Macpherson Operating Company, L.P.

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the Matter of August 11, 2014 Order of the Central Valley Regional Water Quality Control Board Directing Macpherson Operating Company, L.P. To Submit Information and Take Other Action (Water Code Section 13267)	File No. _____ PETITION FOR REVIEW OF REGIONAL BOARD ORDER, AND FOR HEARING ON PETITION (Wat. Code, § 13320; Cal. Code Regs., tit. 23, §§ 2050-2068) PETITION FOR STAY OF REGIONAL BOARD ORDER PENDING HEARING OR OTHER ACTION (Wat. Code, § 13321; Cal. Code Regs., tit. 23, § 2053)

Petitioner Macpherson Operating Company, L.P. ("Macpherson Operating") hereby petitions for review by the State Water Resources Control Board (the "State Board") of an August 11, 2014 order (the "Order") of the Central Valley Regional Water Quality Control Board (the "Regional Board"), and a hearing on this Petition.

Macpherson Operating also requests a stay of the Regional Board's Order pending a hearing or other action on this Petition by the State Board.

A. PETITION FOR REVIEW

1. Name, Address, Telephone Number And E-Mail Address Of The Petitioner.

Macpherson Operating Company, L.P.
2716 Ocean Park Boulevard, Suite 3080
Santa Monica, CA 90405
310.452.3880

Please direct notices and other communications to:

Macpherson Operating Company, L.P.
c/o Bright and Brown
550 North Brand Boulevard, Suite 2100
Glendale, CA 91203
818.243.2121
mbright@brightandbrown.com

2. The Action Or Inaction Of The Regional Water Board Being Petitioned, Including A Copy Of The Action Being Challenged.

The Regional Board's Order directs Macpherson Operating to obtain and submit certain information and take other actions with respect to two produced water disposal wells commonly known as the "Bishop 6" well, formally identified as API Number 02918114, and the "Malta 3" well, formally identified as API Number 02918119, located within the Round Mountain Oil Field as designated by the Division of Oil, Gas and Geothermal Resources ("DOGGR"), both of which wells were permitted by the DOGGR for injection into the federal Environmental Protection Agency ("EPA") exempted Olcese formation. The Order is based on the authority of the Regional Board pursuant to Water Code section 13267 ("Section 13267"). (A copy of the Regional Board's Order is attached as Exhibit 1.)

The Regional Board's Order was issued as an expressly intended compliment to a self-proclaimed "emergency order" issued seven days later on August 18, 2014 by the DOGGR directing Macpherson Oil Company to "immediately cease" injection operations with respect to the Bishop 6 well and submit specified information concerning the operation of the Bishop 6 well to the DOGGR and the Regional Board within 30 days after the DOGGR Order, i.e., by Wednesday, September 17,

2014 (the "DOGGR Order"). The response date of September 17, 2014 date in the DOGGR Order is in contrast to the response date of September 4, 2014 in the Regional Board's Order. (A copy of the DOGGR Order is attached as Exhibit 2.) The DOGGR Order makes no mention of the Malta 3 well. There has been no use made of the Malta 3 well since July 1994, more than twenty years ago.

3. The Date The Regional Board Acted.

The date of the Regional Board's Order is August 11, 2014, which was not received until August 13, 2014 by certified mail. The notation on the Order that it was delivered by personal service is inaccurate.

4. A Statement Of The Reasons The Action Was Inappropriate Or Improper.

The Regional Board's Order is based on its authority under Section 13267 to require specifically described persons to "furnish...technical or monitoring program reports which the regional board requires" in connection with its investigation of the quality of waters within its region." (Wat. Code, § 13267(b)(1).) That authority is subject to the express mandatory limitation, however, that "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." (Wat. Code, § 13267(b)(1).)

First, contrary to the specific requirements of Section 13267, the burden, including costs, of the activity mandated by the Order bears no reasonable relationship either to the need for such activity or any benefit to be obtained by it. Any need for or benefit of this activity would have been greatly outweighed by the burden, including costs, occasioned by compliance with its requirements in any time frame. However, Macpherson Operating has suffered and continues to suffer an unnecessarily enhanced burden, including costs and business disruption, as a result of the unreasonably abbreviated schedule mandated for compliance with the Order on the basis of a completely contrived sense of urgency.

Second, the Order is based upon factual assumptions that are demonstrably incorrect. Therefore, there is no need for the demanded activity nor any appreciable benefit to be obtained.

Third, contrary to the specific requirements of Section 13267, the Regional Board's Order is directed to Macpherson Operating, which has never owned or operated the Bishop 6 or Malta 3 wells.

Fourth, contrary to the statutory requirements, no evidence was provided by the Regional Board to justify the need for the Order.

5. How The Petitioner Is Aggrieved.

As more fully explained in the statement of points and authorities below, the activity mandated by the Order serves no substantial purpose and is of no substantial benefit whatsoever. Since they were permitted, the Bishop 6 and Malta 3 wells have been used to dispose of water produced in association with oil extracted from the Vedder formation in the Sharktooth Area of the Round Mountain Field. The Malta 3 well has been idle, and unused for injection or any other purpose, since July 1994, that is, more than twenty (20) years. The Bishop 6 well is not currently being used for injection as a result of DOGGR Order requiring the cessation of injection as of noon on August 23, 2014. Contrary to the assumptions in the Regional Board's Order and the DOGGR Order that there is a potential threat to human health from the injection of produced water into the subject wells, the approval documentation from the DOGGR, which was copied to the Regional Board, states that the water injected into the Olcese formation has a lower concentration of total dissolved solids ("TDS") than the existing water in the Olcese formation. In addition, injection of produced waters into the Olcese formation has been in compliance and consistent with the authority given to the DOGGR by the federal EPA. The Olcese formation in the Round Mountain Field is an exempted formation per the federal EPA, and has been so since 1983.

Moreover, Macpherson Operating, to whom the Regional Board's Order is directed as the asserted "discharger," has never owned and never operated either the Bishop 6 well or the Malta 3 well for injection or any other purpose.

The Order has already imposed a significant burden upon the monetary and other resources of Macpherson Operating, and exposed Macpherson Operating to substantial legal penalties for any failure to comply. The Bishop 6 well is the only

operating well in the Sharktooth Area for the injection of produced water in connection with the oil production operations in the Sharktooth Area of Macpherson Oil Company (the actual operator of the well). The Order, which requires the Bishop 6 well to be shut in to take the demanded samples, in conjunction with the DOGGR Order requiring that all injection into the Bishop 6 well cease, has caused Macpherson Oil Company to shut in its Sharktooth operations, and thereby caused Macpherson Oil Company and its royalty holders to lose significant oil production and revenue, and likely will require Macpherson Oil Company to invoke force majeure provisions under affected oil and gas leases. In addition, the Order leaves Macpherson Operating exposed to an open-ended threat of further potentially required, but as yet unspecified, "additional information or action," and the continuing threat of substantial legal penalties for failure to comply with such further and as yet unspecified requirements.

In addition, and beyond the costs and other burdens associated with the requirements of the Regional Board's Order (and the DOGGR Order), Macpherson Operating has suffered and continues to suffer further burdens associated with the increased costs and business disruption occasioned by the completely contrived sense of urgency associated with these orders and the abbreviated schedule imposed on Macpherson Operating for compliance with them. In fact, compliance was ordered by September 4, 2014 – within the statutory period in which to file this Petition – which effectively forces compliance with the improper Order before this appeal could be heard.

6. The Action The Petitioner Requests The State Water Board To Take.

Macpherson Operating requests that the Regional Board's Order be set aside and that the Regional Board be directed to take no further action with respect to the subject matter of its Order unless and until it provides evidence demonstrating that further action is warranted. Macpherson Operating further requests that the Regional Board be instructed, should it reasonably determine that further action

concerning the subject matter of its Order is required, to direct any further order to an appropriate party in accordance with the provisions of Section 13267.

Macpherson Operating further requests both a hearing on this Petition and that the Regional Board's Order be stayed pending a hearing on this Petition or other action by the State Board.

7. A Statement Of Points And Authorities Of Legal Issues Raised In The Petition.

a. The Regional Board's Order Fails To Comply With The Specific Requirements Of Section 13267.

Section 13267 authorizes the Regional Board to conduct an investigation into the quality of waters of the state for certain purposes, and in connection with such an investigation to "require...*any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste* within its region..., [to] furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires." Section 13267 expressly limits the Regional Board's authority in that regard by requiring that "[t]he 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."

Because the burden upon Macpherson Operating of complying with the Order greatly outweighs any need for the demanded report, and any benefit which might be obtained from it, the Order violates the specific mandatory limitation provided in Section 13267.

Further, Macpherson Operating has never operated either the Bishop 6 well or Malta 3 well, for injection or any other purpose. Macpherson Operating is not a person to whom the Regional Board's Order may properly be directed under the authority of Section 13267.

b. Summary Of Historical Facts Regarding The Bishop 6 And Malta 3 Wells.

In May 1974, Macpherson Operating's remote predecessor, Thomas Oil Company, proposed to initiate a water disposal project in the Olcese zone of the

Round Mountain Field, seeking to convert the Bishop 6 well from an oil producing well into a waste water disposal well. The letter sent to the DOGGR on behalf of Thomas Oil Company by Bryan-Park & Associates, Inc. states that water analysis showed that the Vedder injection water contains 1965 ppm TDS, and that Olcese formation water contains 2693 ppm TDS. (Exhibit 3.) Such letter further states that there was no known fresh water in the general area. By letter of that same date, the DOGGR approved such water disposal project. (Exhibit 4.) Such approval letter was copied to the USGS, the Department of Water Resources and the Regional Board. The DOGGR's Report on Proposed Operations for the Bishop 6 well states that there are no fresh water-bearing strata in this area, and that the strata in the injection interval contains salt water. (Exhibit 5.) This Report on Proposed Operations was copied to the USGS, the Department of Water Resources and the Regional Board. According to available records, 32,012,724 barrels of water were injected into the Bishop 6 well from 1977 to August 17, 2014.

The DOGGR approved the conversion of the Malta 3 well from a producing well to a water disposal well by a Report on Proposed Operations dated June 4, 1980. (Exhibit 6.) This Report on Proposed Operations states that the water to be injected tested approximately 2000 ppm TDS, and the strata into which it was to be injected tested approximately 2700 ppm TDS. Such Report on Proposed Operations further states that there are no freshwater-bearing strata in the area, and that the injection strata contain salt water. (*Id.*) According to available records, 13,116,125 barrels of water were injected into the Malta 3 between 1980 and 1994. The well was last injected in July 1994.

c. <u>The Olcese Formation Is Exempt In The Round Mountain Field</u>.

When the DOGGR submitted its application to assume primacy for the Class II portion of the Underground Injection Control or UIC program, it provided information about a large number of formations and zones in and around existing oil fields to be considered for aquifer exemptions. Included were formations/zones that produced oil and gas and formations/zones that did not produce any oil and gas. (Exhibit 7.) After reviewing this information, the EPA exempted

formations/zones that produced oil and gas. (Exhibit 8.) The EPA also reviewed the data submitted by the DOGGR and granted some, but less than all of the aquifer exemptions initially requested by the DOGGR. Among the zones that the EPA did not initially exempt was the Walker formation despite the fact that it had been used for a number of years as a zone for the injection of produced water in the Round Mountain Field. The EPA likewise excluded the Olcese formation from exemption in the Round Mountain Field. The EPA additionally excluded from exemption a number of other existing water disposal formations/zones in several other oil fields. (*Id.*)

Correspondence from Macpherson Oil Company's files and the files of several other oil companies relative to other oil fields show that the DOGGR appealed to the EPA asking the EPA to reconsider and grant aquifer exemptions for a number of these formations/zones that had long been used for water disposal but which the EPA initially had not exempted. The correspondence also indicates that as a result of the appeal, the EPA reconsidered and granted aquifer exemptions for these formations/zones in 1983, including the Walker formation and the Olcese formation in the Round Mountain Field. (Exhibit 9.) As a consequence, the DOGGR rescinded an earlier order directing that all further injection into the Walker formation be terminated by September 14, 1984 (*id.*), and thereafter issued numerous permits for the installation and operation of water disposal wells injecting produced water into the Walker formation. (Exhibit 10.)

To state the obvious, it is a virtual certainty that this could not have occurred unless the EPA had in fact granted an aquifer exemption for the Walker and Olcese formations in the Round Mountain Field.

Indeed, a letter from the EPA dated May 17, 1985 to the Western Oil and Gas Association confirms that despite its initial decision not to grant aquifer exemptions for several water disposal zones initially requested for exemption by the DOGGR, the EPA subsequently granted aquifer exemptions for the Walker formation and the Olcese formation in the Round Mountain Field and also granted aquifer exemptions for formations/zones in several other California oil fields. (A copy of the 1985 letter

is attached as Exhibit 11.) There is no legitimate basis to question whether these aquifer exemptions were in fact issued by the EPA, and, therefore, no basis for the Regional Board to conduct itself as though the Olcese formation is not exempt.

d. DOGGR And Regional Board Orders And Petitioner's Responses.

The Regional Board's Order was explicitly issued in conjunction with, and as an intended compliment to, the DOGGR Order issued one week later directing Macpherson to "immediately cease injection operations" with respect to the Bishop 6 well and submit specified information concerning the operation of the Bishop 6 well to the DOGGR and the Regional Board within 30 days after each order (i.e., by September 4, 2014 as to the Regional Board's Order and September 17, 2014 as to the DOGGR Order). (Exhibits 1 and 2.)

In response, Macpherson Operating submitted sampling workplans for the Bishop 6 and Malta 3 on August 25 and August 26, 2014, respectively. The Regional Board approved those workplans on September 4, and Macpherson Operating is in the process of scheduling the workover rig and making the other arrangements necessary to collect the required samples.

The Regional Board's Order (Exhibit 1) describes 3 basic required actions, as follows:

(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.

(2) "By 4 September 2014, submit all previously-obtained analytical data for fluid samples collected from any injection zones within one (1) mile of the injection well subject to this Order."

(3) "By 4 September 2014, submit a technical report containing...(A) a list and location map of all water supply wells within one mile of

each injection well subject to this Order [and] (B) All available information for each identified water supply well, including the well owner name and contact information; type of well...; well construction; borehole geophysical logs; and all analytical results for any water sample(s) collected from each water supply well. Notify [Regional 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."

The Order further describes any failure to comply with these requirements as a misdemeanor subject to "additional enforcement actions," including a potential fine of $1,000 for each day in which such a violation continues, and reserves the possibility that, based on the information submitted in compliance with Order Items 1, 2 & 3, "additional information or action may be required."

Notwithstanding the difficulties inherent in the unnecessarily compressed compliance schedule mandated by the Order, Macpherson Operating expects to meet the schedule contained in its extension request submitted to the Regional Board on August 14, 2014. (Exhibit 12.)

e. <u>The Burden For Macpherson Operating Of Complying With The Order, Particularly In Light Of The Unnecessarily Abbreviated Period Allowed For Compliance, Far Outweighs Any Need For The Demanded Report, And Any Resulting Benefit</u>.

All of the action deadlines established by the Regional Board's Order are prior to the period established for response to the DOGGR Order – not to mention being also within the 30-day period allowed Macpherson Operating to seek review by this Petition. In addition, among other things, no allowance was made in the Order for the possibility that a review of the information submitted in response to the DOGGR's Order may demonstrate that no actual need exists for the report mandated by the Regional Board' Order, and that no benefit at all is likely to be

obtained from it, particularly with respect to the fact that the Olcese is an exempt formation in the Round Mountain Field.

Macpherson Operating also notes that the Malta 3 well is located only approximately a quarter mile from the Bishop 6 well and is in the same fault block. It is entirely unreasonable and burdensome to require duplicate tests from the Malta 3 well, particularly when that well has not been used in over 20 years.

The burden of this unnecessarily abbreviated response time has been imposed on Macpherson Operating due to the Regional Board's inexplicable failure to acknowledge at least three plain facts. First, there is no credible basis for a concern that past injection of water through either the Bishop 6 or Malta 3 wells into the Olcese formation has damaged the quality of water in that formation. The wells were used to dispose of produced water from the Vedder formation into the Olcese formation in compliance with the guidance and consistent with the authority given to the DOGGR by the federal EPA. All of the approval documentation states that the TDS concentration in the injected water is lower than the native formation water. (Exhibits 3 to 6.)

Second, the documentation further establishes that the Olcese formation is exempt under applicable statutes and regulations regarding the injection of produced water. It is entirely improper for the Regional Board to seek a *de facto* rescission of such exemption under Section 13267.

Finally, notwithstanding the contrary implications in both the Regional Board's Order and the DOGGR Order, no emergency exists here. The aura of an emergency which pervades these orders is entirely contrived. The appearance of an emergency has been fostered by ignoring the fact that the Malta 3 well has not been operated for 20 years, that the Olcese formation is exempt, and that the DOGGR Order has stopped injection into the Bishop 6 well. In addition, despite a professed intent to complement, and avoid redundancy with, the DOGGR Order, the abbreviated compliance schedule mandated by the Regional Board's Order completely ignores the very real possibility that information and materials submitted in compliance with the DOGGR Order would demonstrate the total

absence of any need or justification for the further activity mandated by the Regional Board's Order – at great and totally unjustified burden and expense for Macpherson Operating.

In order to provide the technical report/information sought by the Regional Board Order, Macpherson Operating prepared two work plans that were submitted to the Regional Board for approval (as mentioned above), and has or will install all necessary piping and collection basins in anticipation of the fluid sample collection process. In all, Macpherson Operating has already spent or committed to spend approximately $90,000 in order to provide the technical report/information specified in the Regional Board's Order. In addition to those out of pocket costs, Macpherson Operating has had to devote and will devote considerable time on the part of several of its professional staff members to review files, assemble information, research wells, monitor the sample collection process, and other activities necessary to identify, assemble and provide all this information. (Lovley Declaration. ¶7.)

f. The Regional Board's Order May Not Properly Be Directed To Macpherson Operating Under The Authority Of Section 13267.

Macpherson Operating has never owned or operated the Bishop 6 or Malta 3 wells. Accordingly, the Regional Board's Order may not properly be directed to Macpherson Operating under the authority of Section 13267.

8. A Statement That Copies Of The Petition Have Been Sent To The Regional Water Board And To The Discharger, If Different From The Petitioner.

A copy of this Petition has been sent to the Regional Water Board.

Macpherson Operating is the asserted "discharger."

9. An Explanation Of Why The Petitioner Could Not Raise The Issues Raised In The Petition Before The Regional Board.

Macpherson Operating was unable to present the issues raised in this Petition to the Regional Board prior to issuance of the Order because the Regional Board did not provide Macpherson Operating advance notice or other opportunity to

do so. Macpherson Operating had no advance notice either of the impending Order or of any other pending inquiry or action concerning the subject matter of the Order.

B. REQUEST FOR STAY PENDING HEARING OR OTHER ACTION

1. Facts Re Macpherson Operating Is Not A Person To Whom The Regional Board Order Can Properly Issue.

The August 11, 2014 Regional Board Order requires Macpherson Operating to furnish technical or monitoring reports and information under the authority of California Water Code Section 13267. As applicable here, said Section 13267 only authorizes the issuance of such an order to a "person who has discharged, discharges or is suspected of having discharged or discharging, or who proposes to discharge waste within [the Regional Board] region." Macpherson Operating is not such a person predicated on the following facts:

- Macpherson Operating is not now, nor has it ever been, the owner or operator of either the Bishop 6 well or the Malta 3 well.
- The Malta 3 well has remained idle and has not been operated or used as an injection well since July 1994. There are no short term plans for reactivation of the Malta 3.
- The DOGGR Order of August 18, 2014 prohibits the further use of the Bishop 6 well for injection.

In light of these facts, Macpherson Operating is not a person who has discharged, discharges or is suspected of having discharged or discharging, or proposes to discharge waste within the region.

2. Facts Re The Burden And Costs Of Providing The Report/Information Demanded By The Regional Board Order Bears No Relationship To The Need For The Report And The Benefits To Be Obtained From The Report

Section 13267(b)(1) further requires that the burden, including costs, of providing the ordered technical reports "shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." As referenced above in these points and authorities, both of the Bishop 6 and Malta 3 wells were

properly permitted for injection into the Olcese formation of the Round Mountain Field, and such formation has been exempted by the federal EPA. Moreover, historical water samples contained in the files indicate that the produced water from the Vedder zone that was injected into the two wells had a lower concentration of TDS and did not degrade the Olcese formation.

3. Macpherson Operating Has Already Suffered An Unreasonable Burden And Incurred Substantial Costs That Bear No Reasonable Relationship To The Need For Or Benefit To Be Obtained

As mentioned above, the anticipated cost of complying with the Regional Board's Order is approximately $90,000. (Lovley Declaration, ¶7.) In addition to those out of pocket costs, Macpherson Operating has had to devote and will devote considerable time on the part of several of its professional staff members to review files, assemble information, research wells, monitor the sample collection process, and other activities necessary to identify, assemble and provide all this information. Macpherson Operating believes that it is being unnecessarily burdened by having to incur substantial costs to collect and gather data and prepare the technical report/information demanded by the Regional Board's Order because those costs bear a disproportionate and unreasonable relationship to the need for that technical report/information and the benefits to be obtained from the same. California Water Code section 13267(b)(1) requires the Regional Board to provide a written explanation with regard to the need for the report and identify the "evidence" that supports requiring Macpherson Operating to provide the demanded technical report/information. Despite the fact that the Olcese formation has been exempted by the federal EPA, the only statement in the Regional Board's Order purporting to explain the need for collecting, gathering and presenting the demanded data and information to the Regional Board is the unsupported statement that "these aquifers may be suitable for drinking water supply and other beneficial uses." No evidence was included to support that assertion.

4. There Will Be Substantial Harm To Macpherson Operating If The Stay Is Not Granted And No Substantial Harm To Any Interested Persons And To The Public Interest If The Stay Is Granted.

For the foregoing reasons, substantial harm will be incurred by Petitioner Macpherson Operating if a stay is not granted because Macpherson Operating will be required to incur substantial additional costs. Conversely, no substantial harm will be suffered by any other interested persons or to the public interest if a stay is granted. As mentioned, millions of barrels of produced water have been injected into these wells since they were approved in 1974 and 1980, respectively, which produced water has contained lower TDS than the water in the Olcese formation. There are substantial questions of fact or law as to whether Macpherson Operating is a person to whom the Regional Board's Order may properly be issued, and whether the burden, including the cost of compliance, bears a reasonable relationship to the need for the data/information and the benefit to be obtained by the same. Therefore, the stay should be granted as requested by Macpherson Operating.

C. CONCLUSION

On the basis of the foregoing, Macpherson Operating respectfully requests the Regional Board's Order be set aside and that the Regional Board be directed to take no further action with respect to the subject matter of its Order unless and until it can demonstrate evidence showing that further action is required.

Macpherson Operating further requests that the Regional Board be instructed, should it reasonably determine that further action concerning the subject matter of its Order is required, to direct any further order to an appropriate party in accordance with the provisions of Section 13267 and to provide the evidence upon which such Order is based.

Macpherson Operating further requests both a hearing on this Petition and that the Regional Board's Order be stayed pending a hearing on this Petition or other action by the State Board.

Respectfully submitted,

BRIGHT AND BROWN

DATED: September 9th, 2014.

By: _____
Maureen J. Bright
Attorneys for Petitioner
Macpherson Operating Company, L.P.

TIM LOVLEY DECLARATION

DECLARATION OF TIM LOVLEY IN SUPPORT OF REQUEST FOR STAY OF REGIONAL BOARD ORDER

1. I, Tim Lovley, make this Declaration in Support of the Request of Macpherson Operating Company, L.P., for Stay of the August 11, 2014 Order of the Central Valley Regional Water Quality Control Board (the "Regional Board") directing Macpherson Operating Company, L.P. to submit information and take other action (the "Order") pending a hearing, or other action by the State Water Quality Control Board (the "State Board"), upon the foregoing Petition for Review of the Order.

2. I am the Health, Safety and Environmental Manager for Macpherson Oil Company ("Macpherson"), which is the Managing General Partner of Macpherson Operating Company, L.P. ("Macpherson Operating"), to whom the Order was directed, and which is the Petitioner in this matter. Macpherson's business offices are located in Santa Monica, California. My office is in the Central Valley facilities of Macpherson, in the Round Mountain Field north of Bakersfield.

3. The Order was received in Macpherson's facilities in the Round Mountain Field on August 13, 2104 by certified mail. The Order was not delivered by personal service. Macpherson later received on August 20, 2014, an "emergency order" by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (the "DOGGR" and the "DOGGR Order"), which was received by me for action on it. A copy of the Order is attached to the within Petition as Exhibit 1, and a copy of the DOGGR Order is attached to the Petition as Exhibit 2.

4. The Order addresses two water disposal wells commonly known as the "Bishop 6" well, formally identified as API Number 02918114, and the "Malta 3" well, formally identified as API Number 02918119, located within the Round Mountain Oil Field as designated by the DOGGR, both of which wells were permitted by the DOGGR for injection into the federal Environmental Protection Agency ("EPA") exempted Olcese formation. The Regional Board's Order directed Macpherson Operating to obtain and submit certain information and take other

actions with respect to each of the wells by September 4, 2014, and is based on the authority of the Regional Board pursuant to Water Code section 13267. The DOGGR Order directed Macpherson Operating to "immediately cease injection operations" with respect to the Bishop 6 well and submit specified information concerning the operation of such well to the DOGGR and the Regional Board within 30 days after the DOGGR Order, i.e., by September 17, 2014.

5. Macpherson Operating is not now, nor has it ever been, the owner or operator of either the Bishop 6 or Malta 3 wells. Macpherson Oil Company is the operator of those wells.

6. As of the date of the Order and the DOGGR Order, the Malta 3 well was not being operated for injection or any other purpose. According to the books and records of Macpherson and of the DOGGR, this well was last used for injection in July 1994. With respect to the Bishop 6 well, Macpherson has complied with the DOGGR Order and ceased injection operations.

7. In order to provide the technical report/information sought by the Regional Board Order, Macpherson Operating has prepared a work plan as to each of the wells, and has installed or will install all necessary piping and collection basins in anticipation of the fluid sample collection process. In all, Macpherson Operating has already spent or committed to spend approximately $45,000 per well, or $90,000 in total, in order to provide the technical report/information specified in the Regional Board's Order. In addition to those out of pocket costs, Macpherson Operating has had to devote or will devote considerable time on the part of several of its professional staff members to review files, assemble information, research wells, monitor the sample collection process, and other activities necessary to

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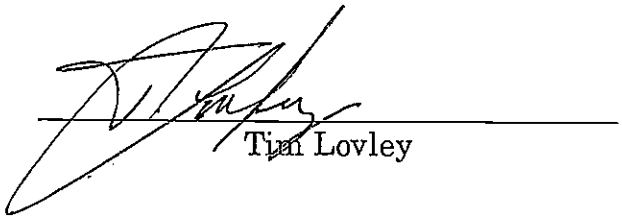
identify, assemble and provide all this information.

All of the statements in this Declaration are known to me of my own personal knowledge to be true and correct.

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 8, 2014, at Glendale, California.



Tim Lovley

EXHIBIT 1

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

11 August 2014

PERSONAL SERVICE AND CERTIFIED MAIL
7013 2250 0002 0464 4758

Tim Lovley, HSE Manager
Macpherson Operating Company, L.P.
P.O. Box 5368
Bakersfield, CA 93388

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

Macpherson Operating Company, L.P., is the operator of the injection wells identified as API numbers 02918114 and 02918119 (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 Macpherson Operating Company, L.P., 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 Macpherson Operating Company, L.P., 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 Macpherson Operating Company, L.P., to submit any information that the Division is concurrently obtaining from Macpherson Operating Company, L.P.

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. Macpherson Operating Company, L.P., 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 Macpherson Operating Company, L.P., 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 Macpherson Operating Company, L.P.:

"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 Macpherson Operating Company, L.P., 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.

EXHIBIT 2

EXHIBIT 2

Steven R. Bohlen, State Oil and Gas Supervisor
Department Of Conservation
Division of Oil, Gas, and Geothermal Resources
801 K Street
Sacramento, CA 95814-3500
Telephone (916) 323-6733
Facsimile (916) 445-9916

STATE OF CALIFORNIA

NATURAL RESOURCES AGENCY

DEPARTMENT OF CONSERVATION

DIVISION OF OIL, GAS, AND GEOTHERMAL RESOURCES

EMERGENCY ORDER TO IMMEDIATELY CEASE INJECTION OPERATIONS

NO. 1064

August 18, 2014

Operator: Macpherson Oil Co.

Well API No.: 02918114

BY

Steven R. Bohlen

STATE OIL AND GAS SUPERVISOR

INTRODUCTION

1. The Division of Oil, Gas, and Geothermal Resources (Division) has determined that an emergency exists in connection with underground injection operations for the wells operated by Macpherson Oil Co., API no. 02918114 (hereinafter "the well subject to this order"). Injection into this well poses danger to life, health, property, and natural resources. Therefore, under the authority of Public Resources Code sections 3106, 3222, 3224, 3225, 3226, and 3235, and California Code of Regulations, title 14, sections 1724.6, 1724.7, 1724.10, the State Oil and Gas Supervisor (Supervisor) is ordering that injection into the well subject to this order immediately cease as specified below. The Division is working cooperatively with the Central Valley Regional Water Quality Control Board, (which is issuing its own order pursuant to California Water Code section 13267), and the State Water Resources Control Board to obtain information for use in evaluating, preserving and protecting underground water suitable for irrigation or domestic purposes.

2. This order constitutes written notice from the Division to immediately stop injection in the well subject to this order, pursuant to California Code of Regulations, title 14, section 1724.10, subdivision (h).

STATUTORY and RELATED AUTHORITY

3. Pursuant to Public Resources Code section 3106, the Supervisor shall supervise the operation of wells in this State so as to prevent, as far as possible, damage to life, health, property, and natural resources, and to prevent damage to underground waters suitable for irrigation and domestic purposes by the infiltration of, or the addition of, detrimental substances.

4. Pursuant to Public Resources Code sections 3222, 3224, 3225, 3226, 3235, and other authorities, the Supervisor has a duty to, and may take action to, prevent the infiltration of detrimental substances into underground water potentially suitable for irrigation or domestic purposes. Pursuant to these statutes and authorities, the Supervisor may order tests to be performed, remedial action(s) to be taken, and the preparation of reports regarding such tests and/or remedial action(s).

5. Pursuant to Title 14, California Code of Regulations, sections 1724.6, 1724.7, 1724.10, and other authorities, the Division may approve and evaluate Underground Injection and Disposal projects, and to require that data be submitted in connection therewith.

6. Pursuant to Title 14, California Code of Regulations, section 1724.10, subdivision (h), underground injection operations shall be stopped upon written notice from the Division.

FACTS

7. The well subject to this order is subject to the permitting authority of the Supervisor and/or Division pursuant to Public Resources Code section 3106, and Title 14, California Code of Regulations section 1724.6.

8. Such permitting authority is also contemplated by the federal Safe Drinking Water Act and its implementing regulations, and the Memorandum of Agreement between the Division and the United States Environmental Protection Agency. Effective March 14, 1983, California's Division of Oil, Gas and Geothermal Resources (Division) was granted primacy by the United States Environmental Protection Agency (US EPA) to carry out the terms of an Underground Injection Control Program, pursuant to section 1425 of the Safe Drinking Water Act (codified at 42 U.S.C. § 300f et seq.). (48 Fed. Register 6336, Feb. 11, 1983.)

9. As a result of the granting of primacy, the Division, pursuant to Title 14, California Code of Regulations sections 1724.6, 1724.7, and 1724.10, must approve any subsurface injection or disposal activities based on pertinent and necessary data submitted to the Division.

10. The Division has become aware that certain underground injection activities are occurring into underground waters inappropriate for receiving injection.

11. Based on information and belief, the Division has determined that the well subject to this order is injecting into one or more aquifers which:

(a) May contain underground water suitable for irrigation or domestic purposes;

(b) May contain water with less than 3,000 ppm total dissolved solids;

(c) May not have been hydrocarbon-bearing at the time injection commenced; and

(d) May be an underground source of drinking water or otherwise protected water under the Safe Drinking Water Act and associated authorities.

12. In order to prevent the infiltration of detrimental substances into underground water suitable for irrigation or domestic purposes, the Supervisor relies on the above-referenced legal authorities and factual allegations, and makes the orders set forth below.

ORDERS

13. Based on the facts, circumstances, and authorities described herein, on information and belief, and pursuant to the Supervisor's duties set forth in Public Resources Codes section 3106, pursuant to Public Resources Code section 3222, 3224, 3225, 3226, and 3235 the Supervisor has determined that an emergency exists and that immediate action is necessary to protect life, health, property, and natural resources, specifically, the further degradation of the affected aquifer(s), and orders as follows:

I. Cease and Desist Injection Operations

14. The operator will cease all injection operations into the well subject to this order on or before 12:00 Noon on Saturday, August 23, 2014 unless and until the Supervisor notifies the operator in writing that injection operations may resume.

II. Alternative Disposal or Injection

15. In the event that production activities relying on the use of the well subject to this order are continued using an alternative method of disposal of fluid, or an alternative location of underground injection, such alternative disposal or injection method or location shall be utilized only pursuant to, as applicable, (a) any applicable waste discharge requirements or NPDES permit issued by the Central Valley Regional Water Quality Control Board; (b) an existing permit for Underground Injection into an "exempted aquifer" consistent with Title 40, Code of Federal Regulations, section 146.3, updated to reflect the addition of the new injectate as required by Title 14 of the California Code of Regulations, section 1724.10, subdivision (d); or (c) other means carried out in full compliance with any required laws or regulations.

III. Written Approval Required

16. Injection operations shall not resume into the well subject to this order except on the express written approval of the Supervisor.

IV. Provide Information

17. The operator subject to this order will provide the following information to the State Oil and Gas Supervisor, in compliance with the truthful and accurate reporting requirement of Public Resources Code section 3236, within 30 days of the date of this order:

(a) For each well subject to this order, any and all information compiled or maintained, whether or not previously submitted to the Division, in compliance with Title 14, California Code of Regulations, section 1724.7. The information submitted in response to this aspect of this order shall include, but not be limited to, the categories of information listed in Exhibit A attached hereto;

(b) For each well subject to this order, the total volume of injected fluid for each month of operation, for all years of operation, any periodic chemical analyses of the fluid(s) being injected, and any amendments to the original project approval, as provided by Division reporting requirements;

(c) For each well subject to this order, a technical report with an analysis of a representative sample of the fluid being injected, in accordance with the water quality analysis and reporting requirements contained in Exhibit B to this order;

(d) For each well subject to this order, any and all data maintained in compliance with Title 14, California Code of Regulations, section 1724.10, subd. (h);

(e) For each well subject to this order, the dates of, and documentation associated with, each mechanical integrity test undertaken to comply with Title 14, California Code of Regulations, section 1724.10, subd. (j);

(f) For each well subject to this order, please also send copies of all of the data required in items (a) through (e) above to **Central Valley Water Board, Attn. Dane Johnson, 1685 E Street, Fresno, CA 93706**

Operator's Appeal Rights

18. This order may be appealed by filing a written notice of appeal with the State Oil and Gas

Supervisor or district deputy stating that the order is not acceptable within ten (10) days of service of this order. This is an emergency order issued pursuant to Public Resources Code section 3226 and therefore, pursuant to Public Resources Code section 3350, subdivision (b), **the filing of an appeal of this emergency order shall not operate as a stay of this order.**

DATE August 15, 2014

By _____
Steven R. Bohlen
State Oil and Gas Supervisor

CERTIFIED MAIL NO. 7013 2250 0000 9010 1243

Exhibit A

Paragraph 19(a) of this order requires submission of the categories of information listed below. Specifically, your submission will include the following in spreadsheet form, labeled with the capital letters indicated, with attachments containing the backup documentation indicated in items Q through S, inclusive:

A. The name of the owner and/or operator of the injection well;
B. American Petroleum Institute (API) number for the injection well;
C. Injection well name and number;
D. Name of the field in which the well is located;
E. County in which the well is located;
F. Latitude and Longitude (decimal degrees) of well head location;
G. Latitude and Longitude Datum, indicate "1" for North American Datum of 1983 or "2" for North American Datum of 1927;
H. Injection well total depth (feet);
I. Top injection depth (feet);
J. Formation/Zone name at top injection depth;
K. Bottom injection depth (feet);
L. Formation/Zone name at bottom injection depth;
M. Date injection started in the well (Day/Month/Year, xx/xx/xxxx);
N. Identify and describe all sources of fluid injected into the well;
O. Injection volume in barrels for the period from 1 June 2013 through 31 May 2014;
P. Total injection volume in barrels from the date injection in the well began through 31 May 2014;
Q. Attach well construction diagram including all perforations, annular material, and seals;
R. Attach copies of all available water quality lab analyses and/or reports of the injected fluids;
S. Attach a calculation of the average water quality of injected fluid from the date injection began through 31 May 2014;

Exhibit B

Paragraph 19(c) of this order requires a technical report with an analysis of a representative sample of the fluid being injected into each well subject to this order. Such sampling and reporting will reflect the following:

Sampling

Injection fluid samples 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 location(s) of representative sample(s).
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.

EXHIBIT 3

GEOLOGISTS & ENGINEERS

RECEIVED
MAY 15 1974
DIVISION OF OIL & GAS
BAKERSFIELD

May 15, 1974

State of California
Division of Oil and Gas
520 Kentucky Street
Bakersfield, California 93305

Attention: Fred Hallmark

Gentlemen:

It is hereby proposed that Thomas Oil Company well No. "Bishop" 6, Section 14, T.28S., R.28E., M.D.B.& M., Round Mountain Oil Field, Kern County, California be converted to a waste water disposal well.

The contour map and cross sections for Round Mountain Oil Field, Sharktooth Area, Division of Oil and Gas, Summary of Operations, Vol. 2, No. 1, January to June 1956, reasonably depicts the geological conditions as we know them for the subject area.

The purpose of the project is to inject comingled water from the Vedder zone produced from the following leases into the Olcese sand:

Maxwell A	Section 14, T.28S., R.28E.
Maxwell B	Section 14, T.28S., R.28E.
Bishop	Section 14, T.28S., R.28E.
Ring 14	Section 14, T.28S., R.28E.
Malta	Section 14, T.28S., R.28E.

A composite sample of the produced water from these leases and a sample from the Olcese sand indicate, in part, the following chemical characteristics:

	Injection Water	Olcese Water
pH	7.4	9.5
Boron (ppm)	3.8	1.81
NaCl (ppm)	1893	1889
Total dissolved Solids (ppm)	1965	2693

Note: See attached Water Analysis for greater detail.

The Olcese sand in the Round Mountain Area is of marine origin having a continental facies in the upper portion. It has a total thickness in the subject well of 865± feet. It transgresses the Lower and Middle Miocene time line and therefore its age is both upper Lower Miocene and lower Middle Miocene or of Saucesian and Relizian stages (Div. Oil and Gas Summary of Operations, Correlation Study of Southern San Joaquin Valley, Vol. 45, No. 1, 1959). The proposed injection interval is in the more permeable upper part of the zone. It is proposed to selectively perforate a total interval

BRYANT-PARK & ASSOCIATES, INC. Mail: [redacted] Bakersfield, California [redacted] • 805-327-9681
1801 OAK STREET, ROOM 18 93301

of 102 feet from 853 to 955 feet.

It is anticipated that approximately 6,000 b/d of water will be injected into the zone through tubing with a packer set above the injection interval. Pressures at the mid-point of the injection interval will not exceed 700 p.s.i. and surface pressures will not be more than 315 p.s.i.

Tests conducted on the subject well indicate that no water exists in the stratigraphically higher Kern River Formation and no known fresh water is present in the general area.

It is proposed that, within 30 days of initiating injection, the well be shut-in for a period of 24 hours and a Static Temperature Survey made to insure that the injection water is being confined to the injection zone and that no damage is occurring.

The injection water will be treated in such a manner that the oil content will not exceed 10 p.p.m., probably by chemical means.

I am sure that you are aware that this project is an integral part of the water disposal and soil sump elimination program which Thomas Oil Company is assiduously pursuing, therefore, favorable consideration at your earliest convenience will be greatly appreciated. If additional data is desired, please let me know as soon as possible.

Yours truly,

William H. Park

WHP/jk

Enclosure (2)

cc: Thomas Oil Company
Les Fiedler

BRYANT-PARK & ASSOCIATES, INC. Mail: [redacted] Bakersfield, California [redacted] • 805-327-9681
1801 OAK STREET, ROOM 18 93301

EXHIBIT 4

EXHIBIT 4

STATE OF CALIFORNIA—RESOURCES AGENCY

RONALD REAGAN, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
520 KENTUCKY STREET
BAKERSFIELD, CALIFORNIA 93305

May 15, 1974

WATER DISPOSAL PROJECT
ROUND MOUNTAIN FIELD
OLCESE ZONE.

Thomas Oil Company
2401 Eric Way, #45
Bakersfield, Calif. 93306

Gentlemen:

Your proposal to initiate a water disposal project in the Olcese zone of Round Mountain field is approved provided:

1. Form GO105 or Form OG107 shall be used whenever a new well is to be drilled for use as an injection well, or whenever an existing well is to be converted to an injection well, even if no work is required. (Specific requirements will be outlined in our answer to your notice.)
2. A monthly statement shall be filed with this Division, in duplicate, on our Form 110-B showing the amount of water injected, pressure required and source of injected water.
3. A chemical analysis of the fluid to be injected shall be made and filed with this Division at least every two years, whenever the source of injection fluid is changed, or as requested by this office.
4. An accurate, operating pressure gauge or chart shall be maintained at the wellhead at all times.
5. This Division shall be notified to witness, within 30 days after injection is started, sufficient surveys to confirm that the injection fluid is confined to the intended zone of injection.
6. Static temperature surveys shall be run in wells "Bishop" 5, 7 and 8 within one year after injection is initiated and annually thereafter, to insure confinement of injected fluid.
7. Data sufficient to establish that no damage is occurring shall be maintained and open to inspection by this Division.
8. Injection shall cease if any evidence of damage is observed or upon written notice from this Division.

Yours truly,

A. G. Hluza /FOH

A. G. Hluza
Deputy Supervisor

FOH/lr
cc: Co. - Encino
William Park
USGS
Dept. of Water Resources
Regional Water Quality Control Board

EXHIBIT 5

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

REPORT ON PROPOSED OPERATIONS No. P 474-1324

WATER DISPOSAL PROJECT
Round Mountain Field
Olcese Zone

Mr. L. C. Fiedler
THOMAS OIL COMPANY
2401 Eric Way, #45
Bakersfield, Calif. 93306

Bakersfield Calif.
May 15, 1974

DEAR SIR:

Your proposal to rework & convert to water disposal Well No. "Bishop" 6 (029-18114)
Section 14, T. 28S, R. 28E, M.D.B. & M., Round Mountain Field, Kern County,
dated ----, received 5-15-74, has been examined in conjunction with records filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The operation and surveillance of this well shall conform to the requirements outlined in our letter dated May 15, 1974, approving the disposal project.

2. The proposed work shall not be considered as fulfilling the requirements of this Division for the abandonment of the lower portion of the hole without further consideration.

NOTES:

1. There are no fresh water-bearing strata in this area.

2. The water to be injected tests 1147 ppm chloride and 3.8 ppm boron and is produced from neighboring oil wells.

3. Injection will be into Olcese zone of Miocene age. Strata in the injection interval contain salt water.

4. Approximate surface location of well: Fr. cor. of sec. 826' S., 825' W.

FOH/lr
Blanket Bond
cc: Co. - Encino
USGS
Dept. of Water Resources
Regional Water Quality Control Board
William Park

JOHN F. MATTHEWS, JR., State Oil and Gas Supervisor

By [signature], Deputy

21438-703 2-74 8M OSP
OG 111

EXHIBIT 6

EXHIBIT 6

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

No. P 480-1892

REPORT ON PROPOSED OPERATIONS

WATER DISPOSAL PROJECT
Round Mountain Field
Sharktooth Area
Olcese Zone

628 (field code)
15 (area code)
05 (pool code)

Mr. Frank P. Mondary
THOMAS OIL COMPANY
P.O. Box 5368
Oildale, CA 93308

Bakersfield, California
June 4, 1980

Your proposal to convert to water disposal well "Malta" 3,
A.P.I. No. 029-18119, Section 14, T. 28S, R. 28E, MD B. & M.,
Round Mountain field, Sharktooth area, Olcese pool,
Kern County, dated 3/4/80, received 3/6/80 has been examined in conjunction with records filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. The operation and surveillance of this well shall conform to the attached general requirements.
2. THIS DIVISION SHALL BE NOTIFIED:
   a. TO WITNESS the pressure test of the 8 5/8" casing.
   b. 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.

NOTES:

1. There are no fresh water-bearing strata in this area.
2. The water to be injected tests approximately 2000 ppm total dissolved solids and is produced from neighboring oil wells.
3. Injection will be into the Olcese zone. Strata in the injection interval contain salt water, testing approximately 2700 ppm total dissolved solids.
4. The proposed work shall not be considered as fulfilling the requirements of this Division for abandonment of the lower portion of the hole without further consideration.
5. The Public Resources Code requires well records to be filed within 60 days of the completion or suspension of the proposed work.
6. Approximate Surface Location of Well: Fr S¼ Cor. Sec. 14; 1100' N & 450' E.

HPB/wc
Bond #5034520

cc: DWR
RWQCB
USGS (2)

M. G. MEFFERD, State Oil and Gas Supervisor

By G. W. Hunter
Deputy Supervisor

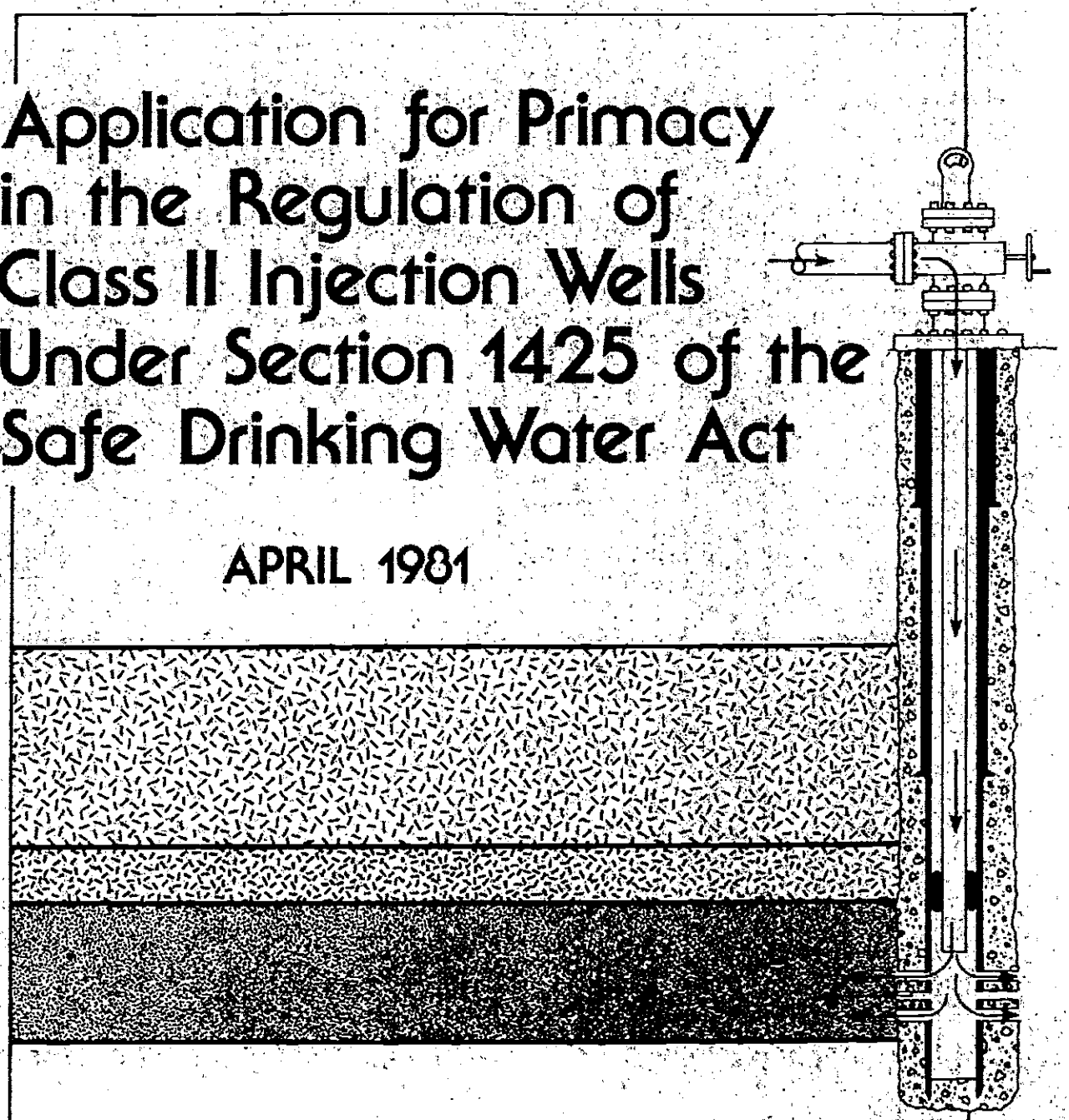
A copy of this report and the proposal must be posted at the well site prior to commencing operations.

EXHIBIT 7

EXHIBIT 7

Application for Primacy in the Regulation of Class II Injection Wells Under Section 1425 of the Safe Drinking Water Act

APRIL 1981



State of California
Resources Agency
Department of Conservation
Division of Oil and Gas

State of California
GOVERNOR'S OFFICE
SACRAMENTO 95814

EDMUND G. BROWN JR.
GOVERNOR

916/445-2843

April 20, 1981

Administrator
United States Environmental
Protection Agency
Washington, D. C. 20460

Dear Sir:

The State of California supported the passage in 1980 of H. R. 8117, which added Section 1425 to the Safe Drinking Water Act. This section deals with underground injection wells related to the recovery and production of oil and natural gas (EPA's Class II wells). This recent addition to the Act allows states with programs that effectively protect drinking water sources through the regulation of Class II injection wells to continue their programs in full compatibility with the Safe Drinking Water Act.

The California Department of Conservation, Division of Oil and Gas, has effectively supervised and regulated underground injection activities related to oil and natural gas production for the past 37 years. I therefore request approval of the Division's application for primacy in the supervision of Class II well operations under the Underground Injection Control Program, filed pursuant to Section 1425 of the Safe Drinking Water Act.

The California Department of Conservation's Division of Oil and Gas with the cooperation of the State Water Resources Control Board is willing and able to continue to carry out the program described in the Division's application for primacy.

Sincerely,

EDMUND G. BROWN JR.
Governor

APPLICATION FOR PRIMACY IN THE REGULATION OF CLASS II INJECTION WELLS UNDER SECTION 1425 OF THE SAFE DRINKING WATER ACT

The preparation of this application was financed, in part, through an Underground Injection Control Program grant from the U. S. Environmental Protection Agency, Region IX, under the provisions of Section 1442(b)(3)(c) of the Safe Drinking Water Act as amended. The grant was administered by the California State Water Resources Control Board through Interagency Agreement No. 0-099-420-0 with the California Department of Conservation, Division of Oil and Gas.

State of California
Department of Justice
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April 1, 1981

Administrator
United States Environmental
Protection Agency
Washington, D.C. 20460

Re: Legal Authority of California
Division of Oil and Gas to
Carry Out Class II Injection
Well Program

Gentlemen:

I am a Deputy Attorney General for the State of California whose responsibilities include advising and representing the California Division of Oil and Gas in legal matters. By virtue of these responsibilities I am familiar with Division 3 of the California Public Resources Code, which contains the statutory authority for all of the Division's functions. I am familiar also with Chapter 4 of Division 2 of Title 14 of the California Administrative Code, which contains the regulations adopted by the Division in furtherance of its functions set forth in the Public Resources Code.

I have reviewed the program description being submitted by the California Division of Oil and Gas as part of its application under section 1425 of the Safe Drinking Water Act for primary enforcement responsibility for the control of underground injection related to the production of oil and gas (Class II well injection program). I have concluded that the California Division of Oil and Gas has the legal authority to carry out all aspects of the program described in its application.

Very truly yours,

ALAN V. HAGER
Deputy Attorney General

AVH:mjp

MEMORANDUM OF AGREEMENT
BETWEEN THE ENVIRONMENTAL PROTECTION AGENCY AND
THE CALIFORNIA DIVISION OF OIL AND GAS

UIC PROGRAM
SECTION 1425 - SDWA

The California Division of Oil and Gas (CDOG) of the Department of Conservation and the Environmental Protection Agency (EPA) hereby agree to carry out the terms of the Underground Injection Control Program as listed below. These terms provide a commitment that the CDOG will carry out the program as authorized by Section 1425 of the Safe Drinking Water Act and the EPA will exercise its oversight authority consistent with procedures agreed upon by both agencies.

The terms are as follows:

1. The Division of Oil and Gas will carry out the program as described in the application for primacy of Class II wells, and will support the program by an appropriate level of staff and resources to assure that underground sources of drinking water are protected.

2. The Division of Oil and Gas will recognize the Environmental Protection Agency's right to examine any pertinent state files pertaining to underground injection control.

3. The Division of Oil and Gas will participate with the EPA in the inspection of wells or operator records to the fullest extent possible. EPA shall notify the division at least ten days prior to any proposed inspection and EPA shall describe the well(s) or record(s) to be inspected and the purpose of such inspection.

4. The Division of Oil and Gas recognizes EPA's authority to take federal enforcement action under Section 1423 of the Safe Drinking Water Act in cases where the state fails to take adequate enforcement action against a person violating the applicable requirements of the Underground Injection Control Program.

5. The Division of Oil and Gas agrees to provide the EPA an annual report on the operation of the state program, the content of which may be negotiated between the EPA and the Division of Oil and Gas from time to time.

6. Aquifer exemptions for Class II wells will be consistent with aquifer exemptions for the rest of the UIC program.

7. If appropriate and necessary, provisions for implementing a joint processing procedure may be negotiated between the EPA and CDOG for those facilities and activities which require permits from both agencies under different programs.

8. For any mechanical integrity tests, other than those specified or justified in the program application, the CDOG will notify the appropriate regional administrator and provide enough information about the proposed test that a judgment about its usefulness and reliability may be made.

REGIONAL ADMINISTRATOR
ENVIRONMENTAL PROTECTION AGENCY
REGION IX

STATE DIRECTOR
CLASS II WELLS

Date

CALIFORNIA DIVISION OF OIL AND GAS PROGRAM DESCRIPTION

3.3. CALIFORNIA CLASS II INJECTION WELL PROGRAM

A. STRUCTURE, COVERAGE, AND SCOPE OF THE PROGRAM

The underground injection of fluids related to Class II injection wells is administered by the Division of Oil and Gas hereafter referred to as the (division) of the Department of Conservation. Section 3106 of the Public Recources Code (PRC) mandates, in part, the division to supervise the drilling, operation, maintenance, and abandonment of all wells (Section 3008, PRC) drilled in California for the purpose of injecting fluids for stimulating oil or gas recovery, repressuring of oil or gas reservoirs, or disposing of waste fluids from an oil or gas field. The division's authority to supervise also covers those Class II wells drilled and operated on federally owned lands.

Furthermore, Section 3106 (PRC) states that the division must supervise in a manner that will prevent, as far as possible, damage to life, health, property, and natural resources; damage to oil and gas reservoirs; loss of oil, gas, or reservoir energy; and damage to underground and surface waters that are suitable for irrigation or domestic purposes.

The division has prepared comprehensive regulations, contained in Title 14, Division 2, Chapter 4 of the California Administrative Code (CAC), that specifically pertain to the requirements that an applicant must comply with before the division will grant approval to begin a subsurface

injection project. References to statutory and regulatory authority of the division are contained within the text of the program description.

A copy of the regulations are attached. However, the procedures and information required by the regulations for project approval are summarized as follows:

The operator requesting approval for an underground injection project must provide to the appropriate division district deputy detailed data that, in the judgment of the division, are pertinent and necessary for the evaluation of a proposed project (Sections 1724.6 and 1724.7, CAC). In addition, the division requires by regulation that the operator submit as part of his application a detailed engineering study that includes a statement of the primary purpose of the project, the reservoir and fluid characteristics of each injection zone, evidence that abandoned wells within the area of review will not have an adverse effect on the project, casing diagrams and plugging information of all wells within the area of review, and the proposed well-drilling and abandonment program that is necessary to complete the project (Section 1724.7 (a), CAC).

Along with the engineering study, a geologic study and injection plan must also be submitted. At a minimum, the geologic study must include a structural and isopach map, a cross section, and a representative electric log that identifies all geologic units, formations, freshwater aquifers, and oil or gas zones (Section 1724.7(b), CAC).

An injection plan must include a map showing all wells within the area of review that penetrate the injection

interval, and schematics of surface and subsurface injection facilities; anticipated injection pressure and volumes; monitoring systems; method of injection; corrosion protective measures; and the source, analysis, and treatment of the injection fluid (Section 1724.7 (c), CAC).

Additional information can be requested for projects that may be hazardous, large, unusual, or particularly complex (Section 1724.7 (e), CAC).

In instances where an operator desires to change or modify any of the originally approved operating methods or conditions of a project, such as an increase in size, a change of the injection interval, or an increase of the injection pressure, the operator must obtain approval from the division (Section 1724.10 (a), CAC) before any change or modification is made. In addition to specific data required on division forms, sufficient information must be submitted by the operator upon request to properly evaluate the effects of the proposed change or modification (Section 1724.10(b) and (k), CAC).

B. DESCRIPTION OF THE STATE PERMITTING PROCESS

The operator of record is required to submit a complete project plan (as summarized in 3.3 A) to the division district office that has jurisdiction over the project area. Project plans must be signed by the owner or an officer or authorized agent of the company.

Before approving any project to inject fluids, wells within the area of review, including abandoned wells that

might be affected by the project, must be checked for proper casing and plugging to determine if the injected fluids will be confined to the intended zone of injection, and that adjoining operations will not be adversely affected by the project. Documentary evidence must also be provided that notification has been given to neighboring operators.

To perform the evaluations, it is incumbent upon the applicant to submit adequate engineering and geological data with an injection plan. This information will be used in conjunction with extensive geological and engineering data and well records already on file with the division to make the necessary evaluation.

Specifically, after evaluation of the data, projects that are approved by the division are subject to filing, notification, operating, and testing conditions that are required by Section 1724.10 of the regulations (CAC).

The general conditions for a project permit require the applicant to:

1. File notices of intention to drill, redrill, deepen, or rework on current division forms whenever a new well is to be drilled for use as an injection well, whenever an existing well is converted to an injection well (Section 1724.10(b), CAC), and whenever wells within the area of review require remedial work to assure tha such wells will not serve as conduits to freshwater aquifers (Section 3203, PRC).

2. Notify the division of any anticipated changes in a project resulting in alteration of the conditions originally approved (Section 1724.10 (a) CAC).
3. File monthly injection reports listing the amount of fluid injected and the surface pressure required for each well (Section 1724.10(c), CAC).
4. Provide a chemical analysis of the fluid injected to the division whenever the source of injection fluid is changed, or whenever such analysis is requested by the division (Section 1724.10(d), CAC).
5. Maintain an accurate, operating pressure gauge or pressure recording chart for use on all injection wells (Section 1724.10(e), CAC).
6. Use injection piping, valves, and facilities that meet or exceed design standards for the maximum anticipated injection pressure and to maintain the equipment in a safe and leak-free condition (Section 1724.10(f), CAC).
7. Equip all injection wells, except steam, air, and pipeline quality gas wells, with tubing and a packer set immediately above the approved zone of injection. Exceptions are allowed based on documented evidence that fresh water will not be degraded (Section 1724.10(g), CAC).
8. Maintain data to show performance of the project to establish that no damage is occurring to life, health, property, and natural resources (Section 1724.10(h), CAC). The data shall be available

for periodic inspection by division personnel.

9. Cease injection if there is evidence of damage or upon written notice of the division (Section 1724.10(h), CAC).

10. Conduct a step-rate test to determine the fracture gradient of the formation before sustained injection occurs. This requirement can be waived if the division determines that injection pressure will be maintained considerably below the pressure estimated to fracture the zone (Section 1724.10(i).

11. Confirm that the injection fluid is confined to the intended zone of injection by running fluid injection profile surveys within three months after injection begins, at least once each year thereafter, after any significant anomalous rate or pressure changes, or when requested by the division. Typical monitoring surveys include radioactive tracer, spinner, and static temperature. The monitoring schedule can be modified by the division if supported by documented evidence. The district office is to be notified before surveys are made, as they may be witnessed by a division inspector (Section 1724.10(j).

Additional requirements or modifications of the above requirements may be necessary to fit specific circumstances and types of projects. Some of the example of such requirements are as follows (Section 1724.10(k), CAC):

1. Injectivity tests

2. Graphs of oil, water, and gas production vs. time.
3. Graphs of tubing pressure, casing pressure, and injection rate vs. time for each injection well.
4. Isobaric maps of the injection zone, submitted annually.
5. Notification of any change in waste disposal methods.

It is the duty of the applicant to comply with the permit conditions; however, the right to appeal any order of the division to the Director of the Department of Conservation is provided for in Section 3350 of the PRC. If the order is affirmed or modified by the director, and the applicant fails or refuses to comply with the order, such failure shall constitute a misdemeanor punishable by a fine and/or a jail sentence. Each day's further failure is considered a separate and distinct offense (Section 3359, PRC). Also, the Public Resources Code (Section 3226) provides that if within ten days following the affirmance of the order, the operator does not commence in good faith to perform and comply with the order, then the division will appoint necessary agents who will enter the property and perform the required work. Any expenditures by the division shall constitute a lien against real or personal property of the owner or operator.

C. COMPLIANCE SCHEDULES

Following approval of a project, the operator must submit notices to perform work (applications) on individual wells. Sections 3203 and 3229 of the Public Resources Code

state, in part, that "If operations have not commenced within one year of receipt of the notice, the notice will be considered cancelled." The applicant or operator may request a one year extension by submitting a supplementary notice (Section 1722(f), CAC); but the conditions for its approval are subject to change if geological, regulatory, or environmental factors warrant such change.

The operator must also comply with a testing program to confirm that injected fluids are confined to the intended zones of injection. For new injection wells or wells converted to injection, a fluid injection profile survey must be performed and witnessed by a division engineer when the injection has stabilized; and a copy of the survey must be submitted to the division within three months from the start of injection (Section 1724.10(j), CAC). Following the initial survey, a survey must be run and filed with the division once a year thereafter, after any significant anomalous rate or pressure change, or when requested by the division (Section 1724.10(j), CAC).

A monthly injection report (Form OG110B) must be filed within thirty days following each month of injection. The reports list the amount of water or steam injected for each well, the number of days, the well injected, the source of water, the kind of water, and the surface injection pressure. Failure to file the injection report is a misdemeanor (Section 3236, PRC).

If the State Oil and Gas Supervisor orders tests or

remedial work that in his judgment are necessary to protect underground water, the owner or operator must, within thirty days of the order, commence the work ordered and continue it until completion (Section 3226, PRC).

Within 60 days following completion of the well, abandonment, remedial work, or suspension of operations, the operator is required to file a detailed report of all operations. (Section 3215, PRC).

D. TRANSFER OF PERMITS

Transfer of permits is allowed when the buyer of the permitted well or wells agrees to assume and perform the original work plan of the seller and meet conditions imposed by the division. If the buyer wishes to change or modify the work plan or conditions, the buyer (new operator) must submit a new application to the division for evaluation. If circumstances warrant, the division will issue a new permit reflecting the changes and resulting conditions.

The seller must also notify the division within thirty days of any sale, assignment, conveyance, or exchange of any well; and every person who acquires the ownership or operation of any well also must notify the division within thirty days of the transaction. Notification must include the names and addresses of the buyer and seller, name and location of the well, date of acquisition and sale, and a description of the land upon which the well is located (Sections 3201 and 3202, PRC; and Section 1722.1, CAC).

Before any work can be performed on any well and before the seller can be relieved of his obligation to secure the state against any losses, charges, and expenses caused by noncompliance with imposed conditions, the buyer must submit a bond to the division that will cover the obligations covered under the seller's bond. The seller's bond will then be released (Sections 3204 and 3205, PRC; and Section 1722.1, CAC).

E. TERMINATION OF PERMITS

Permits to perform work, such as to drill or abandon a well, as well as permits to redrill, plug, or alter the casing of any well, are automatically terminated if the proposed work has not started within one year of the receipt of the notice (Section 3203, PRC). However, an approval for proposed operations may be extended for one year if the operator submits a supplementary notice prior to the expiration of the one-year period and shows good cause (Section 1722(f), CAC).

Termination of an operating injection project will also occur if there is any evidence of damage occurring as a result of the project, or upon the written notice of the division (Section 1724.10(h), CAC). Resumption of the injection operations will not be allowed until it is demonstrated to the satisfaction of the division that damage will not occur to underground drinking water sources.

F. EMERGENCY PERMITS

Provisions are made to handle emergency situations as expeditiously as possible. For instance, in an emergency

operators are permitted to deviate from the approved basic program without prior written approval of the division (Section 1722(g), CAC). Unless it is an extreme emergency where time is essential, operators normally obtain verbal approval from the division to perform emergency remedial work; however, a written notice must be submitted to the division as soon as possible to cover the work and conditions agreed upon. Additionally, if the division determines that an emergency exists, the division can order such actions as may be necessary to protect life, health, property, and natural resources (Section 3226, PRC). These actions include the order to repair, plug, or cease injection operations and to perform well tests.

G. AVAILABILITY AND USES OF VARIANCES AND OTHER DISCRETIONARY EXEMPTIONS TO PROGRAMMATIC REQUIREMENTS

Variances from standard freshwater protection measures can be approved when geologic or groundwater conditions dictate. Special plugging procedures are required to prevent the downward percolation of poor quality surface waters that could contaminate useable subsurface waters; to separate zones of varying water quality; and to isolate dry sands that are hydraulic continuity with groundwater aquifers (Section 1723.2(c), CAC).

The division may also set forth other plugging and abandonment requirements or may establish field rules for the plugging and abandonment of wells (Section 1723.8, CAC). When sufficient geologic and engineering information is available from previous drilling or operating history, plugging and abandonment requirements and operating

conditions that differ from those prescribed by regulation can be established as field rules for any oil or gas pool or zone in the field (Sections 1723.8 and 1722(m), CAC). Before establishing or changing a field rule, the division must distribute the rule or change to companies and persons affected by the rule or change and allow thirty days for comments (Section 1722(m), CAC).

Variances can also be granted to the surface casing setting depths and the casing cementing requirements for all casing strings, as long as the requirements are consistent with known geological and engineering conditions (Sections 1722.3(b) and 1722.4, CAC).

H. DESCRIPTION OF THE RULES USED BY THE STATE TO REGULATE CLASS II WELLS

As described in the previous subsection, special "field rules" can be established that deviate from the original requirements when sufficient geological and engineering information is available to indicate that a proposed rule will not cause damage to life, health, property, and natural resources.

Except for the field rules, all well operations must comply with the requirements set forth in the original project approval and to the permit conditions for individual wells, established pursuant to the regulations in Title 14, CAC.

I. TECHNICAL REQUIREMENTS APPLIED TO OPERATORS BY THE STATE PROGRAM

All wells, including Class II, are cased and cemented in a manner consistent with good oilfield practice. Each

well must be equipped with casing designed to provide anchorage to competent strata for the installation of blowout prevention equipment and to seal off formation fluids and segregate them for the protection of all oil, gas, and freshwater zones. All casing strings are required to be designed for the anticipated collapse, burst, and tension forces, with the appropriate design safety factor to allow for a safe operation. Casing setting depths are based upon geological and engineering factors that include the presence or absence of hydrocarbons, and lost circulation intervals; and upon formation pressures, fracture gradients, and depth to the base of fresh waters. (Section 3220, PRC and Section 1722.2, CAC).

For new wells, operators are required to cement conductor casing to a maximum depth of 100 feet, exceptions may be granted if special conditions require a deeper casing depth. As a general rule, surface casing is cemented at a depth of 10% of the proposed depth of the well, with a minimum of 200 feet and a maximum of 1,500 feet of casing. An intermediate string of casing may also be required, in addition to a production string, if it is necessary for the protection of oil, gas, and freshwater zones, or for protection against other drilling hazards (Section 1722.3(c), CAC).

Production casing is cemented and tested for mechanical integrity above the zone or zones to be produced or injected into, or through the zone or zones then selectively perforated. When the production casing is cemented above

the zone, a perforated liner is run and landed opposite the zone. When the production string does not extend to the surface, an overlap of at least 100 feet between the production string and the next larger string is required. The overlap must be cemented and pressure tested to assure there is a competent seal (Section 1722.3(d), CAC).

All the above casing strings are required to be cemented with a sufficient amount of cement to prevent the movement of injected fluids into underground sources of drinking water. Surface casing annular space is cemented from the setting depth to the surface and intermediate and production strings are cemented to at least 500 feet above oil and gas zones and to at least 100 feet above the base of the freshwater zones (Section 1722.4, CAC).

All wells, including newly converted Class II wells are required to have mechanical integrity demonstrated by performing fluid injection surveys to demonstrate that the injected fluids are confined to the zones of intended injection (Section 1724.10(j), CAC).

For the plugging and abandonment of wells, cement plugs are placed across specified intervals to protect oil and gas zones, to prevent the degradation of useable waters, to protect surface conditions, and to protect public health and safety. At the discretion of the division, cement may be mixed with or replaced by other substances having adequate physical properties to provide the required protection (Section 1723(a), CAC).

In addition to the cement plugs, mud fluids having the

proper weight and consistency to prevent movement of other fluids into the well bore must be placed across all intervals not covered by cement plugs (Section 1723(b), CAC).

To prevent the degradation of useable waters in uncased wells, the division requires the placement of at least a 200-foot cement plug across all fresh-saltwater interfaces. For cased holes that are cemented across the fresh-saltwater interface, a 100-foot cement plug is required to be placed inside the casing opposite the interface. If there is no cement in the annular space opposite the interface, squeeze-cementing into the annulus is required prior to placing the 100-foot plug inside the case (Section 1723.2(b), CAC).

To establish maximum allowable surface injection pressures, operators are required to perform a rate-pressure test to determine the fracture gradient of the formation into which fluids are to be injected. This requirement can be waived or modified if the division determines that the injection pressure will be maintained considerably below the estimated pressure required to fracture the zone of injection (Section 1724.10(i), CAC).

J. AREA OF REVIEW

Prior to the approval of a project involving injection of fluids, the operator must submit an engineering study that includes casing diagrams indicating the location of cement plugs, and the actual or calculated cement fill behind the casings of all idle, abandoned, or deeper-zone producing wells within the area affected by the

project, and evidence that abandoned wells in the area will not have an adverse effect on the project or cause damage to life, health, property, and natural resources (Section 1724.7(a) (4), CAC). A flood pattern map showing all injection, production, and abandoned wells must also be included with the engineering study (Section 1724.7(a) (5), CAC).

The Division of Oil and Gas will utilize the one-quarter (1/4) mile fixed radius of review as set forth in 40 CFR 146.06(b); and if the appropriate data are available, a radial flow equation as shown in Section 40 CFR 146.06(a) may also be used to determine the zone of endangering influence.

Additionally, to provide the area of review concept a degree of flexibility, specifically known and documented geological features may limit the need to review all the wells within a 1/4-mile radius. This concept will be utilized in conjunction with the fixed radius method.

K. DESCRIPTION OF THE DIVISION PROCEDURES FOR MONITORING AND INSPECTION, AND REQUIRED REPORTING FROM OPERATORS

To detect and remedy injection system failures, all injection wells are monitored by division technical personnel utilizing engineering and geological expertise to provide close technical surveillance. The division's regulatory authority is used to take remedial or corrective measures when warranted.

Monthly injection reports must be filed with the division within thirty days following the month of injection. The

reports must be on an individual well basis and they must indicate the amount of fluid injected, the number of days injected, the surface injection pressure, the source and kind of water and if necessary, the reason why the well did not inject fluid (Section 3236, PRC and Section 1724.10 (c), CAC).

All injection wells must be tested and monitored to ensure that injected fluids are confined to the intended zones. Injection surveys must be submitted to the division within three months after injection begins and annually thereafter. Typical surveys used to monitor injection wells are the radioactive tracer, spinner, and static temperature. The monitoring schedule may be modified if supported by evidence indicating that fresh waters will not be degradated as a result of the modification. Division inspectors witness the running of the initial survey, and if circumstances warrant, they will also witness the running of surveys that are conducted annually. Surveys that are not witnessed and reviewed on-site are reviewed by CDOG engineers when the survey is filed with the appropriate district office. If the CDOG reviewer determines the survey to be inconclusive a resurvey may be ordered or other remedial action taken as indicated by the survey review (Section 1724.10(j), CAC).

The operator of any well must keep and submit to the division an accurate record of each operation performed on each well showing chronologically the following data when applicable (Section 1724, CAC):

1. Character and depth of all formations, water-bearing strata, oil and gas zones, lost circulation zones, and abnormal pressure zones encountered.
2. Casing size, weight, grade, type, condition (new or used), top, bottom, and perforations; and any equipment attached to the casing.
3. Tubing size and depth, location of packers, safety devices, and other equipment.
4. Hole sizes.
5. Cementing and plugging operations including date, depth, slurry volume and composition, fluid displacement, pumping pressures, amount of cement fill, and downhole equipment.
6. Drill-stem or other formation tests, including date, duration, depth, pressures, and recovery.
7. Water shut-off, pressure, and lap tests of casings.
8. Sidetracked casing, tools, or other material in the hole.
9. Depth and type of all electrical, physical, or chemical logs, tests, or surveys made.
10. Production or injection method and equipment.
11. Core records showing depth, character, and fluid content.
12. Such other information that the division may require to carry out its mandates.

All the above information is retained by the division on a permanent basis.

Plugging and abandonment operations required for fresh-water

protection are witnessed by division inspectors to assure that the plugs are properly placed. Specifically, division inspectors may witness the placing of the plug in an open hole; however, they are required to witness the location and hardness of all freshwater-saltwater interface plugs (Section 1723.7(d) (1), CAC).

For cementing operations in a cased hole, division inspectors are required to witness all operations that require squeeze-cementing through perforations. If a cavity shot is required, for the purpose of providing a continuous seal behind and inside uncemented casing, inspectors may witness the shooting; however, as in the case of open hole, inspectors are required to witness the location and hardness of the plug across the cavity shot (Section 1723.7(d) (2) and (3), CAC).

Financial responsibility for the plugging of injection wells when abandonment is warranted is managed by several methods in California. An operator may demonstrate financial responsibility by filing an individual bond for each well drilled or a blanket bond covering all well operations.

Individual bonds are normally released after an operator demonstrates to the satisfaction of the division that a well is mechanically sound after the well has injected fluids for a six-month continuous period. Blanket bonds are not normally released until all the operator's wells are abandoned or until the operator specifically requests the release of a well from bond coverage. However, this

release can only occur after the well is demonstrated to be mechanically sound following six months of continuous injection (Sections 3204 & 3205, PRC).

After the release of a bond, the division still has the authority to order an operator to perform remedial or corrective work on a well. The order is issued if, in the judgment of the division, such work is necessary to prevent damage to life, health, property, and natural resources, or to prevent the infiltration of detrimental substances into underground or surface waters suitable for irrigation or domestic purposes (Section 3224, PRC).

If the operator fails to perform the required work, the division can appoint agents to enter the property and perform the necessary work. All expenditures constitute a lien against the real or personal property of the owner or operator (Section 3226, PRC).

The division may also order the abandonment of any well that has been deserted whether or not any damage is occurring or threatened. Removal of the production equipment or facilities is prima facie evidence of desertion (Section 3237, PRC).

A special well abandonment allotment is also available in California for the purpose of abandoning deserted wells when the last known operator is deceased, defunct, or no longer in business in California and the present surface and mineral estate owners did not receive a substantial financial gain from the wells (Section 3250 and 3251, PRC).

L. STATE'S ENFORCEMENT PROGRAM

When the division finds or determines that there is a compliance deficiency or a violation of its rules and regulations, the procedure is to inform the owner or operator immediately of the problem in order to arrive at an expeditious resolution.

If no action is obtained through this procedure within a reasonable time, the division can issue a formal order to the operator to perform the required work. In the absence of an appeal or within thirty days following denial of an appeal, the state can cause the work to be performed by agents of the state if the operator has not made a good faith effort to perform the required work.

Section 3224 (PRC) provides the division authority to order any remedial work that is necessary to prevent damage to life, health, property, and natural resources. And, in accordance with Section 3226, if an emergency situation exists, the division can take any action deemed necessary, which could include the severance of operations to protect life, health, property, and natural resources.

Failure or neglect on the part of any person to comply with any order of the division constitutes a misdemeanor, and each day's further failure or refusal, or neglect is a separate and distinct offense (Section 3359, PRC).

In addition, any owner, operator, or employee of the owner who hinders or refuses to permit the division to inspect a well, causes the delay of the enforcement of division rules and regulations, fails or neglects or re-

fuses to furnish any required report or record is guilty of a misdemeanor (Section 3236, PRC).

The misdemeanor is punishable by a fine of not less than one hundred dollars or more than five hundred dollars, or by imprisonment for not exceeding six months or by both fine and imprisonment (Section 3236, PRC).

The threat of severance or closure of any activity, including an associated production activity, that contributes to the degradation of fresh water is an effective incentive to an operator to correct the problem.

M. AQUIFER EXEMPTION PROCESS

After the division provides a public notice and the opportunity for public hearings, the division will identify and describe those aquifers or portions thereof which the division proposes to designate as an "exempt aquifer." To exempt an aquifer, the aquifer must meet the following criteria which is set forth in 40 CFR 146.04:

1. The aquifer does not currently serve as a source of drinking water; and
2. The aquifer cannot now and will not in the future serve as a source of drinking water because:
   (a) It is mineral, hydrocarbon, or geothermal energy producing.
   (b) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical.
   (c) It is so contaminated that it would be economically

or technologically impractical to render that water fit for human consumption.

A list of the aquifers exempted by the above procedures is attached as part of the state submittal under Section 1425 of the SDWA.

Subsequent to program approval, identification of additional aquifers that qualify for exemption may be made by the division; however, any person who wishes to have an aquifer designated must submit to the division information including detailed maps and supportive data that would justify the proposed exemption. If there is sufficient evidence to indicate that an exemption may be justified, the division will provide notice and opportunity for a public hearing.

N. STATE STAFFING AND RESOURCES

In fiscal year 1981-82, a budget of $5,328,136 and 133.3 authorized personnel years is proposed for the CDOG to conduct the Oil, Gas, and Geothermal Protection Program. This is an increase of 4 percent in funds and 2 percent in staff over the previous year. Well work is expected to increase about 5 percent (8,000 to 8,400) and the total number of wells to be regulated is expected to increase about 1 percent (78,400 to 79,500). Almost 90 percent of the total resources and staff ($4,752,280 and 118.8 personnel years) are allocated for the regulation of oil and gas operations, approximately 11 percent of which ($522,751 and 13.1 personnel years) will be expended for underground injection control associated with such operations. Regulation of oil and gas operations is carried out under the overall direction of the State Oil and Gas

Supervisor and the Chief Deputy. Localized direction is provided by six district deputies (see attached organization chart). As required by PRC Sections 3103 and 3104, all deputies must be competent engineers or geologists, registered in the state, and experienced in the development and production of oil and gas. Deputies of large districts (Long Beach and Bakersfield offices) are Supervising Oil and Gas Engineers, while those of small districts are Senior Oil and Gas Engineers. Engineering unit supervisors in large districts are also Senior Oil and Gas Engineers.

Associate Oil and Gas Engineers in districts (designated as lead, area, operations, or project engineers on the organization chart) evaluate and permit all projects and operations proposed by oil and gas operators, monitor and study operations, prepare technical and legal directives, and coordinate field investigation. Energy and Mineral Resources Engineers (designated as field engineers on the organization chart) and Petroleum Technical Assistants or Junior Engineering Technicians (designated as field technicians) conduct required tests and inspections on a 24-hour basis, seven days per week. In calendar year 1980, the field staff performed 18,191 of 19,205 required tests and inspections statewide.

Minimum qualifications for oil and gas engineer positions include a degree in geology or petroleum engineering, and/or specific knowledges and abilities, education, and experience in the field of petroleum engineering or geology as follows:

	Years of Work Experience	Years or Management Experience	Total
Supervising Engr.	3+	2	5+
Senior Engr.	4	--	4
Associate Engr.	3(1)	--	3(1)
Energy & Mineral Resources Engr.	0-4	--	0-4

NOTE: (1) Years of required work experience depend upon years of college education completed.

O. OTHER AGENCY INVOLVEMENT

The CDOG has the primary responsibility for controlling Class II well operations in California. The State Water Resources Control Board (SWRCB) has broader responsibility for controlling the quality of California's water resources. An agreement exists between the two agencies, whereby the division provides copies of Class II injection project approval letters and well permits to Regional Water Quality Control Boards. This relationship also allows for unified enforcement action where appropriate.

P. INVENTORY OF CLASS II WELLS

An inventory of Class II wells in California has been completed and supplied to the EPA Regional Adminstrator through the SWRCB. An updated inventory will be supplied with each annual report to EPA.

Q. REVIEW OF EXISTING CLASS II WELLS

Section 1724.10(h) of the CAC requires periodic review of the performance and safety of existing underground injection projects. Current division policy requires that these project reviews be conducted at least annually. Within this current program practice, all existing Class II

projects in California will be reviewed within 12 months.

R. PUBLIC PARTICIPATION

The policy of the division will be to publish public notices in major California newspapers of wide circulation inviting public review and comment for proposed new underground injection projects, or for substantial changes in the permit conditions of existing projects. Public hearing may be held prior to the issuance of new permits or modifications of existing permits at the discretion of the State Oil and Gas Supervisor. Public response to the published notices will be the prime factor in determining whether a public hearing is warranted.

S. COMPLAINT RESPONSE PROCEDURES

Informal complaints concerning underground injection projects may be made by anyone and are usually made by telephone or in person. These complaints are investigated by the district deputy basically in the same manner as formal complaints. An attempt is made by the district deputy to resolve informal complaints in an expeditious and informal manner whenever possible; however, enforcement action is sometimes required.

Pursuant to PRC Section 3235, a formal complaint must be made in writing by a person owning land or operating wells within a radius of one mile of the well or wells complained against. Upon receipt of a formal complaint, the district deputy proceeds as follows:

1. Gathers and summarizes pertinent information about the subject well or wells from district records.

2. Outlines investigatory actions that will be taken to determine the condition of the well or wells, and the validity of the complaint. This may include interviewing complainant and the well operator(s), reviewing operator records, field inspecting wells and facilities, conducting specific field tests, or taking other surveillance action.
3. Sends the information summary and investigation outline, along with a copy of the complaint, to the State Oil and Gas Supervisor.
4. After consultation with the Supervisor or Chief Deputy, conducts the investigation and makes a written report, including official determination of any conditions to be remedied or repaired, and the procedure and method for such mitigation.
5. Sends a copy of the report to the complainant, the owner or operator of the well or wells, and the State Oil and Gas Supervisor.
6. Follows procedures for taking enforcement action to achieve required abatement of damaging conditions.

T. PAST PRACTICE IN THE USE OF ENFORCEMENT TOOLS

Following is a brief description of some of the CDOG's recent enforcement actions involving underground injection projects.

1. In July 1979, the division's district deputy in Santa Maria held a meeting of the operators of the San Ardo field in Monterey County, to discuss the potential and probability of subsurface contamination of aquifers above

the wastewater-disposal zone, the Santa Margarita sand. The meeting was scheduled because of the high gauge-pressures noted during radioactive tracer surveys of Santa Margarita disposal wells, and other indications of pressure increases in the Santa Margarita.

At the request of the division, the operators agreed to phase out injection into the Santa Margarita, equip two wells for continual pressure monitoring and, if necessary, to dewater the sand through former injection wells. As of February 1981, injection in the affected part of the field has ceased and zone pressures are monitored through the two observation wells. Dewatering is not considered necessary.

2. Although the following case does not pertain to a problem involving an USDW, it illustrates the effectiveness of the CDOG with regard to problems arising from underground injection operations.

In the spring of 1980, it was brought to the attention of the division that Monterey zone injection along the western edge of Cat Canyon field, Santa Barbara County, had a high degree of probability for affecting oil production and development drilling on leases just west of the injectors. The division brought this matter to the attention of the operators of Monterey zone injection wells with a request to show cause

for continued injection or arrange for alternate means of disposing of waste water.

The division's action resulted in: (a) Chevron's installation of a four-mile pipeline to divert the waste water to a waterflood project in another pool; (b) Mobil's shutting in of an injection well on the White lease; (c) Shell's substantiation that no damage was likely to result from injection into the Monterey because of wells nearby producing from the same zone; and (d) Shell's development of a wastewater regeneration project, which should be completed by mid-1981, and a diversion of some injection water to wells less critically located.

3. As a result of a review of injection pressures in wastewater disposal wells, in Cat Canyon field, Santa Barbara County, it was noted that Texaco Inc.'s well WD-3, which was injecting into the Slb sand, had an injection pressure in excess of estimated formation fracturing pressure. The operator was requested to run a pressure falloff survey to determine the approximate pressure conditions in the general area of the injection well. As the static gauge pressure failed to bleed off over a fairly extended period of time, it was concluded that zone pressure was considerably in excess of hydrostatic pressure and that a potential existed for migration of water-up fault planes and into freshwater-bearing strata, or into strata in hydraulic continuity therewith. Consequently, the injection permit was rescinded.

APPENDIX A

Summary Data on:

1. Compliance/noncompliance with the Current State Injection Program
2. Repeat Noncompliance by Operators
3. Well Failure Rates
4. USDW Contamination Cases

Noncompliance of any division requirements related to well injection operations is measured by the division in terms of deficiences and violations. A deficiency is defined, but not limited to, the failure of a well's mechanical integrity, failure to perform required tests, failure to file data, and those problems caused by injection operations to adjacent wells.

A violation occurs when an operator fails to correct the deficiency within a specified period of time.

As indicated in Table 1, there were 124 deficiencies and 7 violations during 1980.

Of the 131 instances of noncompliance noted during 1980 in Table 2, 72 were either repeat instances at the same well or at different wells. Of the 72, 5 were at the same well and 67 were by the same operator at different wells.

Well failure, or mechanical integrity failure, is one of the primary problems addressed by division engineers during annual injection well reviews. In 1980, packer problems accounted for two-thirds of the mechanical failures. As indicated in Table 3, there were 36 total failures in 22,046 injection wells.

In the last 40 years, CDOG records indicate that 32 cases of possible USDW contamination have occurred as a result of Class II well operations. Discovery of these cases resulted mostly from CDOG surveillance work, but also resulted from citizen and well operator complaints. In all but one case, the elapsed time from discovery to correction was within one year. Information on the cases are summarized in Table 4. Detailed information can be obtained from district offices.

TABLE 1

NONCOMPLIANCE SUMMARY - 1980

TYPE OF NONCOMPLIANCE	NUMBER OF DEFICIENCIES AND VIOLATIONS						
	DISTRICTS						STATE TOTAL
	1	2	3	4	5	6	
Excessive Injection Pressure	52	--	2	--	--	--	54
Interference	--	--	3	--	--	--	3
No Packer	5	--	--	--	--	--	5
Mechanical Failure - Casing	1	--	--	2	1	1	5
Mechanical Failure - Tubing	--	--	--	3	1	--	4
Mechanical Failure - Packer	7	--	1	9	3	--	20
Mechanical Failure - Shoe	--	--	--	1	--	--	1
Mechanical Failure - Cement	3	--	--	--	2	--	5
Mechanical Failure - Inj. Line	--	--	--	1	--	--	1
No Injection Survey	--	26	6*	--	--	--	32
Data Filing	--	--	1*	--	--	--	1
TOTALS	68	26	13	16	7	1	131

* Violations

REPEAT DEFICIENCIES AND VIOLATIONS BY OPERATORS - 1980

NUMBER OF TIMES REPEATED

TYPE OF DEFICIENCY OR VIOLATION REPEATED	OPERATOR (EDP CODE)														STATE TOTAL
	A2450	A4500	C5650	E3500	G1300	T0500	L2500	M6900	S3100	S7200	T1600	T2900	U0200	W1700	
1. SAME WELL:															
Excessive Injection Pressure	1						2			1					4
Faulty Tubing														1	1
TOTAL	1						2			1				1	5
2. DIFFERENT WELLS:															
Excessive Injection Pressure	7		1	2			5		2	6	10	7			40
Interference			1												1
No Packer													1		1
Faulty Packer	1	6							2						9
Faulty Cement											1				1
No Injection Survey					4	2		2			2		5		15
TOTAL	8	6	2	2	4	2	5	2	4	6	13	7	6	0	67
GRAND TOTAL	9	6	2	2	4	2	7	2	4	7	13	7	6	1	72

TABLE 3

WELL FAILURE SUMMARY - 1980

TYPE OF FAILURE	NUMBER OF WELL FAILURES						
	DISTRICTS						STATE TOTAL
	1	2	3	4	5	6	
Casing	1	--	--	2	1	1	5
Tubing	--	--	--	3	1	--	4
Packer	7	--	1	9	3	--	20
Shoe	--	--	--	1	--	--	1
Cement	3	--	--	--	2	--	5
Injection Line	--	--	--	1	--	--	1
TOTAL FAILURES	11	0	1	16	7	1	36
TOTAL INJECTION WELLS*	2,431	691	1,474	16,651	771	28	22,046
FAILURES PER 100 WELLS	0.5	0	0.1	0.1	0.9	3.6	0.2

* Active and shut down as of November 1980.

TABLE 4 APPENDIX A

USDW CONTAMINATION CASES BY DISTRICT, 1940-1980

NOTE: Operators listed below are not necessarily the operators of the wells when the contamination incident occurred.

DIST. NO.	FIELD	OPERATOR(S)	WELL(S)	YR. DISCOVERED	CAUSE
1	El Segundo	Apex Petroleum Corp., Ltd. & Sovereign Oil Corporation	#2 #3	1941 1941	Improper practice Improper practice
	Long Beach	Hancock Oil Company	#1	1958	Cement failure
	Richfield	Texaco Inc.	#YW-9	1980	Cement failure
2	Placerita	Crown Central Petroleum Corporation	"KPM" #17	1979	Casing hole
3	Cat Canyon, East Area	Occidental Petroleum Corporation	"Williams B" 2	1973	Cement failure
	Cat Canyon, West Area	Mobil Oil Corporation	"Los Flores A" #3-21	1977	Casing failure
	San Ardo, North Area	Mobil Oil Corporation	"Rosenberg" #803X-35	1977	Casing failure
		Mobil Oil Corporation	"Rosenberg" #801-35, 802X-35, 803X-35, 828X-35, and 872X-35	1979	Excessive zone pressure
4	Canfield Ranch, East Gosford Area	Gulf Oil Corporation	"Statex-KCL" #7313	1970	Casing hole
	Greeley	Chevron U.S.A. Inc.	"KCL Lease 11" #59	1958	Casing and tubing holes
	Kern Bluff	Crestmont Oil & Gas Company	"Union-Miller" #4	1975	Casing hole
	Mountain View, Arvin Area	Buttes Resources Company	"George" #19	1971	Cement failure
	Tejon, Central Area	Gulf Oil Corporation	"OMB" #16 C-33 W.I.	1979	Casing hole
	Tejon, Western Area	Gulf Oil Corporation	"Tejon Ranch" #525-5	1978	Casing failure
	Ten Section, Main Area	Shell Oil Company	"KCL-A" #61-30	1968	Cement failure

TABLE 4 (CONTINUED)

USDW CONTAMINATION CASES BY DISTRICT, 1940-1980

NOTE: Operators listed below are not necessarily the operators of the wells when the contamination incident occurred.

DIST. NO.	FIELD	OPERATOR(S)	WELL(S)	YR. DISCOVERED	CAUSE
4	West Bellevue	Angora-Verde Corporation	#82-32	1970	Casing hole
5	Helm	Mobil Oil Corporation	"Noble" #56-5	1958	Casing split
		Mobil Oil Corporation	#868X-5	1969	Cement failure
		Samson Resources Compnay	"WR" D-1	1968	Casing hole
		Samson Resources Company	"California Lands, Inc." #D65-15	1969	Casing and tubing holes
		Samson Resources Company	"Helm Unit" #D8-36	1969	Tubing hole
		Samson Resources Company	"Steines" #D1-23	1979	Casing and tubing holes
	Raisin City	Crown Central Petroleum Corporation	"Eagle-Sunset" #10	1957	Cement failure
		Crown Central Petroleum Corporation	"Properties, Inc." #37-18	1980	Cement failure
	Riverdale	H. L. Cullivan	"Sunland-Brown" #2	1980	Packer failure and casing hole
		Samson Resources Company	"Young" #D74-16	1958	Casing hole
		Samson Resources Company	"Young" #D74-16	1971	Casing and tubing holes
		Samson Resources Company	"Young" #D74-16	1980	Casing and tubing holes
		West Side Rentals	"U.C.L." #D-5	1974	Packer leak and casing hole
	Southeast Burrel	Case & Schwabenland	"McCarthy" #D-1	1968	Casing hole

USDW CONTAMINATION CASES BY DISTRICT, 1940-1980

NOTE: Operators listed below are not necessarily the operators of the wells when the contamination incident occurred.

DIST NO.	FIELD	OPERATOR(S)	WELL(S)	YR. DISCOVERED	CAUSE
5	Southeast Burrel	Oakwood Petroleum Corporation	"U.C.L." #D-1-8	1978	Casing hole
6	Grimes Gas	Atlantic Oil Company	"NL&F" #1	1980	Casing failure

APPENDIX B

Exempted Aquifers

Table 1

Table 2

Pursuant to 40 CFR 122.35(b), the Division of Oil and Gas provided notice and opportunity for a public hearing to consider comments regarding the exemption of certain aquifers from the provisions of the Safe Drinking Water Act. In addition to publication in a journal specializing in legal affairs, the notice was published twice in each of five different newspapers that have wide circulation in the oil- and gas-producing areas of California.

The proposed aquifer exemptions, or portions thereof, are either hydrocarbon-bearing or are currently being used for underground injection of oil- or gas-field waste water.

Except for the interest shown by two oil companies in knowing which aquifers were being designated for exemption, no other comments were received during the 15-day comment period. Because of the lack of comments, the holding of a public hearing was considered to be not warranted.

Pursuant to the criteria in 40 CFR 146.04 and the provisions of 40 CFR 122.35, the Division of Oil and Gas has identified those aquifers which are hydrocarbon producing. The hydrocarbon-producing aquifers are shown in Volumes I and II of "California Oil and Gas Fields", published by the California Division of Oil and Gas. The two volumes are included as part of this application for primacy.

The aquifers, or the portions thereof, are identified in each volume by shading the exempted aquifers on the maps and cross sections. The exempted portions are also described in terms of the average depth, thickness, and geologic age on the page opposite each map under the heading of "PRODUCING ZONES".

For the fields discovered after December 1973, maps and cross sections are not included as part of the application. However, a separate list (Table 2, pages B-46 to B-47) has been included to indicate the hydrocarbon-producing zones of these new fields that should be exempted.

Other aquifers (nonhydrocarbon producing) which are currently being used for injection of oil- or gas-field waste water are identified in Table 1, pages B-1 to B-10. Each aquifer is described in terms of depth, thickness, lateral extent, and geologic age. The lateral extent of the exempted aquifers normally coincide with the oil- or gas-field administrative boundaries designated by the Division of Oil and Gas, as shown on the accompanying maps.

For additional information concerning the aquifer exemption, see page 22 of the Program Description.

TABLE 1

Exempted Aquifers

Nonhydrocarbon Producing Zones Being Used for Waste Water Disposal

District 1

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Belmont Offshore	Repetto (Pliocene) BP, R, S, T, Fo and F sands	Extends throughout the field	2,670-2,850	340-640	The S and T sands are productive in the Tar Zone of Wilmington field to the northwest.
Huntington Beach	Lakewood (Pleistocene) Alpha I & II	Confined to northeast portion of field by the Newport-Inglewood fault and Santa Ana River channel fill	70-100	100	These zones appear to outcrop underneath the ocean to the southwest.
Sawtelle	Puente (Miocene)	Extends throughout field	3,120	988	This is a highly faulted area.
Seal Beach	Repetto (Pliocene)	The only known lateral limit is the Seal Beach fault to the northeast	3,860	620	
	Recent sands	These sands cover an extensive area along the coast and inland to the Central Basin	40-60	10-40	These sands outcrop underneath the sea, or are thinly covered by sediments.
Wilmington, Fault Block II, III, IV, V	River channel gravels (Holocene) Gaspur aquifer	Extends between Ford Avenue and the Los Angeles River	80	100	This zone has been degraded by seawater intrusion and by percolation of oil field brines. The water is now used only for industrial purposes.

District 2

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Ramona	Pico marine strata (Pliocene) basal sand	Extends throughout field	+ 153	200	Sand thickens to west
So. Tapo Canyon	Pico marine strata (Pliocene)	Covers southwest part of field	+ 829	70	
Oat Mountain	Undiff. marine strata (Miocene)	Covers Section 19 & Southwest 1/4 Section 20, T. 3N., R. 17W.	+1,143	2,200	
Simi	Sespe nonmarine strata (Oligocene)	Area north of C.D.L.B. Fault, Alamos Area	+ 347	400	Part of injection interval may be in first oil zone.

District 3

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Guadalupe	Knoxville (Cretaceous or older)	Extends throughout the field	-4,100	750	This formation is basement and is of regional extend.
Lompoc	Lospe (Miocene)	Extends throughout the field	-2,700	150	This formation is just above basement; might be of regional extent.
	Knoxville (Cretaceous or older)	Extends throughout the field	-1,500	250	This formation is basement and is of regional extent.
Russell Ranch	Branch Canyon (Miocene)	Extends over the southern 2/3 of the field	+ 100	400	
San Ardo	Santa Margarita (Miocene)	Extends throughout the field	- 900	100	There appears to be a permeability barrier between north and south portions of field
	Monterey (Miocene) "D" sand	Extends throughout the field	-1,200	30	
	Monterey (Miocene) "E" sand	Extends throughout the field	-1,300	100	
Santa Maria Valley	Lospe-Franciscan (Miocene)-(Cretaceous or older)	T. 10N., R. 33W., S.B.BM, Sections 19, 20, 21, 28, 29, 30, 32 & 33	-1,800	800	These formations are basement and are of regional extent
Monroe Swell	Santa Margarita (Miocene)	Extends throughout the field	- 800	150	
Point Conception	Camino Cielo (Eocene)	Extends throughout the field	-4,500	450	Formerly Matilija
Guadalupe	Franciscan (Cretaceous or older)	Extends throughout the field	-5,700	1,000	This formation is basement and is of regional extent.

District 4

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Bellevue	Etchegoin (Pliocene)	Extends throughout the field	3,474	128-477	
Bellevue, West	Tulare-Etchegoin (Pleistocene) (Pliocene)	Both aquifers extend throughout the field	2,725 (Tulare) 4,370(Etchegoin)	75 (Tulare) 138-550(Etchegoin)	
Blackwells Corner	Tumey (Oligocene)	Extends throughout the field	1,473	40	Truncated by angular unconformity about 1/2 mile northwest of field.
Buena Vista	Tulare (Pleistocene)	Extends throughout the field	538	190-1,111	
Cal Canal	Tulare-San Joaquin (Pleistocene)	Extends throughout the field	1,505	693	Gradual thinning trend toward the southwest.
Canfield Ranch	Etchegoin (Pliocene)	Extends throughout the field	3,212	613-1530	
Coles Levee, North	Tulare (Pleistocene)	Extends throughout the field	1,470	434	
	San Joaquin (Pliocene) Etchegoin (Pliocene)	Extends throughout the field	2,688	187-743	
Coles Levee, South	Tulare-San Joaquin (Pleistocene) (Pliocene)	Both aquifers extend throughout the field	2,189	1,171	
Greeley	Etchegoin (Pliocene)	Extends throughout the field	2,802	260-2,277	
Kern Bluff	Kern River (Plio-Pleistocene)	Extends throughout the field	200	150	
	Vedder (Oligocene)	Extends throughout the field	4,607	166	

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NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL TABLE 1

District 4

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Kern Front	Santa Margarita (Miocene)	Extends throughout the field	2,548	650	
Kern River	Chanac (Miocene to Pleistocene)	Extends throughout the field	1,100	568	
	Santa Margarita (Miocene)	Extends throughout the field	1,698±	325-515	
	Vedder (Miocene)	Extends throughout the field	4,850	136-375	
Lakeside	San Joaquin (Pliocene)	Extends throughout the field	3,360	30	
Los Loblos	Tulare (proposed) (Pleistocene)	Extends throughout the field	1,950±	1,550±	
Midway-Sunet	Alluvium (Holocene)	Extends throughout the field	399	125-252	
Mount Poso	Walker (Eocene-Oligocene)	Covers northeast half of field	1,939 (top of Vedder)	656-661	Injected only in combination with the laterally interfingered Vedder, which extends throughout the field.
Mountain View	Kern River (Pliocene)	Extends throughout the field	2,680	1,320±	
Pleito	Chanac (Pleistocene)	Extends throughout the field	2,756	634	
	Kern River (Pliocene)	Extends throughout the field	3,272	384	

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District 4

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Poso Creek	Vedder (Oligocene)	Not penetrated in southwest portion of field but believed to extend throughout the field	3,640	95	
Rio Viejo	San Joaquin (proposed) (Pliocene)	Extends throughout the field	5,400	225	
Rosedale	Etchegoin (Pliocene)	Extends throughout the field	3,767	181	
Round Mountain	Olcese (Miocene)	Extends throughout the field	450	290-1050	Fault bounded 1 1/2 miles east of field limits, and pinches out 5 miles west of field limits.
	Walker (Eocene-Oligocene)	Extends throughout the field	2,300	270-702	
Seventh Standard	Etchegoin (Pliocene)	Extends throughout the field	3,580	1,101-1,353	
Strand	Etchegoin (Pliocene)	Extends throughout the field	3,015	70-355	
	San Joaquin (Pliocene)	Extends throughout the field	3,090	732	
Ten Section	San Joaquin (Pliocene)	Extends throughout the field	2,298	397-1,027	

District 5

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Burrel	Santa Margarita (Miocene)	Extends throughout field	4,500	575	
	Tulare-Kern River Undiff nonmarine strata (Pliocene)	Extends throughout field	1,650	4,700	BFW ± 1,000'
Southeast Burrel	Tulare-Kern River Undiff nonmarine strata (Pliocene)	Extends throughout field	1,800	4,700	BFW ± 1,300'
Coalinga	Santa Margarita (Miocene)	Extends throughout all but west edge of field	Sur to 1,500	0-150	No Class I water in field
	Etchegoin-Jacalitos Undiff (Pliocene)	Extends throughout all but west edge of field	Sur to +500	0-1,500	
Gill Ranch Gas	Zilch (Miocene)	Extends throughout field	2,700	550	BFW ± 500'
Guijarral Hills	Etchegoin-Jacalitos Undiff (Pliocene)	Extends throughout field	1,400	3,300	BFW ± 1400' Top of injection zone 3,100'
Helm	Santa Margarita (Miocene)	Extends throughout field	4,600	400-700	
	Tulare-Kern River Undiff nonmarine strata (Pliocene)	Extends throughout field	1,800	±3,000	BFW ± 1,100'
Jacalitos	Etchegoin-Jacalitos Undiff (Pliocene)	Extends throughout field	<1,000	<3,000	BFW ± 550' Top of injection zone ± 1,700
Kettleman North Dome	San Joaquin-Etchegoin (Pliocene)	Etchegoin extends throughout field; San Joaquin is limited to the outer edges	1,000	6,500	No fresh water present

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District 5

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Raisin City	Undiff. nonmarine strata (Pliocene Santa Margarita (Miocene)	Extends throughout field	1,800±	2,200±	Base of fresh water is 900'. Injection is into various sands at various depths.
Riverdale	Undiff. nonmarine strata (Pliocene) Santa Margarita (Miocene)	Extends throughout field	1,625 4,500	4,000	Base of fresh water is 1,300'. Injection into various sands at various depth.
San Joaquin	Undiff. nonmarine strata (Pliocene)	Extends throughout field	1,300	800	Base of fresh water is 900'. Injection is into various sands at various depths.
San Joaquin Northwest	Basal McClure (Miocene)	Extends throughout field	5,000	40	Base of fresh water is 900'. Well was used only for testing, then shut-in and later abandoned.
Turk Anticline	San Joaquin (Pliocene)	Extends throughout field	2,650	400	Base of fresh water is 2,500'. Injection into separate sands at various depths.

District 6

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

TABLE 1

Field	Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Bunker Gas	Undiff. nonmarine strata (post Eocene) lowermost sands	Extends throughout field	2,900-3,100	100	Base of fresh water approximately 2,350'.
Grimes Gas	Kione (Late Cretaceous) upper and middle sands	Extends throughout field	3,000-4,000	500	Kione is major producing formation in northern Sacramento Valley and contains gas in adjacent fields.
Grimes, West, Gas	Kione (Late Cretaceous) intermediate sand	Extends throughout field	3,300-3,800	600	Kione is major gas producing formation in northern Sacramento Valley and contains gas in adjacent field.
La Honda (South Area)	Vaqueros (Miocene) inermediate member	Covers southwestern portion of field	1,400-2,000	250	Portion of formation could be productive in field.
Lathrop Gas	Starkey (Lake Cretaceous) intermediate sand	Covers western quarter of field	4,000-4,500	100	Starkey is major gas producing formation in fields to the north.
River Break Gas	Capay (Eocene) Second Capay sand	Confined to middle portion of Section 24, T. 2N., R. 2E., M.D.B.&M.	4,900-5,000	150	
Roberts Island Gas	Undiff. nonmarine strata (post Eocene)	Extends throughout field	500-1,000	>500	Injection through surface string annuli with all shoes below 490'. No fresh water below 100'.
Sutter Buttes Gas	Kione (Late Cretaceous)	Confined to southwestern portion of field	1,200-2,800	700	Kione is major gas producing formation in northern Sacramento Valley and contains gas in adjacent fields.

NON-HYDROCARBON PRODUCING ZONES BEING USED FOR WASTE WATER DISPOSAL

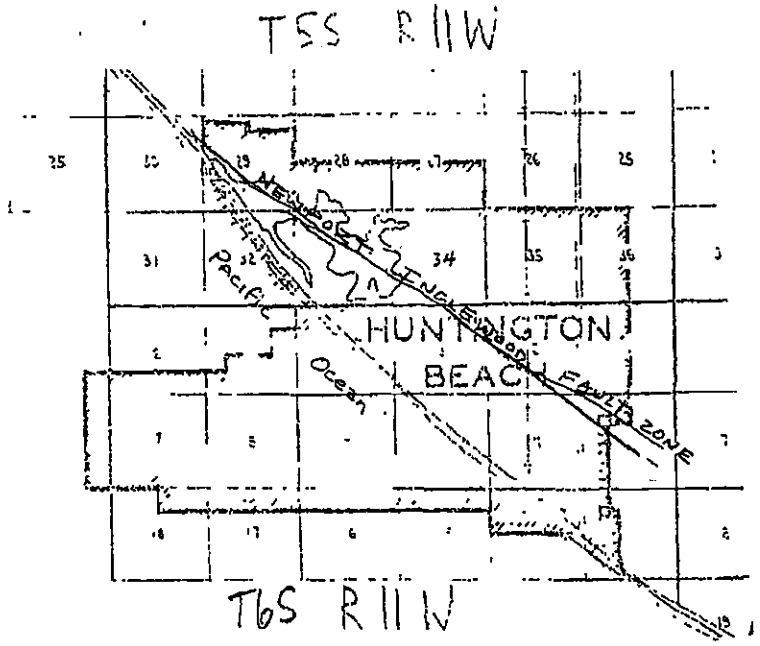
TABLE 1

Formation & Zone	Lateral Limits	Depth to Top (feet subsea)	Thickness (feet)	Remarks
Mokelumne River (Late Cretaceous) Third Massive zone	Confined to east side of Stockton Arch fault	4,500-5,300	500	Third Massive is major producing zone in fields to north and west.
Undiff marine and Ione (Eocene)	Extends throughout field	1,400-1,700	650	Domengine (Ione equivalent) is major gas producing formation in fields to south.

Strict 1

HUNTINGTON BEACH OIL FIELD - Dist 1

Orange County

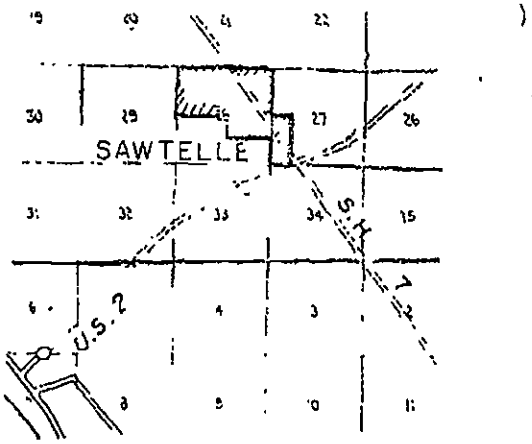


District 1

SAWTELLE OIL FIELD - Dist. 1

Los Angeles County

T1S R15W



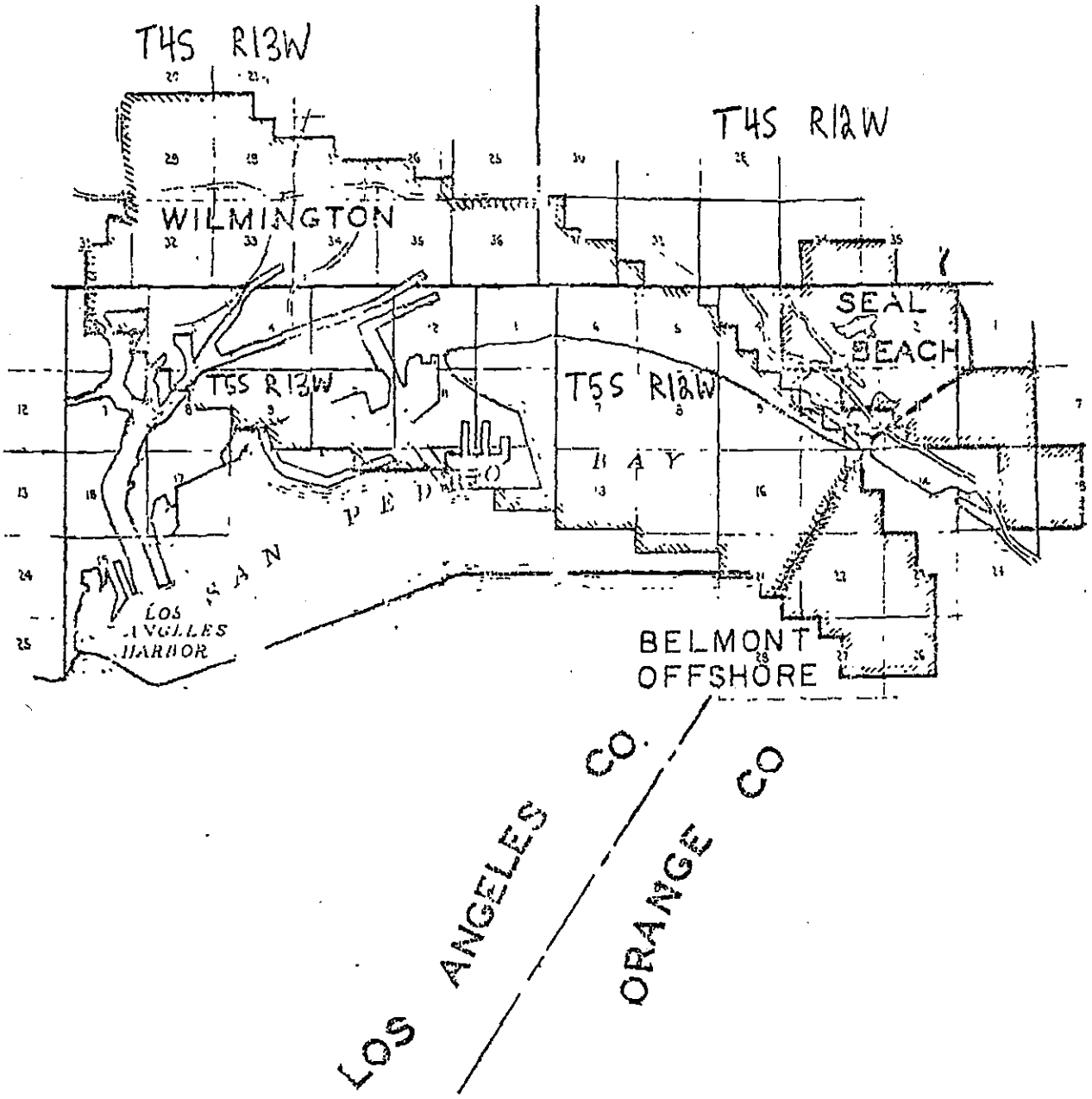
T2S R15W

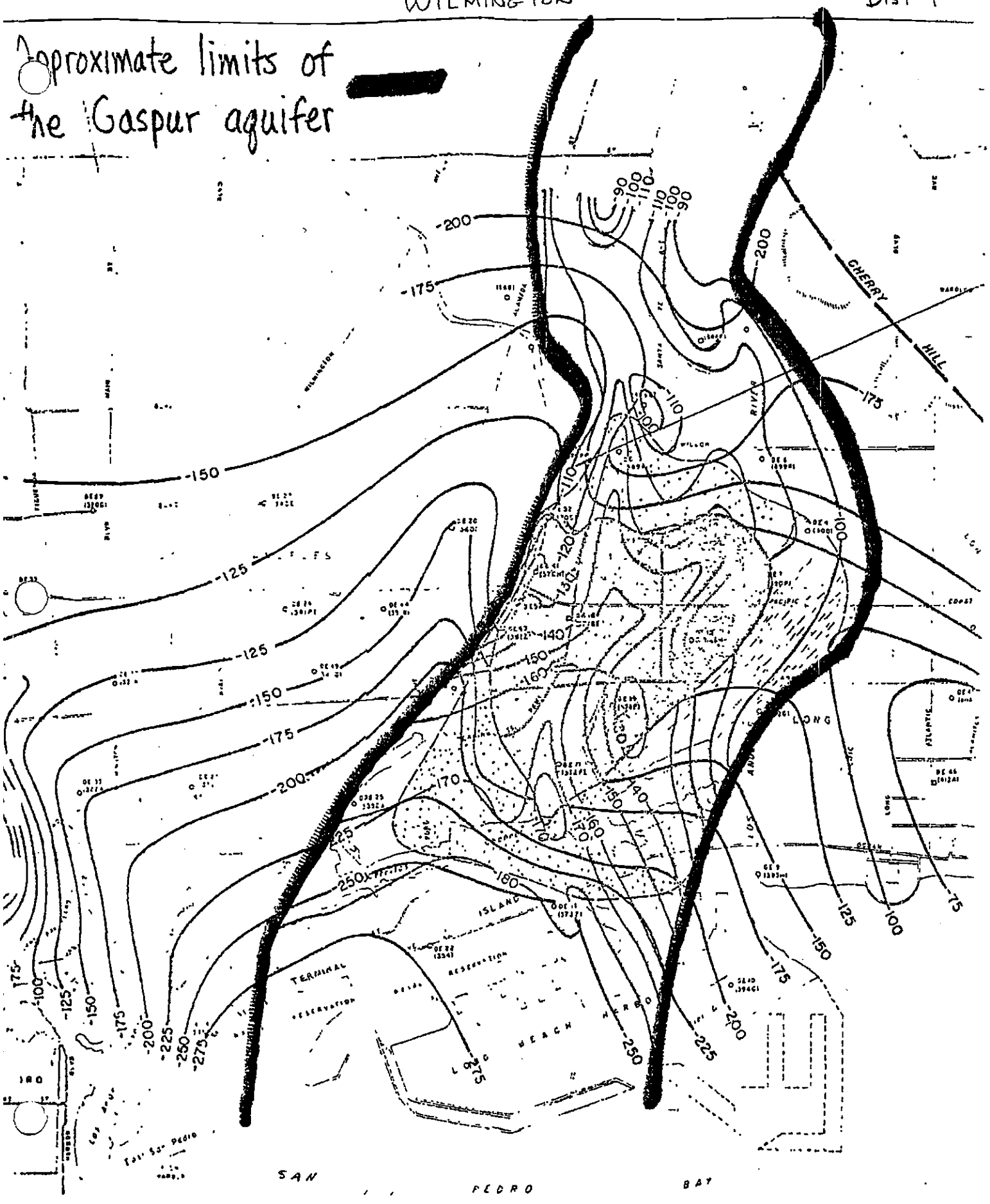
trict 1

WILMINGTON, SEAL BEACH, and BELMONT OFFSHORE OIL FIELDS

Dist 1

Los Angeles and Orange Counties




Approximate limits of the Gaspur aquifer
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-175
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-125
-100
-90
-110
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-140
-160
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-180
-225
-250
-275
200
175
150
125
100
75
CHERRY HILL
SAN PEDRO BAY
TERMINAL ISLAND
LONG BEACH

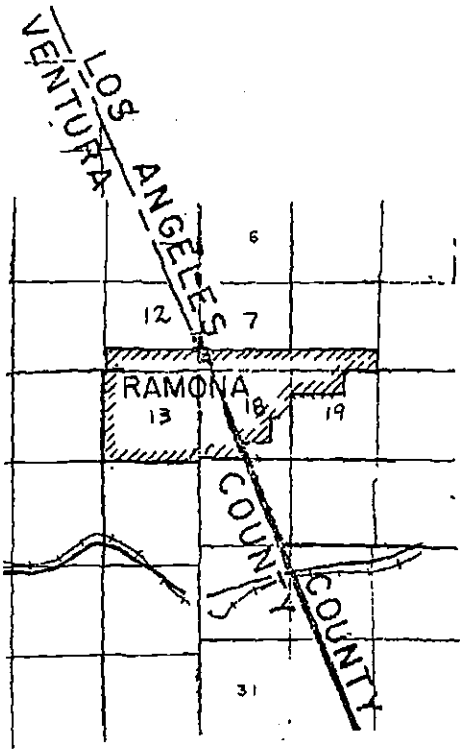
District 2

RAMONA OIL FIELD

Dist 2

Los Angeles and Ventura Counties

T4N R18W



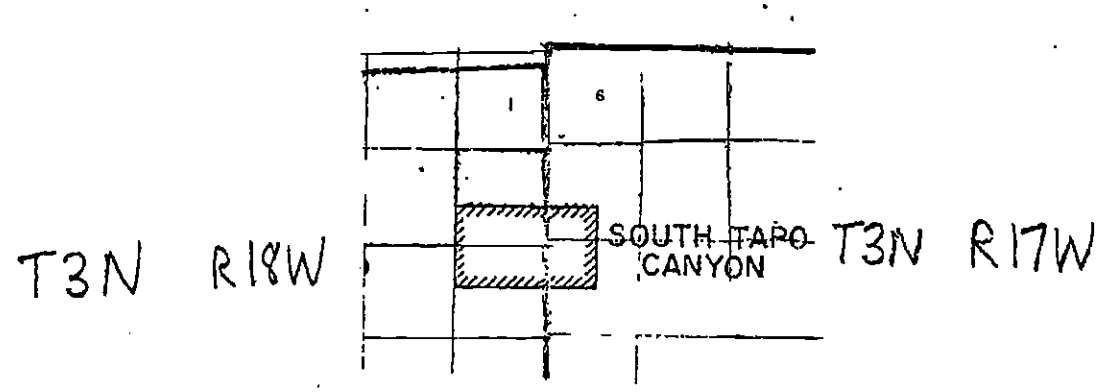
T4N R17W

District 2

SOUTH TAPO CANYON OIL FIELD

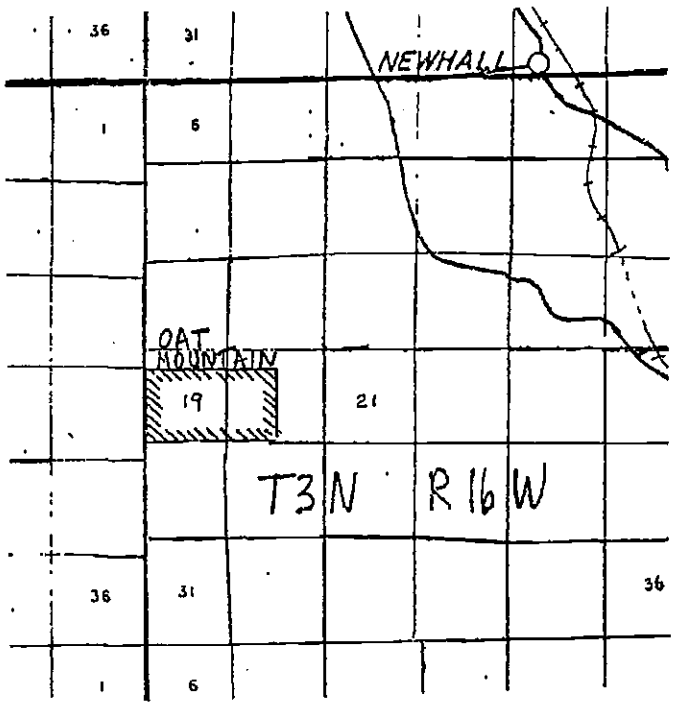
Dist 2

Ventura County



OAT MOUNTAIN OIL FIELD

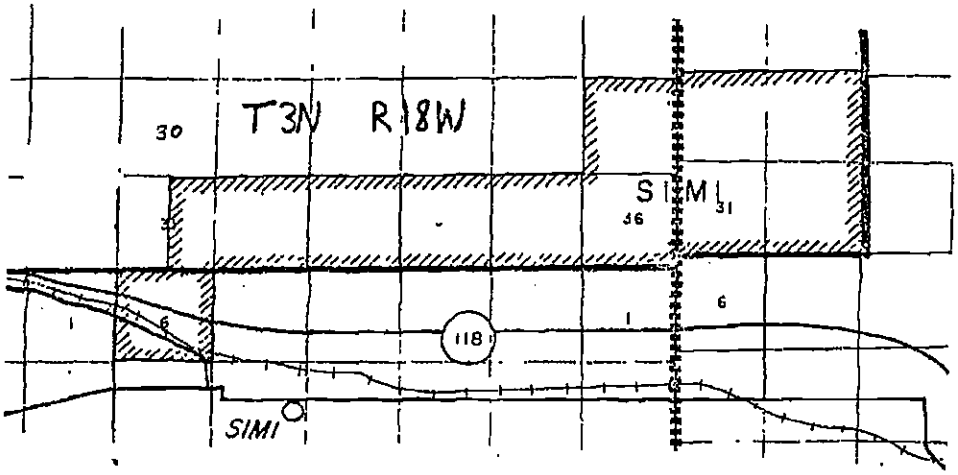
Ventura County



District 2

SIMI OIL FIELD
Ventura County

Dist 2

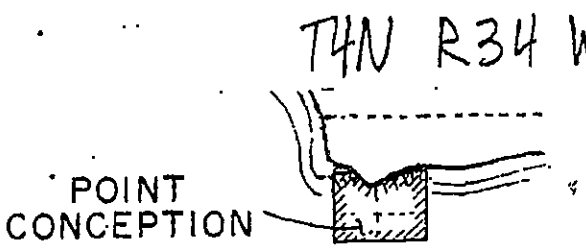


District 3

POINT CONCEPTION OIL FIELD

Dist. 3

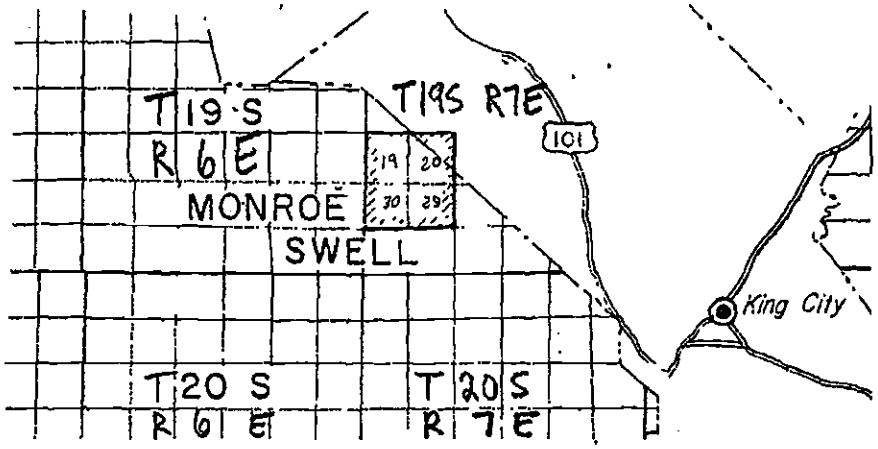
Santa Barbara County.



District 3

MONROE SWELL OIL FIELD

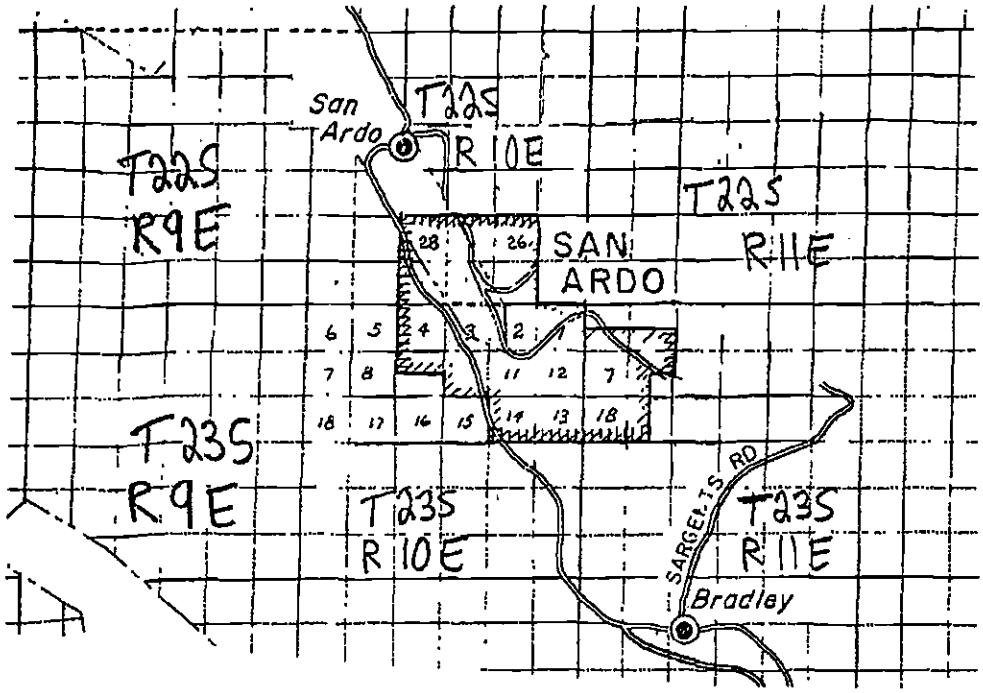
Monterey County



District 3

SAN ARDO OIL FIELD
Monterey County

Dist 3

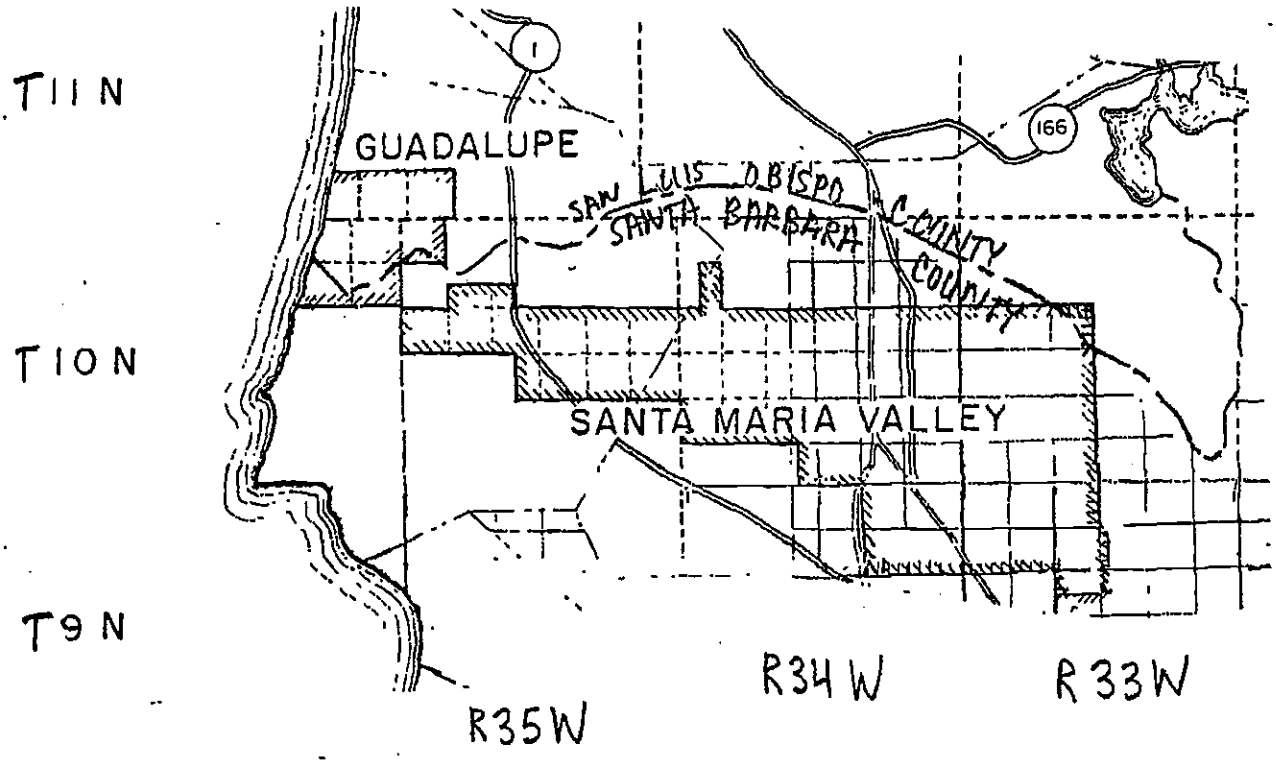


trict 3

GUADALUPE and SANTA MARIA VALLEY OIL FIELDS

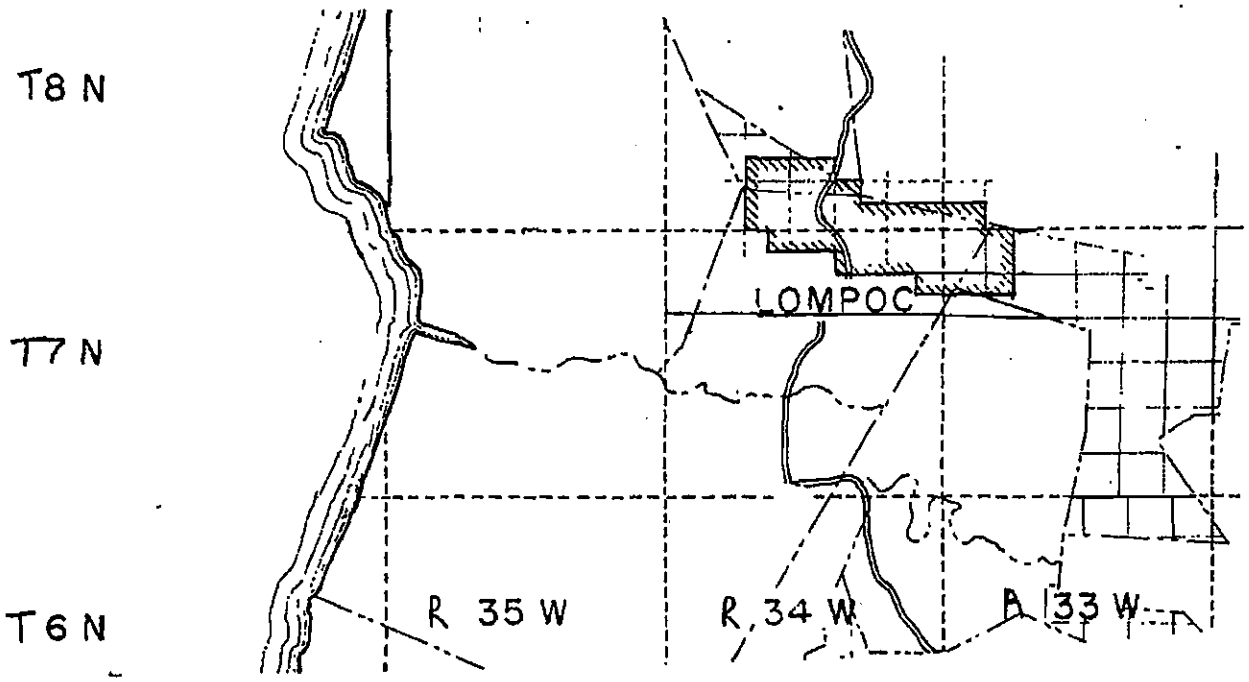
Dist 3

San Luis Obispo and Santa Barbara Counties



District 3

LOMPOC OIL FIELD
Santa Barbara County

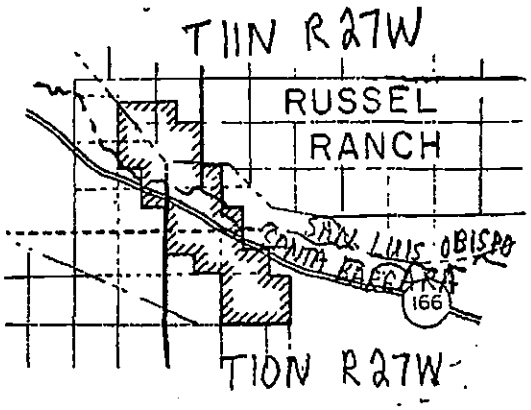


District 3

RUSSEL RANCH OIL FIELD

District 3

San Luis Obispo and Santa Barbara Counties

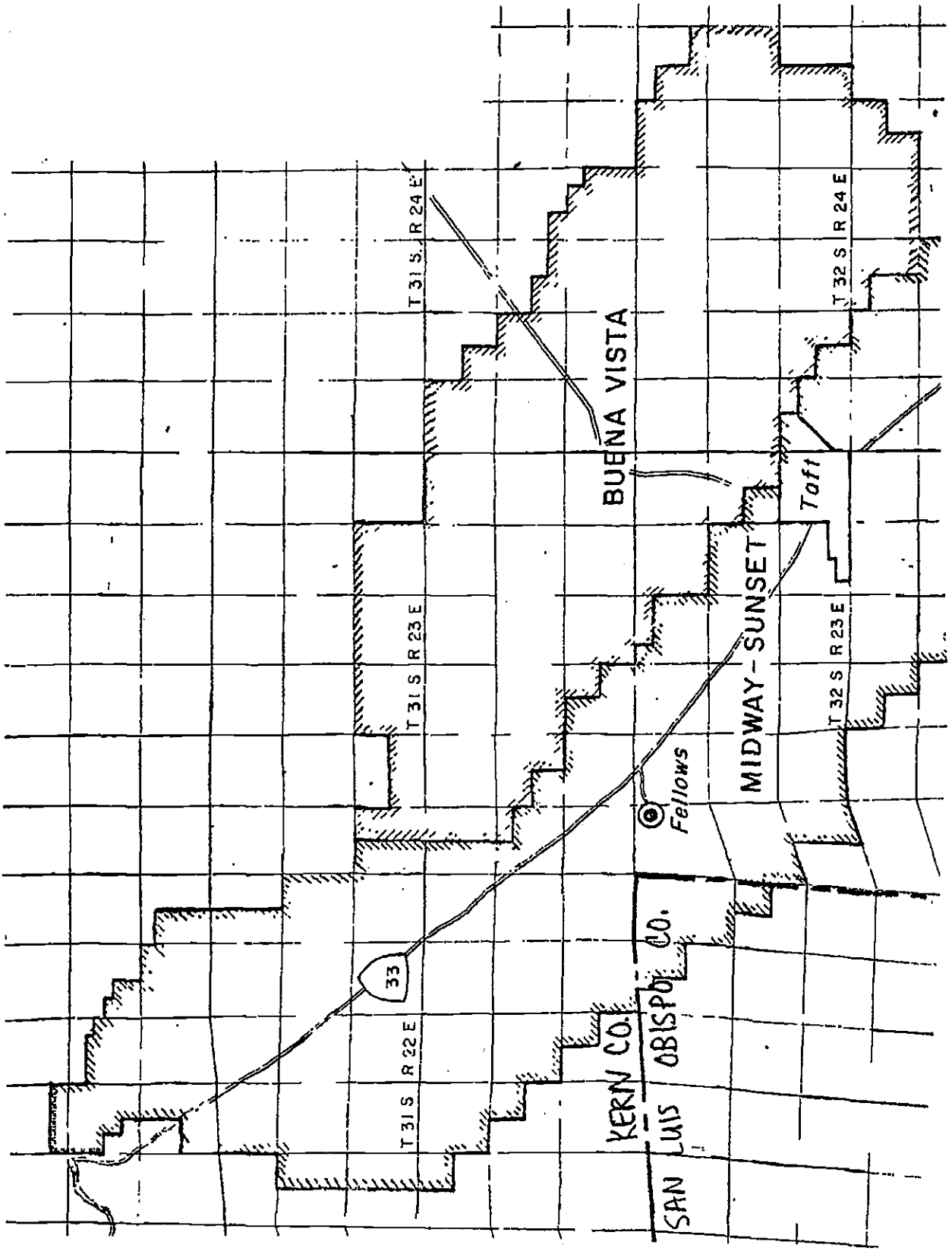


District 4

BUENA VISTA and north MIDWAY SUNSET OIL FIELDS

Dist 4

Kern and San Luis Obispo Counties

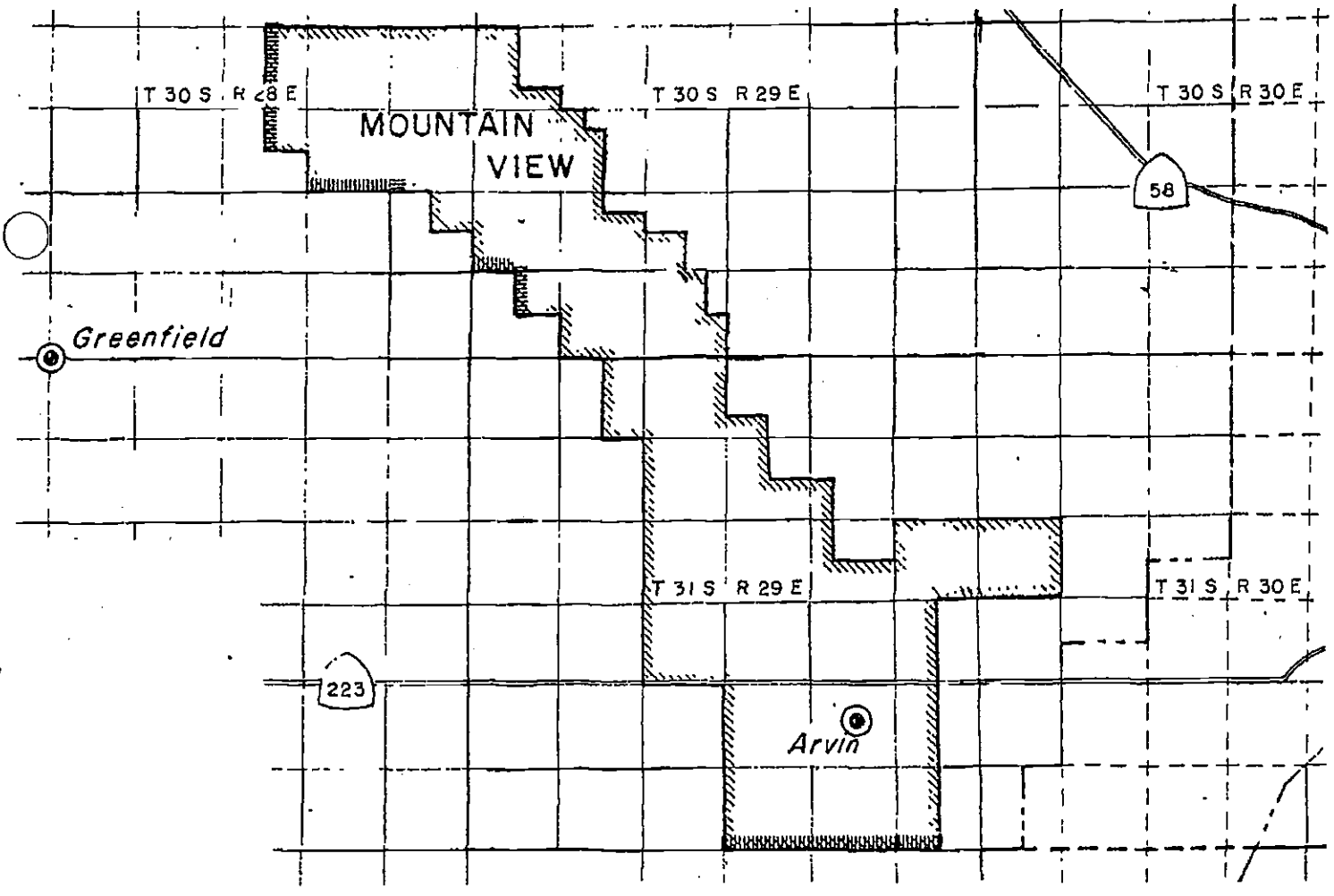


Dist 4

MOUNTAIN VIEW OIL FIELD

Dist 4

Kern County

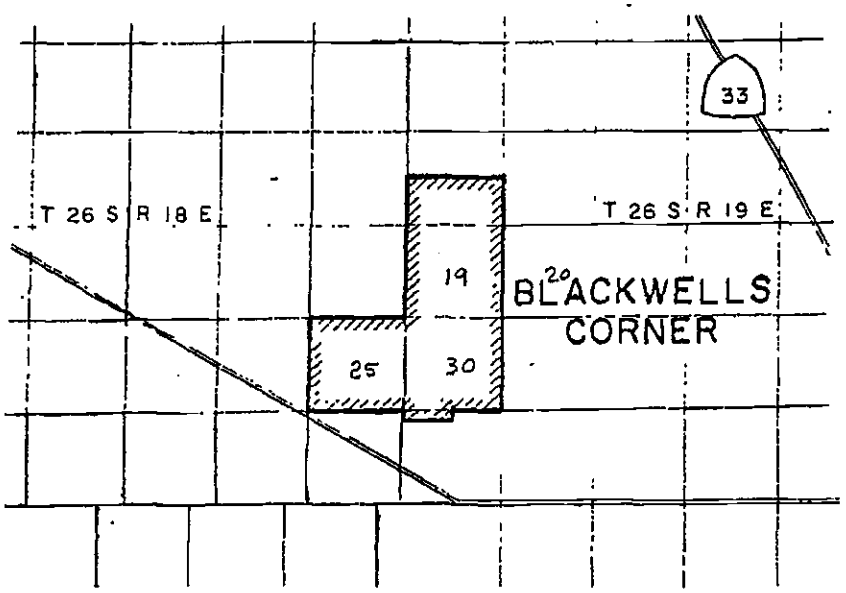


District 4

BLACKWELLS CORNER OIL FIELD

Dist 4

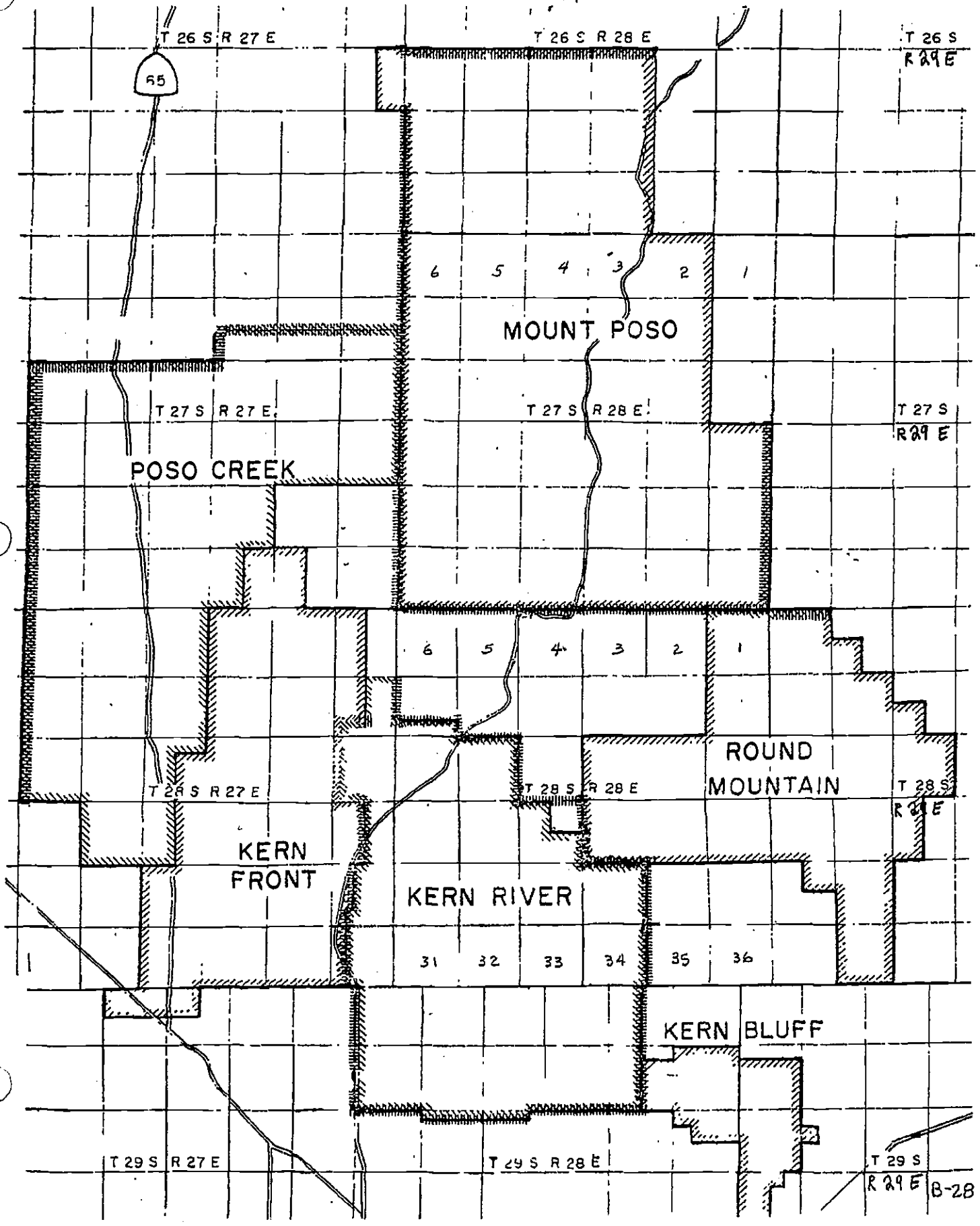
Kern County



District 4 KERN BLUFF, KERN FRONT, KERN RIVER, MOUNT POSO, POSO CREEK, and ROUND MOUNTAIN OIL FIELDS

Dist 4

Kern County

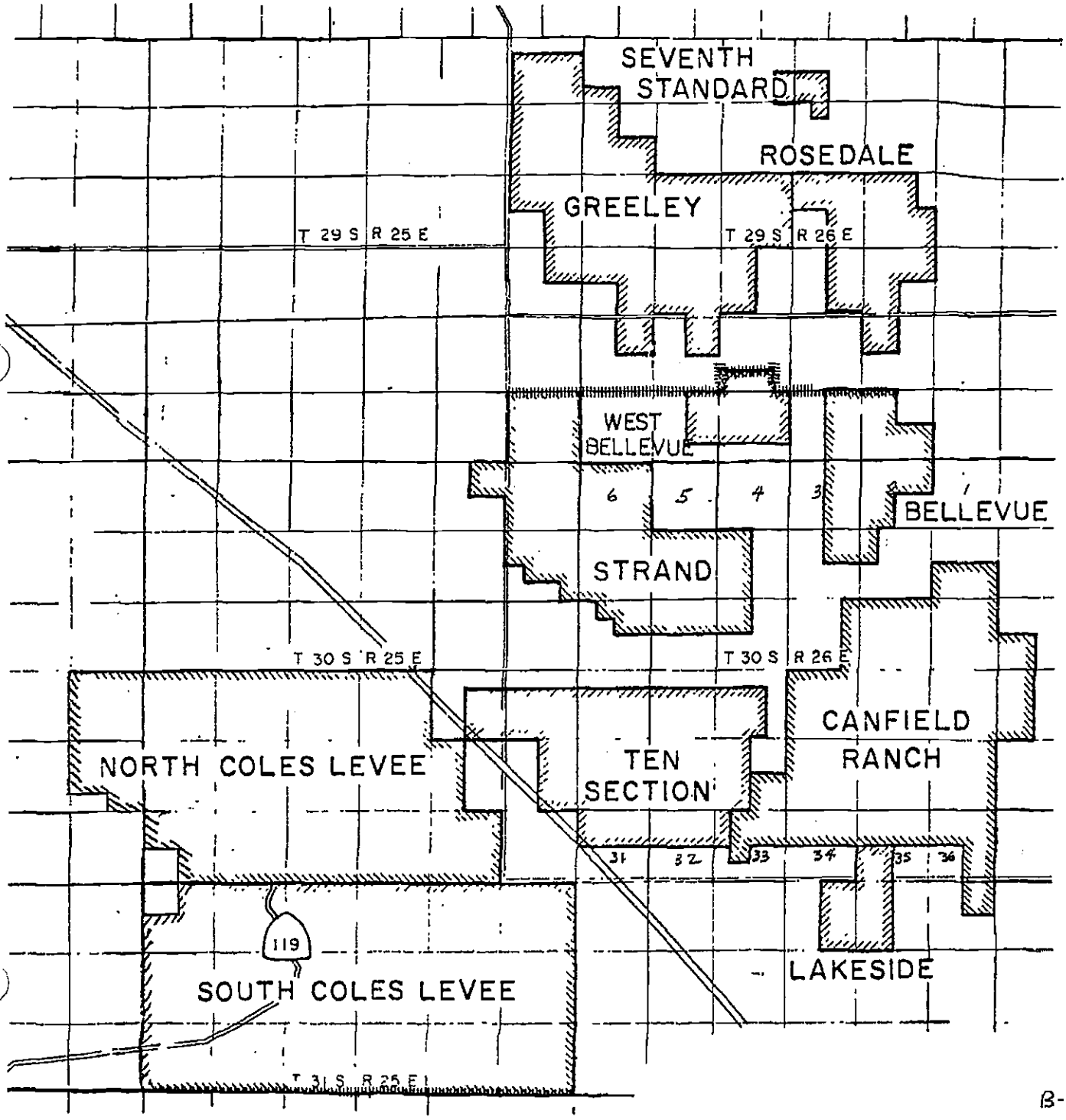


B-28

District 4 BELLEVUE, WEST BELLEVUE, NORTH COLES LEVEE, SOUTH COLES LEVEE, CANFIELD RANCH, GREELEY, LAKESIDE, ROSEDALE, SEVENTH STANDARD, STRAND AND TEN SECTION OIL FIELDS

Dist 4

Kern County

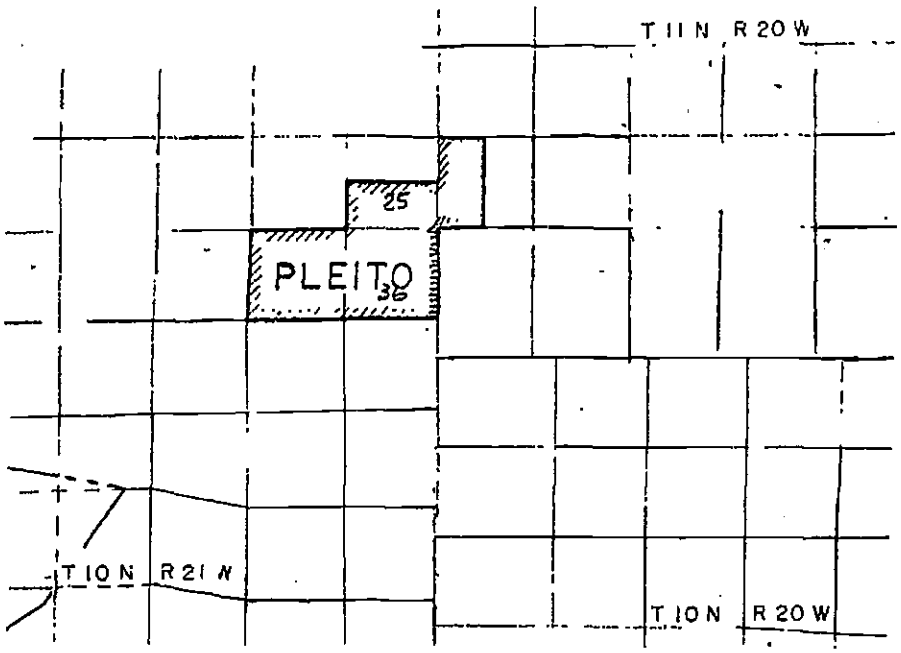


Tract 4

PLEITO OIL FIELD

Kern County

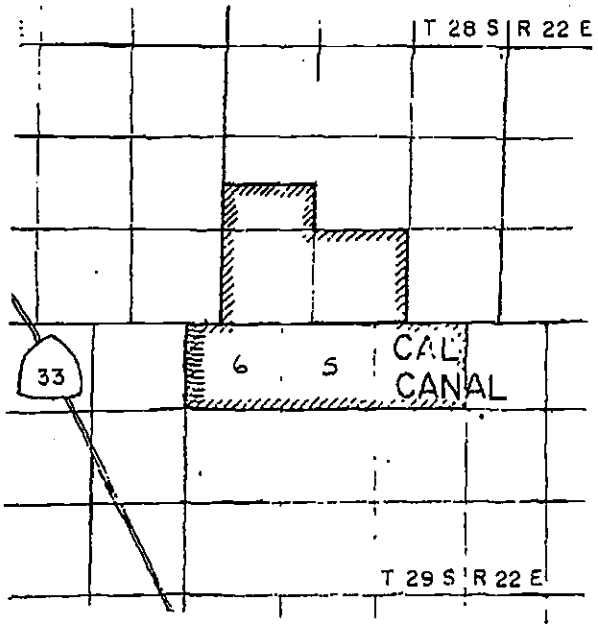
Dist. 4



Dist 4

CAL CANAL OIL FIELD

Kern County

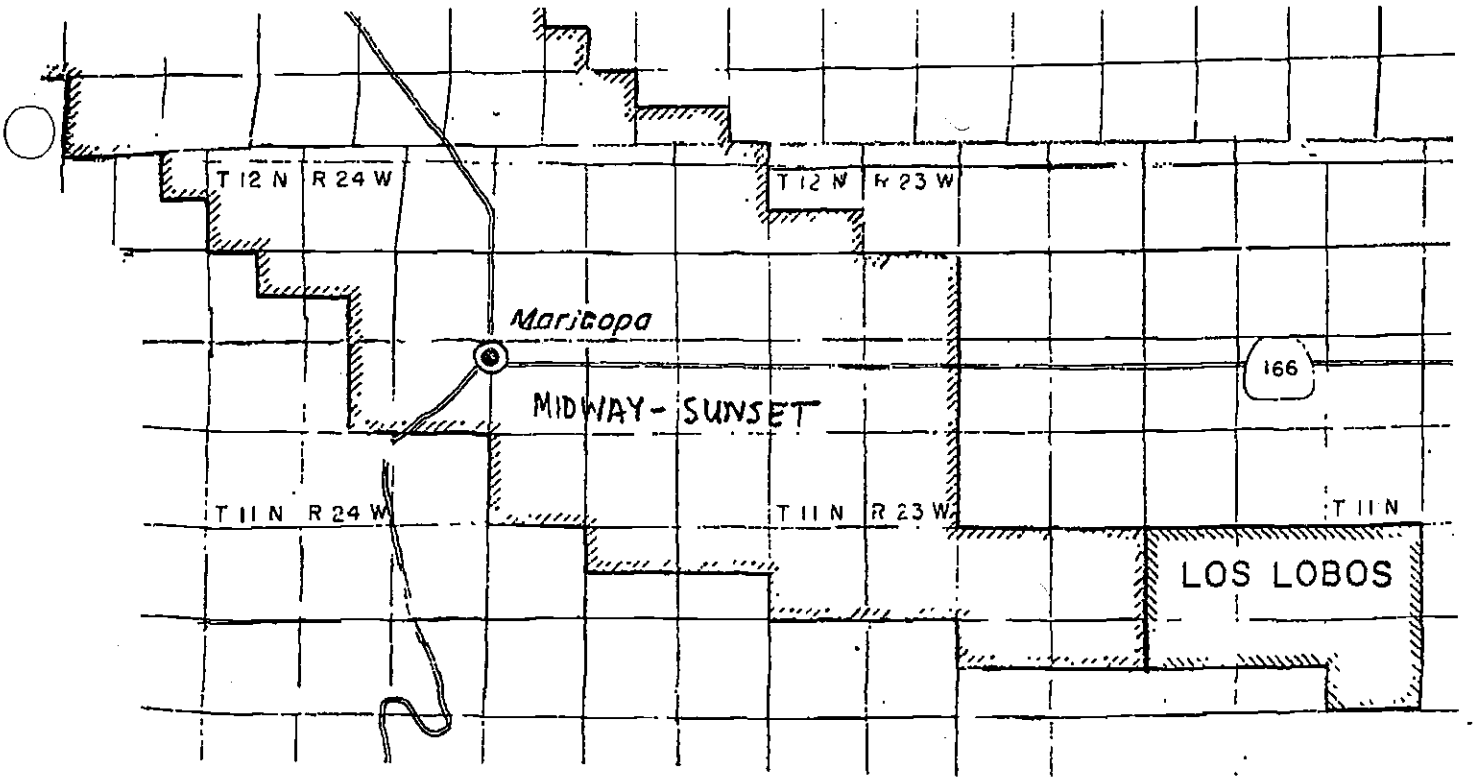


Unit 4 South MIDWAY-SUNSET and LOS LOBOS.

Dist 4

OIL FIELDS

Kern County

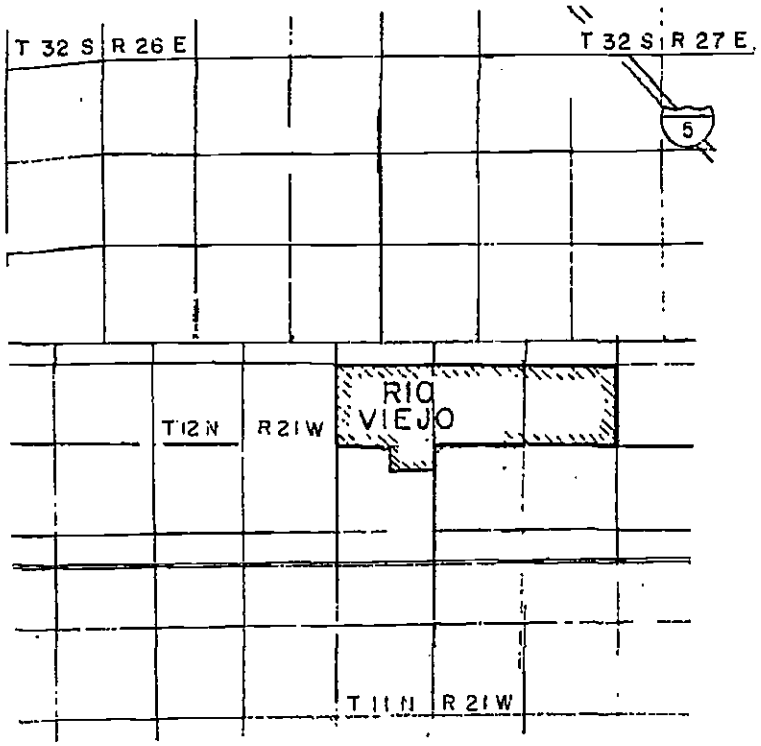


District 4

RIO VIEJO OIL FIELD

Dist 4

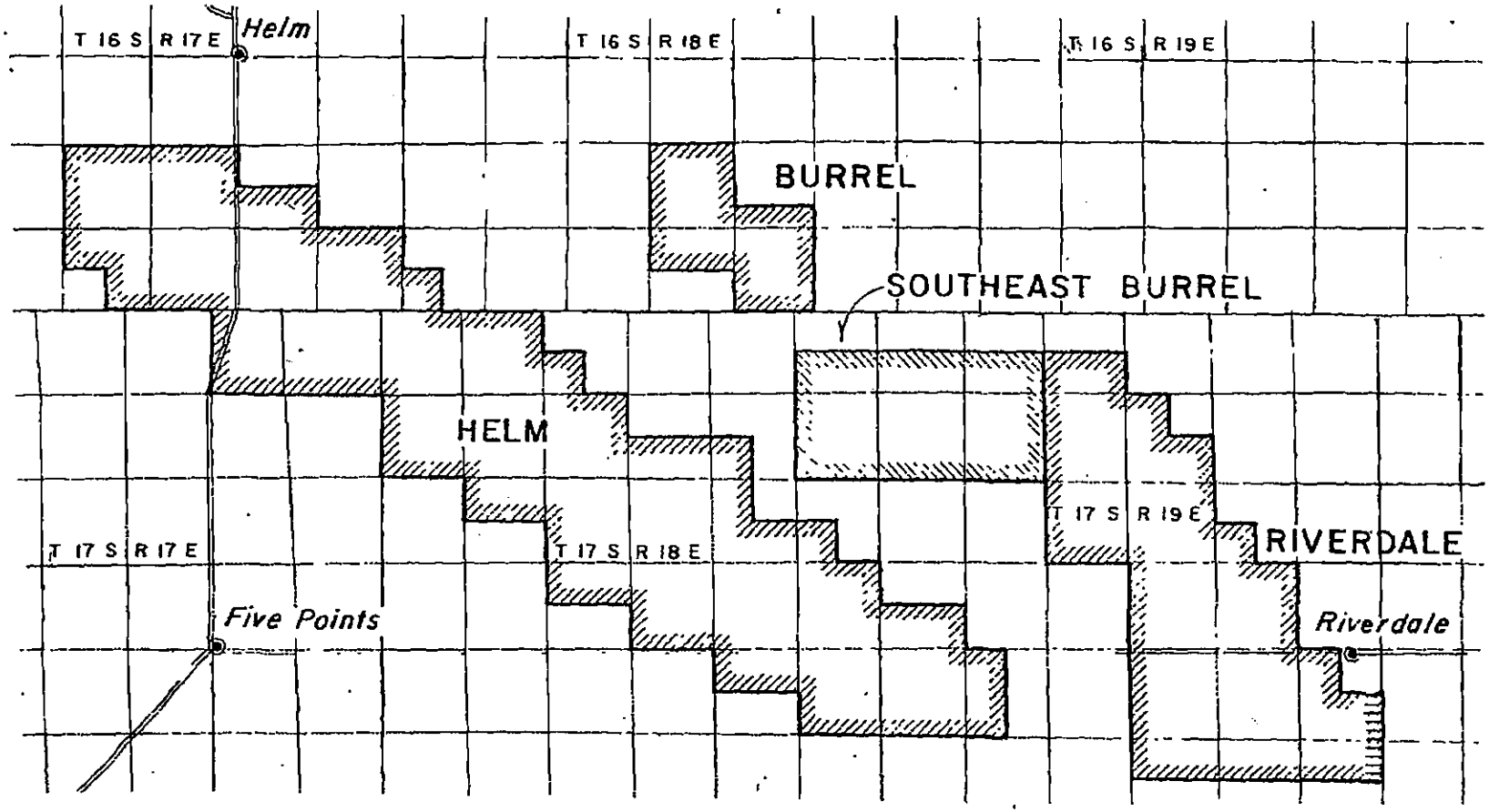
Kern County



Unit 5

BURREL, SOUTH EAST BURREL, HELM, and RIVERDALE OIL FIELDS

Fresno County

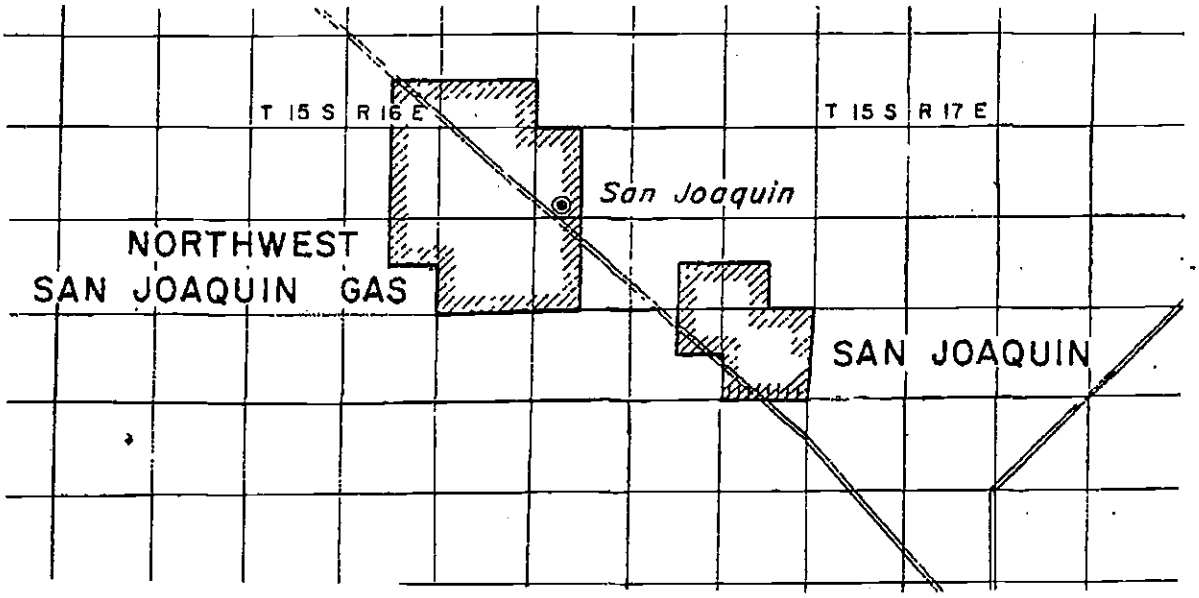


Dist 5

Dist 5

District 5 SAN JOAQUIN OIL FIELD and NORTHWEST SAN JOAQUIN GAS FIELD

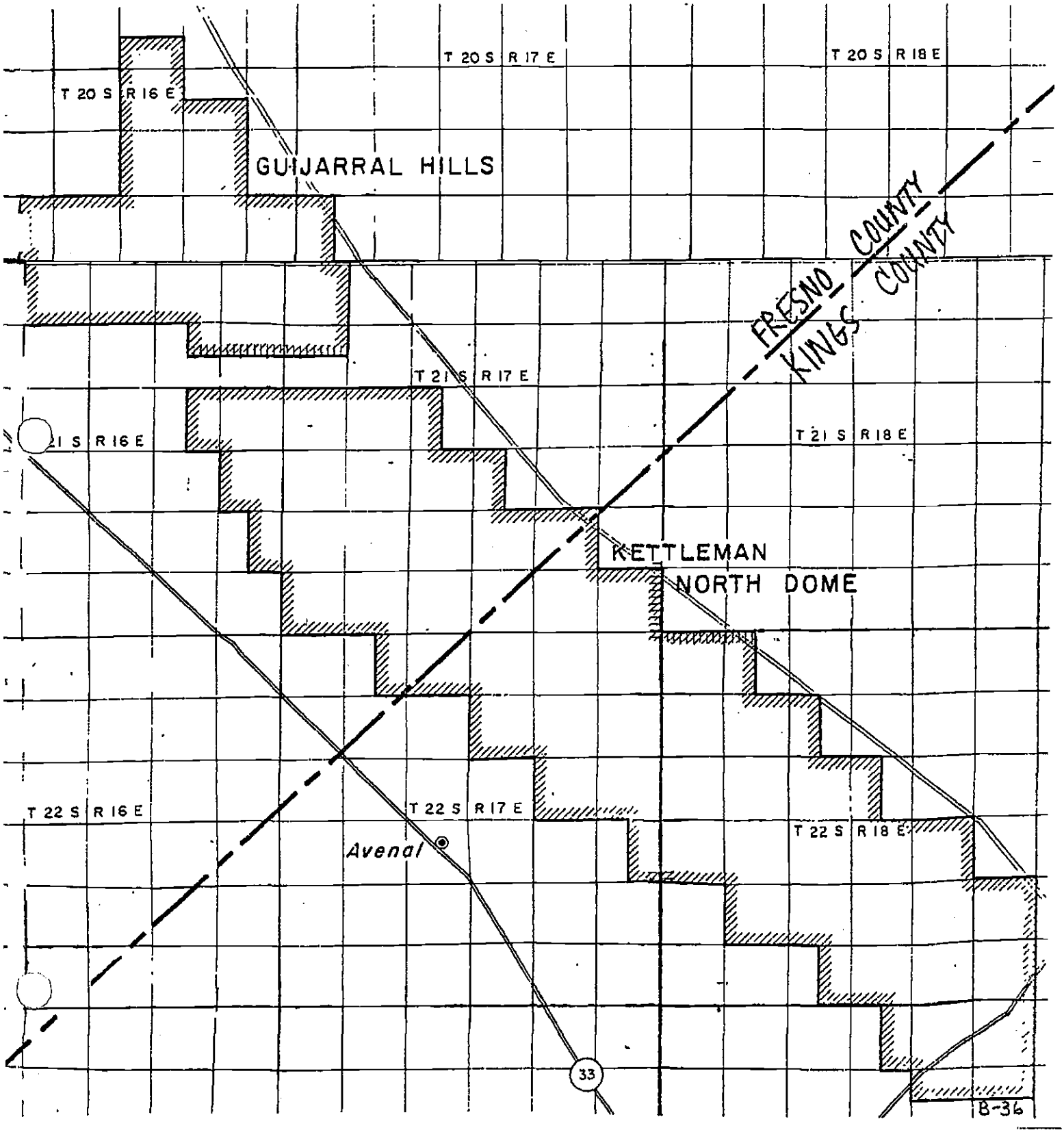
Fresno County



Dist 5

GUIJARRAL HILLS and KETTLEMAN NORTH DOME OIL FIELDS

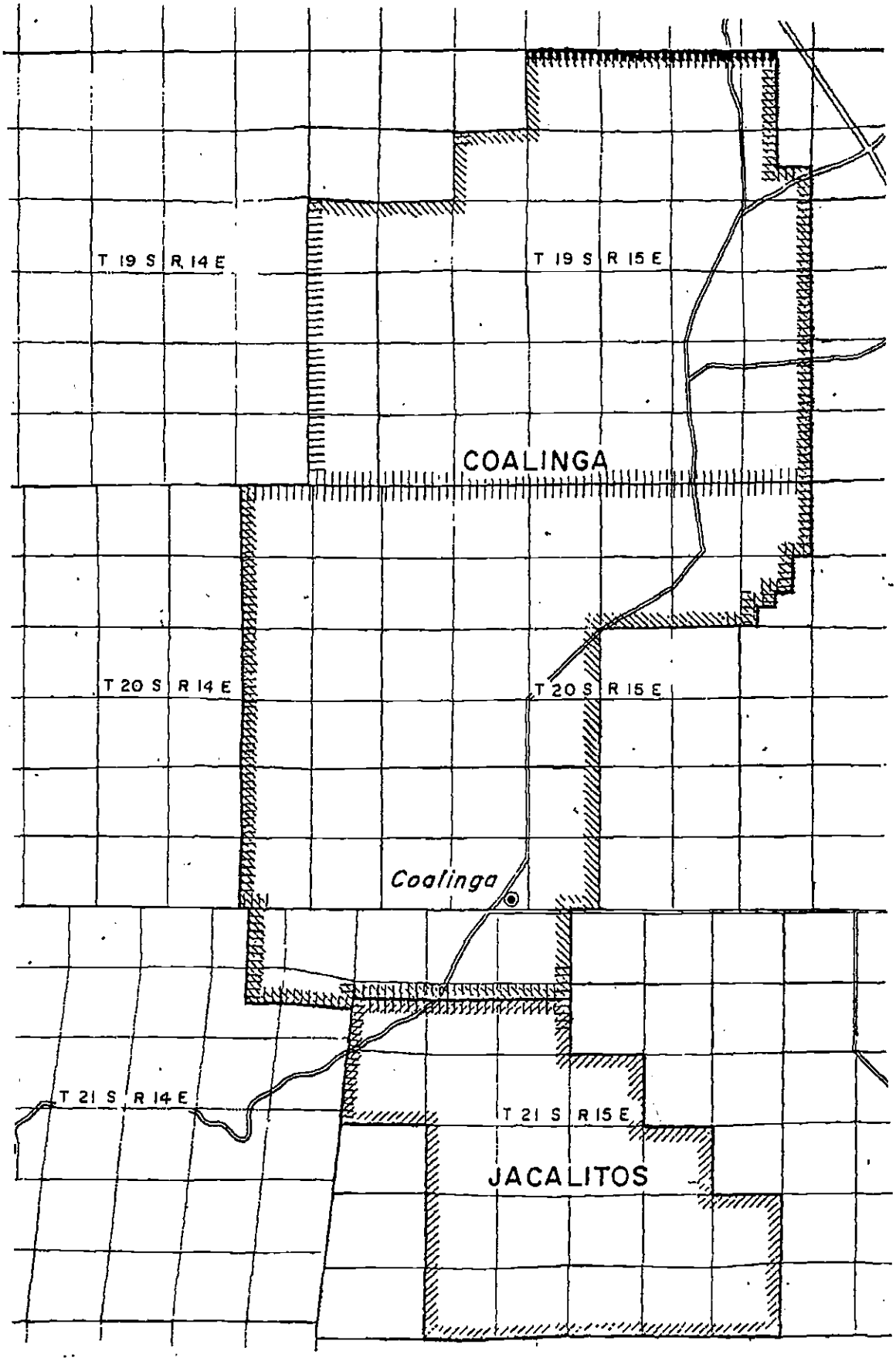
Fresno and Kings County



Dist 5 –

First 5

COALINGA and JACALITOS OIL FIELDS
Fresno County

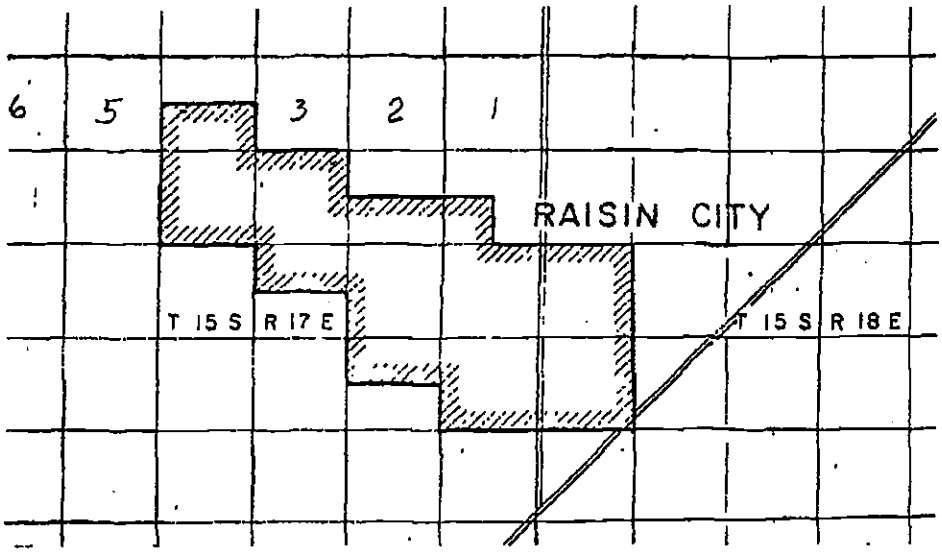


Dist 5

Dist 5

RAISIN CITY OIL FIELD

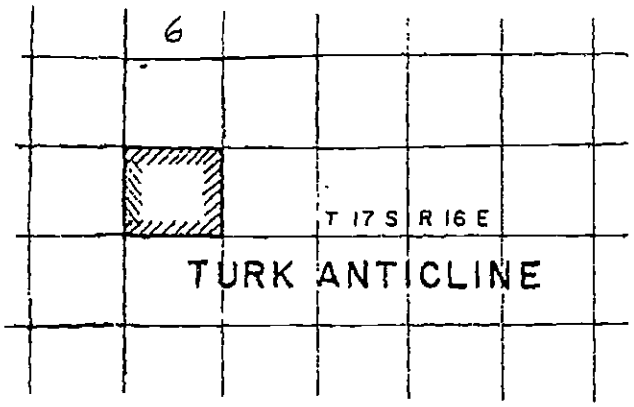
Fresno County



Dist 5

dist 5 TURK ANTICLINE OIL FIELD

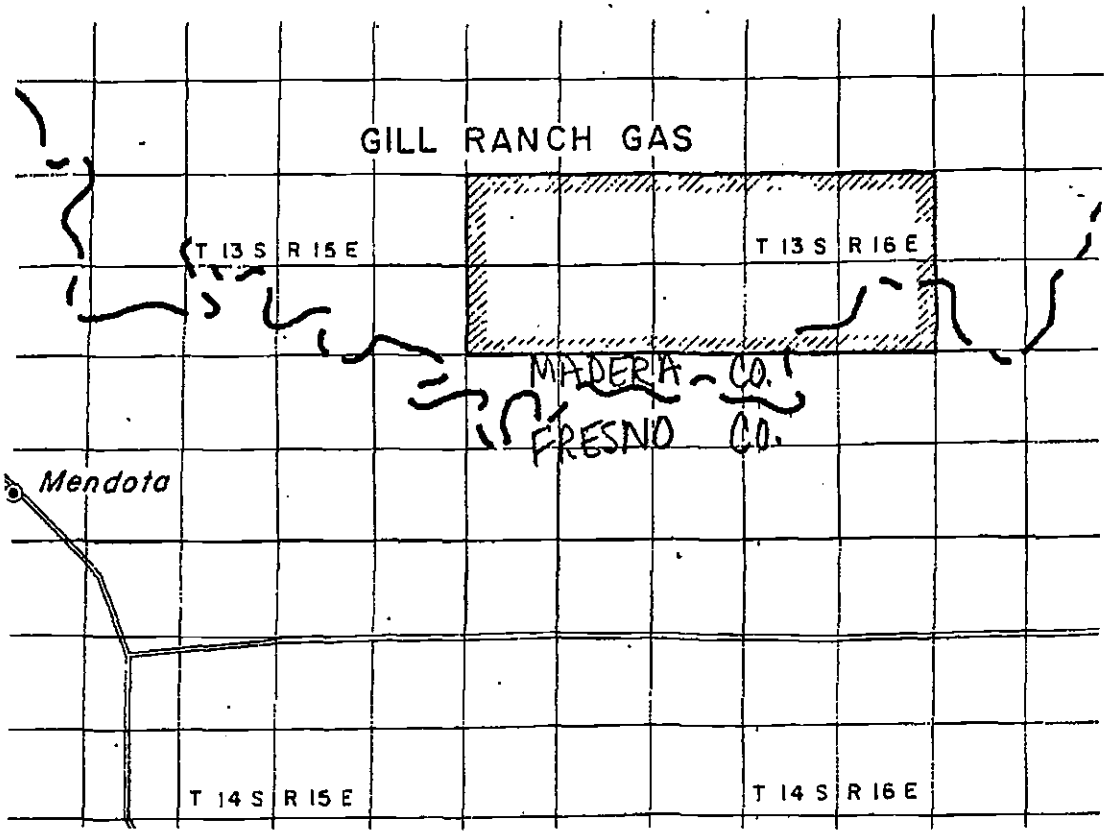
Fresno County



DIST 5

GILL RANCH GAS FIELD

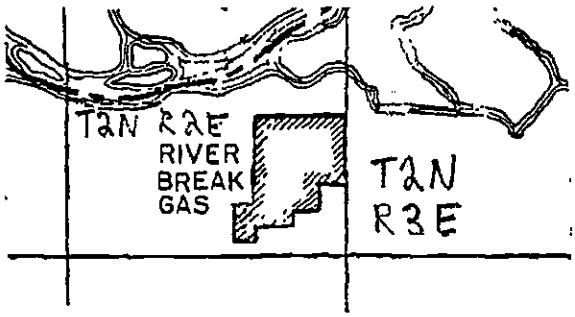
Fresno and Madera Counties



Tract 6

RIVER BREAK GAS FIELD
Contra Costa County

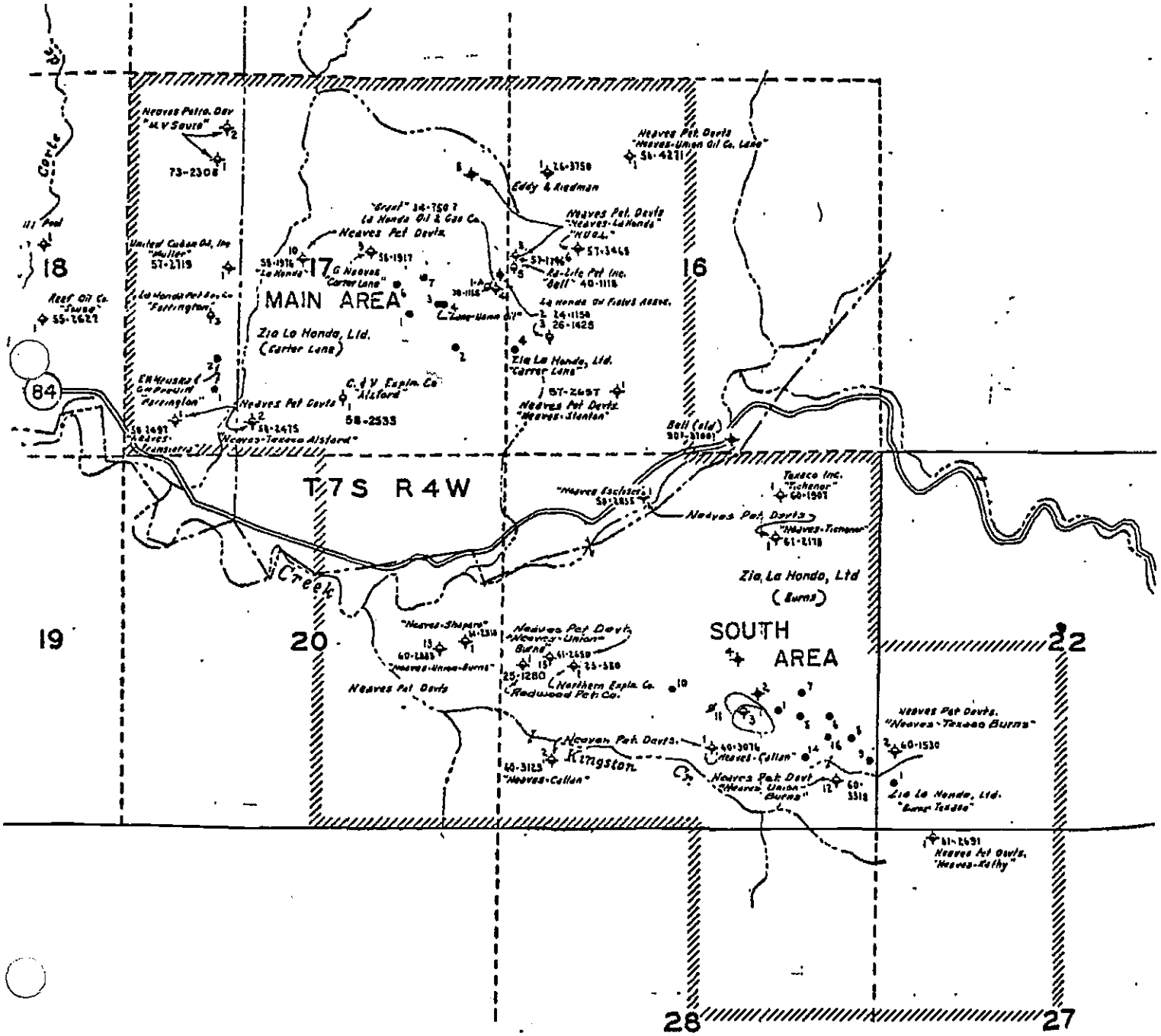
Dist 6



District 6

LA HONDA OIL FIELD
San Mateo County

DIST 6

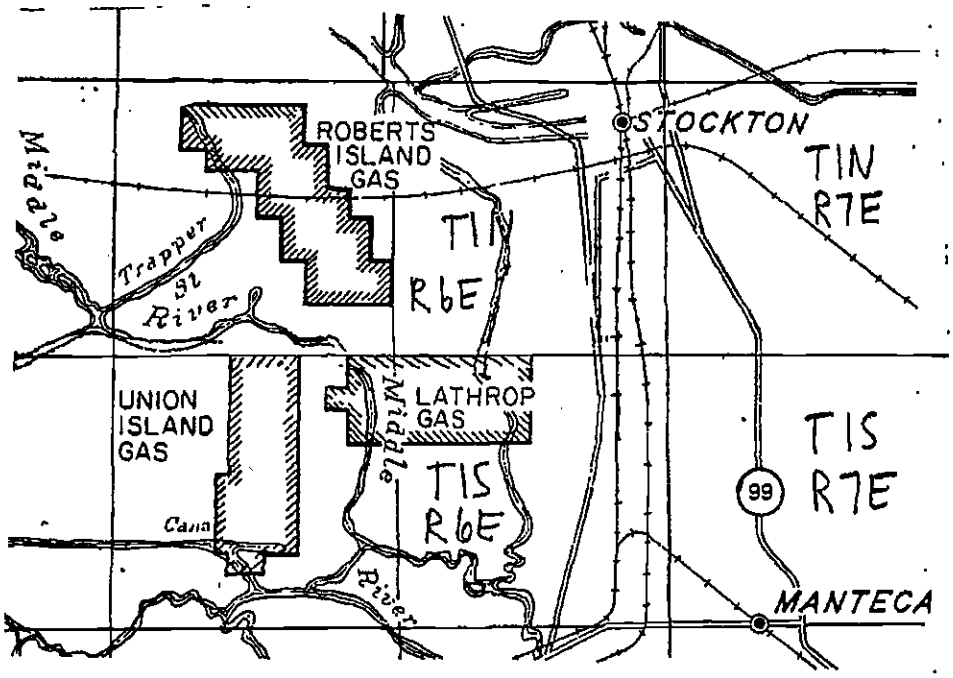


District 6

Dist 6

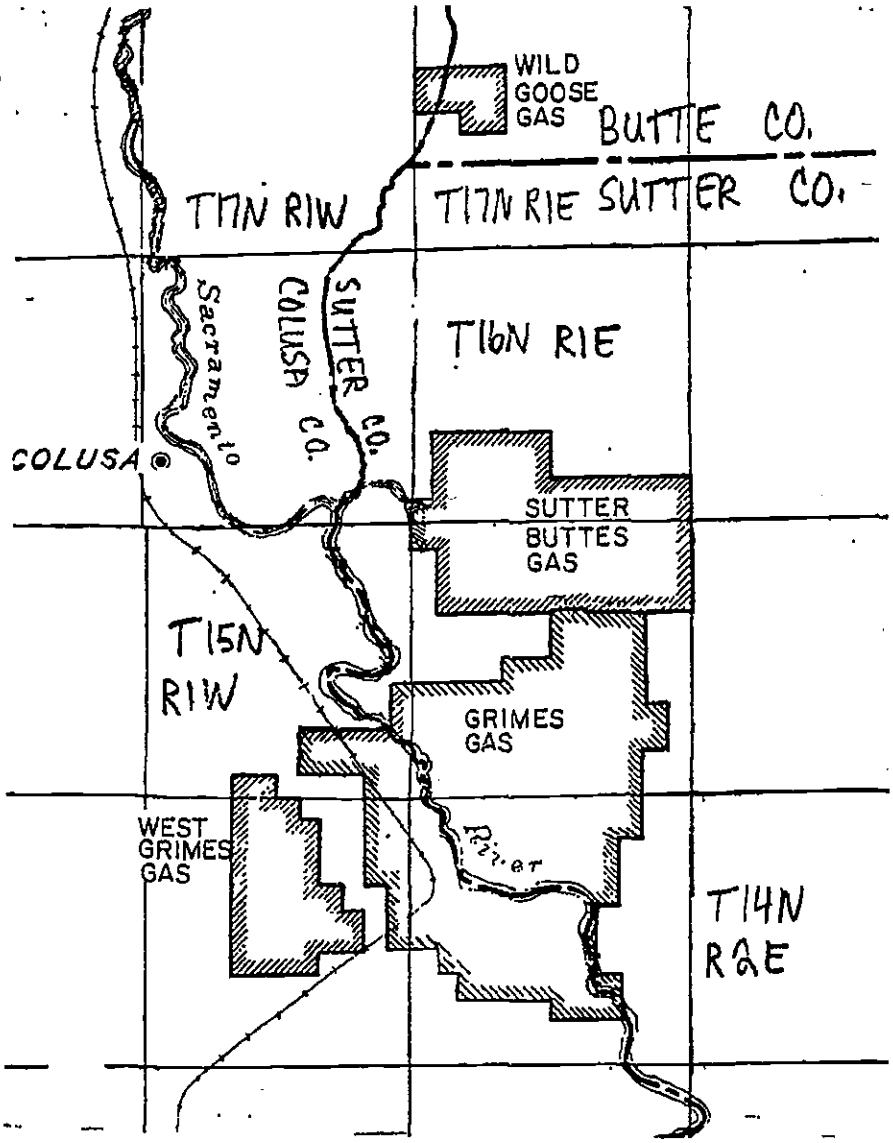
LATHROP, ROBERTS ISLAND, and UNION ISLAND GAS FIELDS

San Joaquin County



Dist 6

istrict 6 GRIMES, WEST GRIMES, SUTTER BUTTES;
and WILD GOOSE GAS FIELDS
Butte, Colusa, and Sutter Counties



District 6

Dist 6

BUNKER GAS FIELD

Solano County

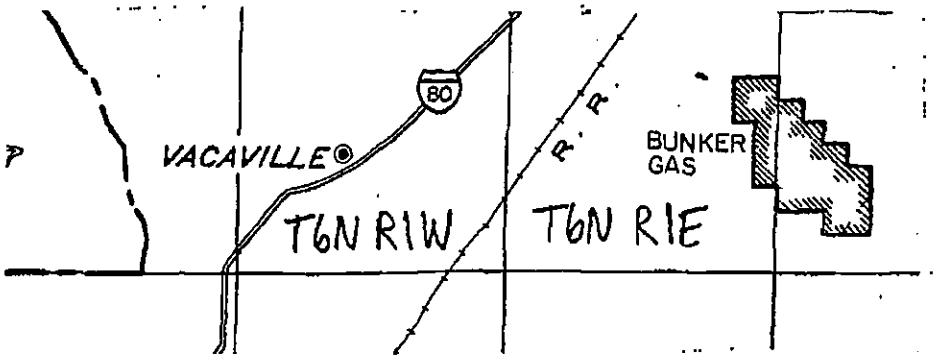


TABLE 2

Exempted Aquifers

Hydrocarbon Producing
(Supplement to aquifers exempted in Volumes 1 and 2 of
"California Oil and Gas Fields")

TABLE 2

Field	Formation	Location of discovery well (M.D.B.&M. unless noted)	Producing interval (drilled depth)	Discovery Date
owlumne	Stevens (Miocene)	14 11N 22W (S.B.)	11,305 - 11,465	January 1974
tone Lake Gas	Winters (Late Cretaceous)	1 6N 4E	7,062 - 7,103	November 1974
ufour Gas	Starkey and Winters (Late Cretaceous)	28 11N 1E	3,704 - 4,401	January 1974
erritt Gas	Winters (Late Cretaceous)	15 9N 2E	5,527 - 5,542	November 1974
io Viejo	Stevens (Miocene)	34 12N 21W (S.B.)	14,060 - 14,136	October 1975
urk Anticline	Temblor (Miocene)	18 17S 16E	10,081	June 1975
arte Gas	Mokelumne River (Late Cretaceous)	4 2N 6E	4,401 - 4,403	Sept. 1975
oorpark West	Sespe (Oligocene)	36 3N 20W (S.B.)	5,515 - 5,897	August 1976
arneros Creek	Wygal (Miocene)	29 28S 20E	2,840 - 2,862	March 1976
emblor Hills	Agua (Miocene) and Point of Rocks (Eocene)	25 30S 20E	3,850 - 4,116	November 1976
odi Airport Gas	Capay (Eocene)	28 3N 6E	4,439 - 4,447	July 1976
areaga Canyon	Monterey (Miocene)	21 8N 33W (S.B.)	8,024 - 9,570	August 1976
al Canal	Stevens (Miocene)	31 28S 22E	11,049 - 11,822	Sept. 1977
reenwood Gas	Undiff. Marine (Eocene)	35 22N 3W	1,634 - 1,644	August 1977
lorin Gas	Winters (Late Cretaceous)	35 8N 5E	3,882 - 3,908	December 1977
atlett Gas	Starkey (Late Cretaceous)	35 12N 3E	2,249 - 2,251	December 1977
eace Valley Gas	Kione (Late Cretaceous)	34 17N 1E	3,092 - 3,182	July 1977
ache Creek Gas	Starkey (Late Cretaceous)	11 10N 2E	3,918 - 3,927	August 1977

TABLE 2

Field	Formation	Location of discovery well (M.D.B.&M. unless noted)	Producing interval (drilled depth)	Discovery Date
Westhaven	Temblor (Miocene)	11 20S 18E	10,984 - 10,990	February 1978
Williams Gas	Forbes (Late Cretaceous)	12 16N 2W	5,305 - 5,317	Sept. 1978
Oakley, South, Gas	Mokelumne River (Late Cretaceous)	12 1N 2E	7,447 - 7,502	November 1972
Greenwood, South, Gas	Undiff. Marine (Eocene)	14 21N 3W	1,414 - 1,429	October 1977
East Collegeville Gas	Forbes (Late Cretaceous)	33 1N 8E	7,455 - 7,478	Sept. 1978
Lone Tree Creek Gas	Lathrop (Late Cretaceous)	17 1S 8E	6,804 - 6,810	May 1978
East Rice Creek Gas	Forbes (Late Cretaceous)	28 23N 2W	4,946 - 4,954	December 1978
Dry Slough Gas	Winters (Late Cretaceous)	9 8N 1E	5,026 - 5,030	February 1978
East Brentwood Gas	Mokelumne River (Late Cretaceous)	7 1N 3E	8,152 - 8,162	April 1979
East Dixon Gas	Mokelumne River (Lt. Cretaceous)	7 7N 2E	4,496 - 4,508	June 1979
Robbins Gas	Confidential	32 13N 3E	6,710 - 6,739	February 1979
Verona Gas	Markley Canyon fill (Miocene-Oligocene)	14 11N 3E	1,833 - 1,846	June 1979
Black Butte Dam Gas	Forbes (Late Cretaceous)	21 23N 4W	644 - 938	October 1979
Knightsen Gas	Mokelumne River (Late Cretaceous)	5 1N 3E	8,678 - 8,708	March 1980
Grays Bend Gas	Winters	31 11N 3E	4,460 - 4,490	January 1980
Harlan Ranch Gas	Confidential	13 9N 1E	Confidential	October 1980
Howells Point Gas	Confidential	5 12N 1E	Confidential	December 1980

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APPENDIX C

Forms Used by the Division of Oil and Gas in Administering the Current Injection Program:

Page		
C-1, C-2	Form OG105	Notice of Intention to Drill New Well
C-3	Form OG100	Well Summary Report
C-4	Form OG107	Notice of Intention to Rework Well
C-5	Form OG108	Notice of Intention to Abandon Well
C-6	Form OG123	Supplementary Notice
C-7, C-8	Form OG111	Report on Proposed Operations (Example of a conditional approval)
C-9, C-10	Form OG160A	Individual Oil and Gas Well Indemnity Bond
C-11, C-12	Form OG111B	Monthly Injection Report

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Drill New Well

C.E.Q.A. INFORMATION			
EXEMPT ☐ CLASS____	NEG. DEC. ☐ S.C.H. NO.____	E.I.R. ☐ S.C.H. NO.____	DOCUMENT NOT REQUIRED BY LOCAL JURISDICTION ☐
See Reverse Side			

FOR DIVISION USE ONLY					
MAP	MAP BOOK	CARDS	BOND	FORMS 114	FORMS 121

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to commence drilling well _____, API No. _____ (Assigned by Division)

Sec. ____, T. ____, R. ____, ____ B. & M., _____ Field, _____ County.

Legal description of mineral-right lease, consisting of _____ acres, is as follows: _____ (Attach map or plat to scale)

_____

_____

Do mineral and surface leases coincide? Yes_____ No_____ If answer is no, attach legal description of both surface and mineral leases, and map or plat to scale.

Location of well _____ feet _____ (Direction) along section/property line and _____ feet _____ (Direction)
(Cross out one)

at right angles to said line from the _____ corner of section/property _____ or
(Cross out one)

_____

Is this a critical well according to the definition on the reverse side of this form? Yes ☐ No ☐

If well is to be directionally drilled, show proposed coordinates (from surface location) at total depth:
_____ feet _____ (Direction) and _____ feet _____ (Direction)

Elevation of ground above sea level _____ feet.

All depth measurements taken from top of _____ (Derrick Floor, Rotary Table, or Kelly Bushing) that is _____ feet above ground.

PROPOSED CASING PROGRAM

SIZE OF CASING (INCHES API)	WEIGHT	GRADE AND TYPE	TOP	BOTTOM	CEMENTING DEPTHS	CALCULATED FILL BEHIND CASING

(A complete drilling program is preferred and may be submitted in lieu of the above program.)

Intended zone(s) of completion _____ (Name, depth, and expected pressure) Estimated total depth _____

It is understood that if changes in this plan become necessary we are to notify you immediately.

Name of Operator		Type of Organization (Corporation, Partnership, Individual, etc.)	
Address		City	Zip Code
Telephone Number	Name of Person Filing Notice	Signature	Date

This notice and indemnity or cash bond shall be filed, and approval given, before drilling begins. If operations have not commenced within one year of receipt of the notice, this notice will be considered cancelled.

OG105 [10-78-6SRI-10M]

C-1

Information for compliance with the California Environmental Quality Act of 1970 (C.E.Q.A.).

If an environmental document has been prepared by the lead agency, please submit a copy of the document with this notice *or* supply the following information:

Lead Agency: _____

Contact Person: _____

Address: _____

_____

Phone: ( ) _____

FOR DIVISION USE ONLY
District review of environmental document (if applicable)? Yes ☐ No ☐
Remarks: _____

CRITICAL WELL

As defined in the California Administrative Code, Title 14, Section 1720(a), "Critical well" means a well within:

(1) 300 feet of the following:
(A) Any building intended for human occupancy that is not necessary to the operation of the well; or
(B) Any airport runway.
(2) 100 feet of the following:
(A) Any dedicated public street, highway, or nearest rail of an operating railway that is in general use;
(B) Any navigable body of water or watercourse perennially covered by water;
(C) Any public recreational facility such as a golf course, amusement park, picnic ground, campground, or any other area of periodic high-density population; or
(D) Any officially recognized wildlife preserve.

Exceptions or additions to this definition may be established by the supervisor upon his own judgment or upon written request of an operator. This written request shall contain justification for such an exception.

Reverse side of form OG-105

Form OG100 (7/78)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

API No. _____

WELL SUMMARY REPORT

Operator		Well			
Field		County	Sec.	T.	R.	B.&M.
Location (Give surface location from property or section corner, street center line and/or California coordinates)			Elevation of ground above sea level		

Commenced drilling (date)	Total depth (1st hole)	(2nd)	(3rd)
Completed drilling (date)			
Commenced producing (date)	Present effective depth		
☐ Flowing ☐ Pumping ☐ Gas lift	Junk		
Name of producing zone(s)			

Depth measurements taken from top of: ☐ Derrick Floor ☐ Rotary Table ☐ Kelly Bushing
Which is _____ feet above ground

GEOLOGICAL MARKERS	DEPTH

Formation and age at total depth

	Clean Oil (bbl per day)	Gravity Clean Oil	Percent Water including emulsion	Gas (Mcf per day)	Tubing Pressure	Casing Pressure
Initial Production						
Production After 30 days						

CASING RECORD (Present Hole)

Size of Casing (API)	Top of Casing	Depth of Shoe	Weight of Casing	Grade and Type of Casing	New or Second Hand	Size of Hole Drilled	Number of Sacks or Cubic Feet of Cement	Depth of Cementing (if through perforations)

PERFORATED CASING (Size, top, bottom, perforated intervals, size and spacing of perforation and method.)

Was the well directionally drilled? If yes, show coordinates at total depth
☐ Yes ☐ No

Electrical log depths

Other surveys

In compliance with Sec. 3215, Division 3 of the Public Resources Code, the information given herewith is a complete and correct record of the present condition of the well and all work done thereon, so far as can be determined from all available records.

Name	Title	
Address	City	Zip Code
Telephone Number	Signature	Date

SUBMIT IN DUPLICATE

OG107 (6/79)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Rework Well

This notice and indemnity or cash bond shall be filed, and approval given, before rework begins. If operations have not commenced within one year of receipt of the notice, this notice will be considered cancelled.

FOR DIVISION USE ONLY		
BOND	FORMS	
	OGD114	OGD121

DIVISION OF OIL AND GAS

In compliance with Section 3203, Division 3, Public Resources Code, notice is hereby given that it is our intention to rework well _____ (Well designation), API No. _____

Sec. ____, T. ____, R. ____, ____B. & M., _____ Field, _____ County.

The present condition of the well is as follows:

1. Total depth

2. Complete casing record, including plugs and perforations

3. Present producing zone name _____; Zone in which well is to be recompleted _____

4. Present zone pressure _____; New zone pressure _____

5. Last produced _____ (Date) _____ (Oil, B/D) _____ (Water, B/D) _____ (Gas, Mcf/D)

   (or)

   Last injected _____ (Date) _____ (Water, B/D) _____ (Gas, Mcf/D) _____ (Surface pressure, psig)

The proposed work is as follows:

It is understood that if changes in this plan become necessary, we are to notify you immediately.

Address _____ (Street)

_____ (City) (State) (Zip)

Telephone Number _____

_____ (Name of Operator)

By _____ (Print Name)

_____ (Signature) (Date)

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

FORM OG108 (7/80)

DIVISION OF OIL AND GAS

Notice of Intention to Abandon Well

This notice must be given at least five days before work is to begin.

FOR DIVISION USE ONLY			
CARDS	BOND	FORMS	
		OGD114	OGD121

DIVISION OF OIL AND GAS

In compliance with Section 3229, Division 3, Public Resources Code, notice is hereby given that it is our intention to abandon well _____, API No._____,

Sec._____, T._____, R._____, _____B. & M., _____Field, _____County,

commencing work on_____, 19_____.

The present condition of the well is:

1. Total depth

2. Complete casing record, including plugs and perforations

3. Last produced_____
(Date) (Oil, B/D) (Gas, Mcf/D) (Water, B/D)

or

4. Last injected_____
(Date) (Water, B/D) (Gas, Mcf/D) (Surface Pressure)

Additional data for dry hole (show depths):

5. Oil or gas shows

6. Stratigraphic markers

7. Formation and age at total depth

8. Base of fresh water sands _____

The proposed work is as follows:

It is understood that if changes in this plan become necessary, we are to notify you immediately.

Address _____
(Street)

_____
(City) (State) (Zip)

Telephone Number ( )
(Area Code) (Number)

_____
(Name of Operator)

By _____
(Print Name)

_____
(Signature) (Date)

Form OG123 (11/80/DWRR/5M)

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

SUPPLEMENTARY NOTICE

FOR DIVISION USE ONLY			
BOND	FORMS		EDP WELL FILE
	OGD114	OGD121	

DIVISION OF OIL AND CAS

_____ Calif.

A notice to you dated _____, 19____, stating the intention to

_____ (Drill, rework, abandon) _____ (Well name and number), API No._____,

Sec._____, T._____, R._____, _____B. & M., _____ Field,

_____ County, should be amended because of changed conditions.

The present condition of the well is as follows:

Total depth

Complete casing record including plugs and perforations

We now propose

It is understood that if changes in this plan become necessary we are to notify you immediately.

Address _____ (Street)

_____ (City) (State) (Zip)

Telephone Number _____

_____ (Name of Operator)

Type of Organization _____ (Corporation, Partnership, Individual, etc.)

By _____ (Name) (Date)

Signature _____

C-6

EXAMPLE of
Conditional Approval

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

No. P179-418

REPORT ON PROPOSED OPERATIONS

048 (field code)
03 (area code)
00 (pool code)

WATER DISPOSAL PROJECT
BELMONT OFFSHORE FIELD
OLD AREA
"BP" AND "R" SANDS

Los Angeles, CA

Long Beach, California
March 12, 1979

Your proposal to rework and convert/to water disposal well "State PRC 186" 1,
A.P.I. No. 259-07894, Section 11, T. 5S, R. 12W, S.B. B. & M.,
Belmont Offshore field, area, pool,
Orange County, dated 3/7/79, received 3/10/79 has been examined in conjunction with records filed in this office.

NOTE: 8-5/8" cem 4000', cp 2480'. TD (present hole) 8050'. Plugged with cem 7760'-7710' and with 50 sacks of cem below 7641' and 7585'.

THE PROPOSAL IS APPROVED PROVIDED:

1. Blowout prevention equipment, equivalent to this division's Class III-A, or better, shall be installed and maintained in operating condition.
2. Injection shall cease if any evidence of damage is observed or upon written notice from this division.
3. Within 30 days after injection is started, and annually thereafter, this division shall be furnished with sufficient data to confirm that the injected fluid is confined to the intended zone of injection.
4. Injection shall be through tubing and packer.
5. THIS DIVISION SHALL BE NOTIFIED:
   a. To inspect the installed blowout prevention equipment prior to commencing down-hole operations.
   b. To witness the running of a profile survey to confirm that the injection fluid is confined to the intended zone.

NOTE:
1. Well records listed in Sec. 3215 of the Public Resources Code are due within 60 days after recompletion of the well
2. The base of the fresh water sands is at 2375' (1889' vertical depth). The fresh water is protected by the 6-5/8" casing cemented at 5915' with sufficient cement to fill to 5000'±.
3. The water to be injected tests about 28,900 ppm sodium chloride and is oilfield brine from oil wells.
4. The water is to be injected into the R & BP Sands which extend from 5500' to 6300' and contains salt water. The formation water tests approx. 20,000 ppm sodium chloride.
5. Approx. surface location of well: 1812' N. and 540' E. fr SW cor. Sec.

(continued on page 2)

RKB:d

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

M. G. MEFFERD, State Oil and Gas Supervisor

By _____
Deputy Supervisor

OG111 (1-79-GSRI-5M)

cc: Update Center
Regional Water Quality Control Board
Project File
State Lands Division

Blanket Bond

(Type this continuation page on plain white, such as this.)

STATE OF CALIFORNIA BOND NO. .....

INDIVIDUAL OIL AND GAS WELL INDEMNITY BOND

(SEE INSTRUCTIONS ON REVERSE SIDE FOR APPLICABLE AMOUNT)

Know All Men by These Presents:

WE

That I,

as principal, and a corporation

organized and existing under and by virtue of the laws of the STATE OF
and authorized to transact surety business in the STATE OF CALIFORNIA, as surety, are held and firmly bound *unto the STATE OF CALIFORNIA in the sum of* ..... *THOUSAND AND NO/100 DOLLARS* ($.....000.00) lawful money of the United States of America, to be paid to the said State of California, for which payment, well and truly to be made, we bind ourselves, our heirs, executors and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,

WHEREAS, said principal is about to drill, redrill, deepen, or permanently alter an oil or gas well designated

as ....., Sec. ....., T., ..., R....., ... B. & M., and is required to file this bond in connection therewith in accordance with Sections 3204 to 3209, inclusive, of Chapter 1 of Division 3 of the Public Resources Code of the State of California.

NOW, THEREFORE, if said .....

the above bounden principal, shall well and truly comply with all the provisions of Division 3 (commencing with Section 3000) of the Public Resources Code and shall obey all lawful orders of the State Oil and Gas Supervisor, or his distnct deputy or deputies, subject to subsequent appeal as provided in that division, and shall pay all charges, costs, and expenses incurred by the supervisor or his district deputy or deputies in respect of such well or the property of said principal, or assessed against such well or the property of such principal, in pursuance of the provisions of said division, then this obligation shall be void; otherwise, it shall remain in full force and effect.

IN WITNESS WHEREOF, the seal and signature of the said principal is hereto affixed and the corporate seal and name of the said surety is hereto affixed and attested by its duly authorized at

California, this day of , 19 .

[Principal] .....

By .....

(SEAL OF PRINCIPAL)

[Surety] .....

By .....

Office of surety to which correspondence relating to this bond should be addressed:

.....

.....

(SEAL OF SURETY)

The premium charged for this bond is $..... per annum.

OG160A (3-79-OWAR-3M) (SEE OVER)

NOTARIZATION OF THE SURETY:

STATE OF CALIFORNIA
COUNTY OF } ss.

On this ..... day of ..... , in the year 19.....

before me, ...
a Notary Public in and for said County and State, personally appeared

.....
known to me to be the person whose name is subscribed to the within instrument

as the of

, and acknowledged to me that he subscribed the name

of thereto and his own name as .....

.....

.....
Notary Public in and for said County and State

INSTRUCTIONS

1. *The surety on the bond may be any surety company licensed in California.*
2. *The signature of the surety must be notarized.*
3. *If the principal is a corporation the corporate seal must be affixed.*
4. *If the principals are partners, their individual names shall appear in the body of the bond, with the recital that they are partners composing a firm, and naming said firm.*
5. *The name of the principal as well as the designation and number of the well on the bond must agree exactly with that shown on the notice of intention to drill, redrill, deepen, or permanently alter the casing.*
6. *A bond containing a cancellation clause at the option of the surety is not acceptable.*
7. *Applicable amount:*

Coverage for onshore well. . .

less than 5,000 feet total depth	*$10,000*
at least 5,000 feet but less than 10,000 feet total depth	*$15,000*
at least 10,000 feet or greater total depth	*$25,000*

Supplemental coverage for deepening onshore well

from less than 5,000 feet to less than 10,000 feet total depth	*$ 5,000*
from less than 5,000 feet to at least 10,000 feet or greater total depth	*$15,000*
from at least 5,000 feet but less than 10,000 feet to at least 10,000 feet or greater total depth	*$10,000*

8. *Individual coverage for an offshore well is not acceptable*

NOTE: *In lieu of an individual indemnity bond, a person may, with the written approval of the Supervisor, file a cash bond or securities in the appropriate amount, as prescribed in Section 3205.5, Division 3 of the Public Resources Code.*

A supply of this form may be obtained from the Division of Oil and Gas.

Reverse side of OG 160A

Prepare in tripli[illegible] [illegible]pe or print in unshaded areas - Do not fold, spindle or mutilate

MONTHLY INJECTION REPORT

MONTH OF REPORT | YEAR 19

OPERATOR

1 FOR DIVISION USE ONLY

FIELD

COUNTY

2 DOCUMENT NO.

3 LINE NO.	OPERATOR WELL NUMBER	WELL TYPE	4 API WELL NUMBER	5 PWCD	6 WATER OR STEAM INJECTED (bbl)	7 GAS OR AIR INJECTED (Mcf)	8 NO. OF DAYS WELL INJECTED	9 SURFACE INJECTION PRESSURE	10 SOURCE OF WATER	11 KIND OF WATER	12 REASON WELL NOT INJECT.

Do not use this space

ORIGINAL

STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

NOTE: IF YOU ARE NO LONGER THE OPERATOR OF A WELL, ENTER "9" IN COLUMN 12.
See back for well type, source of water, kind of water, and reason well not injecting codes.
(Original copy must be filed each month. Failure to file is a misdemeanor, Sec. 3236, Public Resources Code.)

OG110B (1-79-20M)

CODE KEY

WELL TYPE CODES

SF	Steam flood
WD	Water disposal
WF	Water flood
AI	Air injection
SC	Cyclic steam injection
GS	Gas storage injection
PM	Pressure maintenance (gas injection)
LG	Liquified petroleum gas storage injection (propane, butane, olefin, etc.)

SOURCE OF WATER CODES

1	Oil or gas well
2	Water source well
3	Domestic water system
4	Ocean
5	Industrial waste
6	Domestic waste
7	Other

KIND OF WATER CODES

1	Saline
2	Fresh
3	Chemical mixture
4	Other

REASON WELL NOT INJECTING CODES

1	Standing (incapable of injection in its present condition.)
4	Uncompleted
5	Abandoned or converted to another well type (DOG approved)
6	Shut-down (capable of injection in its present condition.)
8	Other
9	Operator change (report injection occurring before change)

PLEASE CORRECT ANY INFORMATION THAT HAS BEEN INCORRECTLY REPRINTED BY OUR COMPUTER

Reverse of OG-110B

C-12

APPENDIX D

Statutes and Regulations That Relate to Well Injection Operations

STATUTES

DIVISION 3. OIL AND GAS

Chapter 1. Oil and Gas Conservation

Article 1. Definitions and General Provisions

3000. Unless the context otherwise requires, the definitions hereinafter set forth shall govern the construction of this division.

3001. "Department," in reference to the government of this State, means the Department of Conservation.

3002. "Division," in reference to the government of this State, means the Division of Oil and Gas in the Department of Conservation, otherwise "division" means Division 3 (commencing with Section 3000) of this Public Resources Code.

3003. "Director" means the Director of Conservation.

3004. "Supervisor" means the State Oil and Gas Supervisor.

3005. "Person" includes any individual, firm, association, corporation, or any other group or combination acting as a unit.

3006. "Oil" includes petroleum, and "petroleum" includes oil.

3007. "Gas" means any natural hydrocarbon gas coming from the earth.

3008. (a) "Well" means any oil or gas well or well for the discovery of oil or gas; any well on lands producing or reasonably presumed to contain oil or gas; any well drilled for the purpose of injecting fluids or gas for stimulating oil or gas recovery, repressuring or pressure maintenance of oil or gas reservoirs, or disposing of waste fluids from an oil or gas field; any well used to inject or withdraw gas from an underground storage facility; or any well drilled within or adjacent to an oil or gas pool for the purpose of obtaining water to be used in production stimulation or repressuring operations.

(b) "Prospect well" means any well drilled to extend a field or explore a new, potentially productive reservoir.

3009. "Operator" means any person drilling, maintaining, operating, pumping, or in control of any well.

3010. "Owner" includes "operator" when any well is operated or has been operated or is about to be operated by any person other than the owner.

3011. "Operator" includes "owner" when any well is or has been or is about to be operated by or under the direction of the owner.

3012. The provisions of this division apply to any land or well situated within the boundaries of an incorporated city in which the drilling of oil wells is now or may hereafter be prohibited, until all wells therein have been abandoned as provided in this chapter.

3013. This division shall be liberally construed to meet its purposes, and the director and the supervisor shall have all powers which may be necessary to carry out the purposes of this division.

3014. "District" means an oil and gas district as provided for in Section 3100.

3015. For the purpose of implementing Section 503 of the Natural Gas Policy Act of 1978, the supervisor may make the determinations entrusted to state agencies having regulatory jurisdiction with respect to the production of natural gas. Such determinations shall be made pursuant to procedures prescribed in guidelines adopted by the supervisor.

3100. For the purposes of this chapter, the state is divided into six districts, the boundaries of which shall be fixed by the director.

3101. The supervisor shall appoint one chief deputy and at least one district deputy for each of the districts provided for in this chapter, and shall prescribe their duties.

3102. The Attorney General shall be the legal advisor for the division and shall perform or provide such legal services for the division as it may require. The cost of all such legal services shall be a charge against and shall be paid from the money or funds appropriated or made available by law for the support of the division. All money so paid shall be deposited in the State treasury to the credit and in augmentation of the current appropriation for the support of the Attorney General's office, to be expended in accordance with law, for the support of that office.

3103. The chief deputy shall be a competent engineer or geologist, registered in the state, and experienced in the development and production of oil and gas.

3104. Each district deputy shall be a competent engineer or geologist, registered in the state, and experienced in the development and production of oil and gas. At the time any district deputy is appointed, notice of his appointment shall be transmitted in writing to the director.

Office of Deputies

3105. An office under the supervision of a district deputy may be maintained in each district. The office shall be conveniently accessible to the oil and gas operators in the district, and it shall be open and a district deputy shall be present at certain specified times, which times shall be posted at the office.

Duties of Supervisor

3106. The supervisor shall so supervise the drilling, operation, maintenance, and abandonment of wells as to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil and gas deposits from infiltrating water and other causes; loss of oil, gas, or reservoir energy, and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances, by reason of the drilling, operation, maintenance, or abandonment of wells.

The supervisor shall also supervise the drilling, operation, maintenance, and abandonment of wells so as to permit the owners or operators of such wells to utilize all methods and practices known to the oil industry for the purpose of increasing the ultimate recovery of underground hydrocarbons and which, in the opinion of the supervisor, are suitable for such purpose in each proposed case. In order to further the elimination of waste by increasing the recovery of underground hydrocarbons it is hereby declared as a policy of this state that the grant in an oil and gas lease or contract to a lessee or operator of the right or power, in substance, to explore for and remove all hydrocarbons from any lands in the State of California, in the absence of an express provision to the contrary contained in such lease or contract, is deemed to allow the lessee or contractor or his successors or assigns, to do what a prudent operator using reasonable diligence would do, having in mind the best interests of the lessor, lessee and the state, in producing and removing hydrocarbons, including but not limited to the injection of air, gas, water or other fluids into the productive strata, the application of pressure, heat or other means for the reduction of viscosity of the hydrocarbons, the supplying of additional motive force or creating of enlarged or new channels for the underground movement of hydrocarbons into production wells, when such methods or processes employed have been approved by the supervisor; provided, however, nothing contained in this section imposes a legal duty upon such lessee or contractor, his successors or assigns, to conduct such operations.

In order to best meet oil and gas needs in California, the supervisor shall administer this division so as to encourage the wise development of the oil and gas resources.

3107. A district deputy in each district, designated by the supervisor, shall collect all necessary information regarding the oil and gas wells in the district, with a view to determining the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes that might be affected. He shall prepare maps and other accessories necessary to determine the presence and source of water in the oil sands and the location and extent of strata bearing water suitable for irrigation or domestic purposes or surface water suitable for such purposes. This work shall be done with the view to advising the operators as to the best means of protecting the oil and gas sands and the water-bearing strata and surface water, and with a view to aiding the supervisor in ordering tests or repair work at wells. All this data shall be kept on file in the office of the district deputy of the respective district. Well data

3201. The owner or operator of any well shall notify the supervisor or the district deputy, in writing, in such form as the supervisor or the district deputy may direct, of the sale, assignment, transfer, conveyance, or exchange by the owner or operator of such well, and the land, owned or leased, upon which the well is located, within 30 days after such sale, assignment, transfer, conveyance, or exchange. The notice shall contain the following: Transfer by seller

(a) The name and address of the person to whom such well was sold, assigned, transferred, conveyed, or exchanged.

(b) The name and location of the well.

(c) The date of the sale, assignment, transfer, conveyance or exchange.

(d) The date when possession was relinquished by the owner or operator.

(e) A description of the land upon which the well is situated.

3202. Every person who acquires the ownership or operation of any well, whether by purchase, transfer, assignment, conveyance, exchange, or otherwise, shall, within 30 days after acquiring the well and the land, owned or leased, upon which it is located, notify the supervisor or the district deputy, in writing, of his ownership or operation. The notice shall contain the following: Transfer by buyer

(a) The name and address of the person from whom the well was acquired.

(b) The name and location of the well.

(c) The date of acquisition.

(d) The date when possession was acquired.

(e) A description of the land upon which the well is situated.

3203. The owner or operator of any well shall, before commencing the work of drilling the well, file with the supervisor or the district deputy a written notice of intention to commence drilling. Drilling shall not commence until approval is given by the supervisor or the district deputy; if the supervisor or the district deputy fails to give the owner or operator written response to the notice within 10 working days, such failure shall be considered as an approval of the notice and the notice shall, for the purposes and intents of this chapter, be deemed a written report of the supervisor. If operations have not commenced within one year of receipt of the notice, the notice will be considered canceled. The notice shall contain the following: Notice of intention to drill

(a) The location and elevation above sea level of the floor of the proposed derrick and drill rig.

(b) The number or other designation by which the well shall be known. Such number or designation shall be subject to the approval of the supervisor.

(c) The owner's or operator's estimate of the depths between which production will be attempted.

(d) Such other pertinent data as the supervisor may require on the printed forms to be supplied by the Division of Oil and Gas, or on forms acceptable to the supervisor.

Subsequent work

After the completion of any well, the provisions of this section shall also apply, as far as may be, to the deepening or redrilling of the well, or any operation involving the plugging of the well, or any operations permanently altering in any manner the casing of the well.

Designation of well

The number or designation by which any well heretofore drilled has been known, and the number or designation specified for any well in a notice filed as required by this section, shall not be changed without first obtaining a written consent of the supervisor.

Single bond

3204. Every person who engages in the drilling, redrilling, deepening, or in any operation permanently altering the casing, of any well shall file with the supervisor an individual indemnity bond in the specified sum for each well so drilled, redrilled, deepened, or permanently altered. Such sum shall be ten thousand dollars ($10,000) for each well less than 5,000 feet deep, fifteen thousand dollars ($15,000) for each well at least 5,000 feet but less than 10,000 feet deep, and twenty-five thousand dollars ($25,000) for each well 10,000 or more feet deep. The bond shall be filed with the supervisor at the time of the filing of the notice of intention to perform work on the well, as provided in Section 3203. The bond shall be executed by such person, as principal, and by an authorized surety company, as surety, conditioned that the principal named in the bond shall faithfully comply with all the provisions of this chapter, in drilling, redrilling, deepening, or permanently altering the casing in any well or wells covered by the bond, and shall secure the state against all losses, charges, and expenses incurred by it to obtain such compliance by the principal named in the bond.

The conditions of the bond shall be stated in substantially the following language: "If said _____, the above bounden principal, shall well and truly comply with all the provisions of Division 3 (commencing with Section 3000) of the Public Resources Code and shall obey all lawful orders of the State Oil and Gas Supervisor or his district deputy or deputies, subject to subsequent appeal as provided in that division, and shall pay all charges, costs, and expenses incurred by the supervisor or his district deputy or deputies in respect of such well or wells or the property or properties of said principal, or assessed against such well or wells or the property or properties of such principal, in pursuance of the provisions of said division, then this obligation shall be void; otherwise, it shall remain in full force and effect."

Blanket bond

3205. Any person who engages in the drilling, redrilling, deepening, or in any operation permanently altering the casing, of one or more wells at any time, may file with the supervisor one blanket indemnity bond for one hundred thousand dollars ($100,000) to cover all his operations in drilling, redrilling, deepening, or

Filing of records

3215. Upon the completion or abandonment of any well or upon the suspension of operations upon any well, true copies of the log, core record, and history in duplicate, and if made, true and reproducible copies of all electrical, physical, or chemical logs, tests, or surveys in duplicate and in such form as the supervisor may approve shall be filed with the district deputy within 60 days after such completion, suspension, or abandonment. Like copies shall be filed upon the completion of additional work in any well. Upon a showing of hardship, the supervisor may extend the time within which to comply with the provisions of this section for a period not to exceed 60 additional days.

Adequate casing

3220. The owner or operator of any well on lands producing or reasonably presumed to contain oil or gas shall properly case it with water-tight and adequate casing, in accordance with methods approved by the supervisor or the district deputy, and shall, under his direction, shut off all water overlying and underlying oil-bearing or gas-bearing strata and prevent any water from penetrating such strata. The owner or operator shall also use every effort and endeavor to prevent damage to life, health, property, and natural resources; to shut out detrimental substances from strata containing water suitable for irrigation or domestic purposes and from surface water suitable for such purposes; and to prevent the infiltration of detrimental substances into such strata and into such surface water.

Order for repair

3224. The supervisor shall order such tests or remedial work as in his judgment are necessary to prevent damage to life, health, property, and natural resources; to protect oil and gas deposits from damage by underground water, or to prevent the escape of water into underground formations, or to prevent the infiltration of detrimental substances into underground or surface water suitable for irrigation or domestic purposes, to the best interests of the neighboring property owners and the public. The order shall be in writing, signed by the supervisor. It shall be served upon the owner of the well, or his local agent, either personally or by mailing a copy of the order to the post office address given at the time the local agent is designated. If no local agent has been designated, the order shall be served by mailing a copy to the last known post office address of the owner, or if the owner is unknown, by posting a copy in a conspicuous place upon the property, and publishing it once a week for two successive weeks in some newspaper of general circulation throughout the county in which the well is located. The order shall specify the conditions sought to be remedied and the work necessary to protect such deposits from damage from underground water.

Final order

3225. Whenever the supervisor or a district deputy, makes or gives any written direction concerning any operations, and the operator, owner, or representative of either, serves written notice, either personally or by mail, addressed to the supervisor or to the district deputy at his office in the district, requesting that a definite order be made upon such subject, the supervisor or the district deputy shall, within five days after receipt of the notice, deliver a final written order on the subject matter in such manner and form that an appeal therefrom may be taken at once to the director.

Performance of work and lien against property

3226. Within 30 days after service of an order, pursuant to Sections 3224 and 3225, or Section 3237, or if there has been an appeal from the order to the director, within 30 days after service of the decision of the director, or if a review has been taken of the order of the director, within 10 days after affirmance of the order, the owner or operator shall commence in good faith the work ordered and continue it until completion. If the work has not been commenced and continued to completion, the supervisor shall appoint necessary agents who shall enter the premises and perform the work. An accurate account of the expenditures shall be kept. Any amount so expended shall constitute a lien against real or personal property of the owner or operator pursuant to the provisions of Section 3423.

Emergency powers of Supervisor

Notwithstanding any other provisions of Section 3224, 3225, or 3237, if the supervisor determines that an emergency exists, he may order or undertake such actions as he deems necessary to protect life, health, property, or natural resources.

Monthly production reports

3227. The owner of any well producing or capable of producing oil or gas shall file with the district deputy, on or before the 30th day of each month, for the last preceding calendar month, a statement, in such form as the supervisor may designate, showing:

(a)
↓
(e)

Disposition of water

(f) What disposition was made of the water produced from each well, including designations of injection or disposal wells and such other information regarding the water and the disposition thereof as the supervisor may require.

Abandonment of wells

3228. Before abandoning any well in accordance with methods approved by the supervisor or the district deputy, and under his direction, the owner or operator shall shut off and exclude all water from entering oil-bearing or gas-bearing strata encountered in the well and shall use every effort and endeavor to protect any underground or surface water suitable for irrigation or domestic purposes from the infiltration or addition of any detrimental substances.

Notice to abandon

3229. Before commencing any work to abandon any well, the owner or operator shall file with the supervisor or the district deputy a written notice of intention to abandon the well. Abandonment shall not proceed until approval is given by the supervisor or the district deputy. If the supervisor or the district deputy does not give the owner or operator a written response to the notice of intention within 10 working days, the proposed abandonment shall be deemed to have been approved and the notice of intention shall for the purposes of this chapter be deemed a written report of the supervisor. If abandonment operations have not commenced within one year of receipt of the notice of intention, the notice of intention shall be deemed canceled.

Complaint

3235. The supervisor may upon his own initiative or shall upon receipt of a written complaint from a person owning land or operating wells within a radius of one mile of any well or group of wells complained against make an investigation of the well or wells involved. The supervisor shall make a written report and order, stating the work required to repair the damage complained of, or stating that no work is required.

A copy of the order shall be delivered to the complainant, or if more than one, to each complainant, and, if the supervisor orders the damage repaired, a copy of the order shall be delivered to each of the owners, operators, or agents having in charge the well or wells upon which the work is to be done.

The order shall contain a statement of the conditions sought to be remedied or repaired and a statement of the work required by the supervisor to repair the condition. Service shall be made by mailing copies to such persons at the post office address given.

Penalty

3236. Any owner or operator, or employee thereof, who refuses to permit the supervisor or the district deputy, or his inspector, to inspect a well, or who wilfully hinders or delays the enforcement of the provisions of this chapter, and every person, whether as principal, agent, servant, employee, or otherwise, who violates, fails, neglects, or refuses to comply with any of the provisions of this chapter, or who fails or neglects or refuses to furnish any report or record which may be required pursuant to the provisions of this chapter, or who wilfully renders a false or fraudulent report, is guilty of a misdemeanor, punishable by a fine of not less than one hundred dollars, nor more than five hundred dollars, or by imprisonment for not exceeding six months, or by both such fine and imprisonment, for each such offense.

Deserted wells

3237. The supervisor or his deputy may order the abandonment of any well that has been deserted whether or not any damage is occurring or threatened by reason of such well. Suspension of drilling operations and removal of drilling machinery is prima facie evidence of desertion after the elapse of six months unless a request for an extension of time for a period not to exceed an additional six months is theretofore filed. Removal of production equipment or facilities is prima facie evidence of desertion after the elapse of two years after April 1, 1973. At any time, the supervisor may, for good cause shown, extend these periods. Such order may be appealed to the director.

Article 4.2. Hazardous Wells

Source of funds for abatement

3250. The Legislature hereby finds and declares that certain idle deserted and hazardous oil and gas wells, as defined in this article, are public nuisances and that it is essential, in order to protect life, health, and natural resources that such oil and gas wells be abandoned, reabandoned, produced, or otherwise remedied to mitigate, minimize, or eliminate their danger to life, health, and natural resources.

The Legislature further finds and declares that, although the abatement of such public nuisances could be accomplished by means of an exercise of the regulatory power of the state, such regulatory abatement would result in unfairness and financial hardship for certain landowners, while also resulting in benefits to the public. The Legislature, therefore, finds and declares that the expenditure of funds to abate such nuisances as provided in this article is for a public purpose and finds and declares it to be the policy of this state that the cost of carrying out such abatement be charged to this state's producers of oil and gas as provided in Article 7 (commencing with Section 3400) of this chapter.

Hazardous wells

3251. For the purposes of this article, an oil or gas well is a "hazardous well" if the well has been determined by the supervisor to presently pose a danger to life, health, or natural resources; and the provisions of subdivisions (a) and (b) of this section apply. Also, for the purposes of this article, an oil or gas well is an "idle deserted well" if the provisions of Section 3237 and subdivisions (a) and (b) of this section apply.

(a) Regulatory abatement of such a public nuisance is not possible because the last operator that had an economic interest in, or received any benefit from, the well is deceased, defunct, or no longer in business in this state.

(b) The present surface owner and mineral estate owners derived no substantial financial gain from the well. In making the determination respecting financial gain, the supervisor may seek such information and require such proof of these matters as may be desirable or necessary.

Appeal from order

3350. The lessor, lessee, or any operator or any well owner, or the owner of any rig, derrick, or other operating structure, or his local agent, shall within five days from the date of the service of any order from the supervisor or a district deputy, other than the order contemplated by Section 3308, either comply with the order or file with the supervisor or the district deputy a written statement that the order is not acceptable, and that appeal from the order is taken to the director under the provisions of this chapter.

Any lessor, lessee, or operator affected by an order made pursuant to Section 3308 may, within five days from the posting of the copy of the order, file with the supervisor a written appeal therefrom to the director under the provisions of this chapter.

Hearing on appeal

3351. Immediately upon filing of a notice of appeal, the director shall call for a public hearing upon the appeal.

The hearing upon the appeal before the director shall be de novo and at such place in the district as the director may designate.

Notice of hearing, continuance

3352. Within 10 days from the taking of the appeal, five days' notice in writing shall be given to the appellant of the time and place of the hearing. For good cause, the director may postpone the hearing, on the application of the appellant, the supervisor, or the district deputy, for not exceeding five days.

Decision of director; review of certiorari

3353. The director, after hearing, shall affirm, set aside, or modify the order from which the appeal is taken.

Within 10 days after hearing the evidence, the director shall make a written decision with respect to the order appealed from. The decision of the director shall forthwith be filed with the supervisor and upon such filing shall be final. In case the order is affirmed or modified, the director shall retain jurisdiction until such time as the work ordered to be done by the order is finally completed.

The written decision shall be served upon the owner or his agent and shall supersede the previous order of the supervisor. In case no written decision is made by the director within 30 days after the date of notice of hearing as provided in Section 3352, the order of the supervisor shall be effective and subject only to review by writ of certiorari from the superior court as provided in this article.

Time for review; hearing; continuance

3354. The decision of the director may be reviewed by writ of certiorari from the superior court of the county in which the district is situated, if taken within 10 days after the service of the decision upon the owner, operator, or agent of the owner or operator, as provided in Section 3353, or within 10 days after the decision by the director upon a petition by the supervisor. The writ shall be made returnable not later than 10 days after its issuance, and it shall direct the director to certify the record in the cause to the court. On the return day, the cause shall be heard by the court, unless for good cause it is continued, but no continuance shall be permitted for a longer period than 30 days.

Procedure on review

3355. No new or additional evidence shall be introduced in the court, but the cause shall be heard upon the record of the director. The review shall not be extended further than to determine whether or not:

(a) The director acted without or in excess of his jurisdiction.

(b) The order, decision, or award was procured by fraud.

(c) The order, decision, rule, or regulation is unreasonable.

(d) The order, decision, regulation, or award is clearly unsupported by the evidence.

Enforcement of lien

3356. If a review is not taken within 10 days, or if taken, in case the decision of the director is affirmed, any charge, including penalty and interest thereon, imposed by the director shall constitute a lien which upon recordation or filing pursuant to subdivision (c) or (d) of Section 3423, attaches to real or personal property. The lien upon the property shall be enforced in the same manner as are other liens on real property and personal property of the debtor. Upon the request of the supervisor, the State Controller shall bring an action for the enforcement of the lien in the manner provided in this chapter.

Subpoena of witnesses

3357. In any proceeding before the director, and in any proceeding instituted by the supervisor for the purpose of enforcing or carrying out the provisions of this division, or for the purpose of holding an investigation to ascertain the condition of any well or wells complained of, or which in the opinion of the supervisor may reasonably be presumed to be improperly located, drilled, operated, maintained, or conducted, the supervisor and the director shall have the power to administer oaths and may apply to a judge of the superior court of the county in which the proceeding or investigation is pending for a subpoena for witnesses to attend the proceeding or investigation. Upon the application of the supervisor or the director, the judge of the superior court shall issue a subpoena directing the witness to attend the proceeding or investigation, and such person shall be required to produce, when directed, all records, surveys, documents, books, or accounts in his custody or under his control; except that no person shall be required to attend upon such proceeding unless he resides within the same county or within 100 miles of the place of attendance. The supervisor or the director may in such case cause the depositions of witnesses residing within or without the state to be taken in the manner prescribed by law for like depositions in civil actions in superior courts of this state, and may, upon application to a judge of the superior court of the county within which the proceeding or investigation is pending, obtain a subpoena compelling the attendance of witnesses and the production of records, surveys, documents, books, or accounts at such places as the judge may designate within the limits prescribed in this section.

Fees and mileage

3358. Witnesses shall be entitled to receive the fees and mileage fixed by law in civil causes, payable from the General Fund.

Penalty

3359. In case of the failure or neglect on the part of any person to comply with any order of the supervisor or the director, or any subpoena, or upon the refusal of any witness to testify to any matter regarding which he may lawfully be interrogated, or upon refusal or neglect to appear and attend at any proceeding or hearing on the day specified, after having received a written notice of not less than 10 days prior to such proceedings or hearing, or upon his failure, refusal, or neglect to produce books, papers, or documents as demanded in the order or subpoena upon such day, such failure, refusal, or neglect shall constitute a misdemeanor. Each day's further failure, refusal, or neglect is a separate and distinct offense.

Prosecuting by District Attorney

The district attorney of the county in which the proceeding, hearing, or investigation is to be held, shall prosecute any person guilty of violating this section by continuous prosecution until the person appears or attends or produces such books, papers, or documents, or complies with the subpoena or order of the supervisor or the director.

1722. General.

(a) This division's approval of operations is contingent upon the fulfillment of all pollution control and environmental requirements established by the State of California, including the requirements of the California Environmental Quality Act of 1970 (Public Resources Code Sections 21000et seq.) and associated regulations of the Resources Agency and Department of Conservation.

(b) All operations shall be conducted in accordance with good oilfield practice.

(c) Compliance periods specified in these regulations may be extended by the appropriate division district deputy if good cause is shown by the operator.

(d) An oil spill contingency plan or spill plan for an installation or group of related installations shall be developed by the operator, and a copy of the plan shall be on file in the local office of the operator and subject to the inspection of the supervisor or his representatives during regular business hours. Plans prepared pursuant to Federal Environmental Protection Agency regulations (SPCC Plans) may fulfill the provisions of this subsection if such plans are determined to be adequate by the appropriate division district deputy.

(e) A blowout prevention and control plan, including provisions for duties, training, supervision, and schedules for testing equipment and performing personnel drills, shall be submitted by the operator to the appropriate division district deputy for approval and an approved plan shall be filed with said deputy prior to commencing operations on certain critical or high-pressure wells designated by the supervisor.

(f) Notices of intention to drill, deepen, redrill, rework, or abandon wells shall be completed on current division forms and submitted, in duplicate, to the appropriate division district office for approval. Such notices shall include all information required on the forms, and such other pertinent data as the supervisor may require. Notices of intention and approvals will be cancelled if the proposed operations have not commenced within one year of receipt of the notice. However, an approval for proposed operations may be extended for one year if the operator submits a supplementary notice prior to the expiration of the one-year period and can show good cause for such an extension. For the purpose of interpretation and enforcement of provisions of this section, operations, when commenced, must be completed in a timely and orderly manner.

(g) A copy of the operator's notice of intention and any subsequent written approval of proposed operations by the division shall be posted at the well site throughout the operations.

(h) Operators shall give the appropriate division district office sufficient advance notice of the time for inspections and tests requiring the presence of division personnel.

(i) Operations shall not deviate from the approved basic program without prior approval of the division, except in an emergency.

(j) Oil spills shall be promptly reported to those agencies specified in the California Oil Spill Contingency Plan either by calling the toll-free telephone number (800) 852-7550 or by contacting the specified agencies directly.

(k) Blowouts, fires, and hazardous gas leaks resulting from or associated with an oil or gas drilling or producing operation, or related facility, shall be promptly reported to the appropriate division district office.

(*l*) The use of radioactive materials in wells shall comply with the State Department of Health regulations in Title 17, Chapter 5, Subchapter 4 of the California Administrative Code. With the exception of radioactive tracers used in injection surveys, the loss of radioactive materials in a well shall be promptly reported to the State Department of Health pursuant to Section 30295 of the above-referenced regulations and to the appropriate division district office.

(m) When sufficient geologic and engineering information is available from previous drilling, the supervisor may establish field rules or change established field rules for any oil or gas pool or zone in a field. Before establishing or changing a field rule, the supervisor shall distribute the proposed rule or change to affected persons and allow at least thirty (30) days for comments from said affected persons. The supervisor shall notify affected persons in writing of the establishment or change of field rules.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

HISTORY:

1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1722.1. Acquiring Ownership or Operation of a Well.

Every person who acquires the ownership or operation of any well, whether by purchase, transfer, assignment, conveyance, exchange, or otherwise, shall, within 30 days after acquiring the well and the land, owned or leased, upon which it is located, notify the supervisor or the district deputy, in writing, of his ownership or operation, pursuant to Section 3202 of the Public Resources Code, and shall file an indemnity or cash bond, with his own name or company as principal, in the appropriate amount to cover obligations covered under the previous operator's bond.

NOTE: Authority cited: Section 3106, Public Resources Code. Reference: Sections 3204 through 3207, Public Resources Code.

1722.2. Casing Program.

All wells shall be cased and cemented in a manner consistent with good oilfield practice. Each well shall have casing designed to provide anchorage for blowout prevention equipment and to seal off fluids and segregate them for the protection of all oil, gas, and freshwater zones. Casing, tubing, and annuli shall be sealed off or equipped with a device to provide full closure at the surface, unless in the judgment of the supervisor, available data justify an exception. All casing strings shall be designed to withstand anticipated collapse, burst, and tension forces with the appropriate design factor provided to obtain a safe operation.

Casing setting depths shall be based upon geological and engineering factors, including but not limited to the presence or absence of hydrocarbons, formation pressures, fracture gradients, lost circulation intervals, and the degree of formation compaction or consolidation. All depths refer to true vertical depth (TVD) below ground level.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

HISTORY:

1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1722.3. Description of Casing Strings.

(a) Conductor casing. This casing shall be cemented at or driven to a maximum depth of 100 feet. Exceptions may be granted by the appropriate division district deputy if conditions require deeper casing depth.

(b) Surface casing. As a general rule for prospect wells, this casing shall be cemented at a depth which is at least 10 percent of the proposed total depth, with a minimum of 200 feet and a maximum of 1,500 feet of casing. A second string of surface casing shall be required in prospect wells if the first string has not been cemented in a competent bed or if unusual drilling hazards exist. The second string shall be cemented into or through a competent bed. The appropriate division district deputy may vary these general surface casing depth requirements, consistent with known geological and engineering factors, to permit maximum utilization of the casing in a specific well. In development wells, casing string length shall be determined on the basis of known field conditions.

(c) Intermediate casing. This casing may be required for protection of oil, gas, and freshwater zones, and to seal off anomalous pressure zones, lost circulation zones, and other drilling hazards.

(d) Production casing. This casing shall be cemented and, when required by the division, tested for fluid shutoff above the zone or zones to be produced. The test may be witnessed by a division inspector. When the production string does not extend to the surface, at least 100 feet of overlap between the production string and next larger casing string shall be required. This overlap shall be cemented and tested by a fluid-entry test to determine whether there is a competent seal between the two casing strings. A pressure test may be allowed only when such test is conducted pursuant to an established field rule. The test may be witnessed by a division inspector.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

HISTORY:

1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1722.4. Cementing Casing.

Surface casing shall be cemented with sufficient cement to fill the annular space from the shoe to the surface. Intermediate and production casings shall be cemented so that all freshwater zones, oil or gas zones, and anomalous pressure intervals are covered or isolated. Sufficient cement shall be used to fill the annular space to at least 500 feet above oil and gas zones and anomalous pressure intervals, and to at least 100 feet above the base of the freshwater zone. The appropriate division district deputy may require a cement bond log, temperature survey, or other survey to determine cement fill behind casing. If it is determined that the casing is not adequately cemented by the primary cementing operation, the operator shall recement in such a manner as to comply with the above requirements. If supported by known geologic conditions, an exception to the cement placement requirements of this section may be allowed by the appropriate division district deputy.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3200, 3210-3215, 3219, 3220 and 3222-3224, Public Resources Code.

HISTORY:

1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1723. Plugging and Abandonment—General Requirements.

(a) Cement Plugs. In general, cement plugs will be placed across specified intervals to protect oil and gas zones, to prevent degradation of usable waters, to protect surface conditions, and for public health and safety purposes. At the discretion of the district deputy, cement may be mixed with or replaced by other substances with adequate physical properties.

(b) Hole Fluid. Mud fluid having the proper weight and consistency to prevent movement of other fluids into the well bore shall be placed across all intervals not plugged with cement, and shall be surface poured into all open annuli.

(c) Plugging by Bailer. Placing of a cement plug by bailer shall not be permitted at a depth greater than 3,000 feet. Water is the only permissible hole fluid in which a cement plug shall be placed by bailer.

(d) Surface Pours. A surface cement-pour shall be permitted in an empty hole with a diameter of not less than 5 inches. Depth limitations shall be determined on an individual well basis by the district deputy.

(e) Blowout Prevention Equipment. Blowout prevention equipment may be required during plugging and abandonment operations. Any blowout prevention equipment and inspection requirements determined necessary by the district deputy shall appear on the approval to abandon issued by the division.

(f) Junk in Hole. Diligent effort shall be made to recover junk when such junk may prevent proper abandonment either in open hole or inside casing. In the event that junk cannot be removed from the hole and fresh-saltwater contacts or oil or gas zones penetrated below cannot therefore be properly abandoned, cement shall be downsqueezed through or past the junk and a 100-foot cement plug shall be placed on top of the junk. If it is not possible to downsqueeze through the junk, a 100-foot cement plug shall be placed on top of the junk.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1723.2. Freshwater Protection. (a) Open Hole.

(1) A minimum 200-foot cement plug shall be placed across all fresh-saltwater interfaces.

(2) An interface plug may be placed wholly within a thick shale if such shale separates the freshwater sands from the brackish or saltwater sands.

(b) Cased Hole.

(1) If there is cement behind the casing across the fresh-saltwater interface, a 100-foot cement plug shall be placed inside the casing across the interface.

(2) If the top of the cement behind the casing is below the top of the highest saltwater sands, squeeze-cementing shall be required through perforations to protect the freshwater deposits. In addition, a 100-foot cement plug shall be placed inside the casing across the fresh-saltwater interface. Notwithstanding other provisions of this section, the district deputy may approve a cavity shot followed by cementing operations at the base of the freshwater sands. The cavity shall be filled with cement and capped with a cement plug extending 100 feet above the cavity shot.

(c) Special Requirements. Where geologic or groundwater conditions dictate, special plugging procedures shall be required to prevent contamination of useable waters by downward percolation of poor quality surface waters, to separate water zones of varying quality, and to isolate dry sands that are in hydraulic continuity with groundwater aquifers.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1723.3. Casing Shoe. If the hole is open below the shoe, a cement plug shall extend from at least 50 feet below to at least 50 feet above the shoe of any cemented casing. If the hole cannot be cleaned out to 50 feet below the shoe, a 100-foot cement plug shall be placed as deep as possible.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1723.4. Casing Stub. When casing is recovered from inside another casing string (or strings), and the outer string (or strings) is cemented opposite the casing stub, a 100-foot cement plug shall be required on the casing stub. A plug on the casing stub will generally not be required when casing is recovered in open hole or from inside another casing string that is not cemented opposite the casing stub.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1723.5. Surface Plugging.

The hole and all annuli shall be plugged at the surface with at least a 25-foot cement plug. The district deputy may require, particularly in urban areas, that inner strings of uncemented casing be removed to at least the base of the surface plug prior to placement of the plug.

All well casing shall be cut off at least 5 feet below the surface of the ground. In urban areas, a steel plate at least as thick as the outer well casing shall be welded around the circumference of the outer casing at the top of said casing, after division approval of the surface plug.

NOTE: Authority cited: Section 3106, Public Resources Code. Reference: Section 3228, Public Resources Code.

HISTORY:

1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).
2. Amendment filed 6-30-80; effective thirtieth day thereafter (Register 80, No. 27).

1723.6. Recovery of Casing. (a) Approval to recover all casing possible will be given in the abandonment of wells where subsurface plugging can be done to the satisfaction of the district deputy.

(b) The hole shall be full of fluid prior to the detonation of any explosives in the hole. Such explosives shall be utilized only by a licensed handler with the required permits.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1723.7. Inspection of Plugging and Abandonment Operations. Plugging and abandonment operations that require witnessing by the division shall be witnessed and approved by a division employee. When discretion is indicated by these regulations, the district deputy shall determine which operations are to be witnessed.

(a) Blowout prevention equipment—may inspect and test equipment and installation.

(b) Oil and gas zone plug—may witness placing and shall witness location and hardness.

(c) Mudding of hole—may witness mudding operations and determine that specified physical characteristics of mud fluid are met.

(d) Freshwater protection:

(1) Plug in open hole—may witness placing and shall witness location and hardness. Plug in cased hole—shall witness placing or location and hardness.

(2) Cementing through perforations—shall witness cementing operation.

(3) Cavity shot—may witness shooting and shall witness placing or location and hardness of required plug.

(e) Casing shoe plug—shall witness placing or location and hardness.

(f) Casing stub plug—shall witness placing or location and hardness.

(g) Surface plug—may witness emplacement and shall witness or verify location.

(h) Environmental inspection—shall determine that division environmental regulations (California Administrative Code, Title 14, Subchapter 2) have been adhered to.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).
2. Amendment of subsection (d)(1) filed 10-11-79; effective thirtieth day thereafter (Register 79, No. 41).

1723.8. Special Requirements. The supervisor, in special cases, may set forth other plugging and abandonment requirements or may establish field rules for the plugging and abandonment of wells. Such cases include, but are not limited to:

(a) The plugging of a high-pressure saltwater zone.

(b) Perforating and squeeze-cementing previously uncemented casing within and above a hydrocarbon zone.

History: 1. Amendment filed 9-21-76; effective thirtieth day thereafter (Register 76, No. 39).

1724. Required Well Records. The operator of any well drilled, redrilled, deepened, or reworked on or after the effective date of this subchapter shall keep, or cause to be kept, an accurate record of each operation on each well including, but not limited to, the following, when applicable:

(a) Log and history showing chronologically the following data:

(1) Character and depth of all formations, water-bearing strata, oil- and gas-bearing zones, lost circulation zones, and abnormal pressure zones encountered.

(2) Casing size, weight, grade, type, condition (new or used), top, bottom, and perforations; and any equipment attached to the casing.

(3) Tubing size and depth, type and location of packers, safety devices, and other tubing equipment.

(4) Hole sizes.

(5) Cementing and plugging operations, including date, depth, slurry volume and composition, fluid displacement, pressures, fill, and downhole equipment.

(6) Drill-stem or other formation tests, including date, duration, depth, pressures, and recovery (volume and description).

(7) BOPE installation, inspections, and pressure tests.

(8) Shutoff, pressure, and lap tests of casing, including date, duration, depth, and results.

(9) Sidetracked casing, tools, or other material.

(10) Depth and type of all electrical, physical, or chemical logs, tests, or surveys made.

(11) Production or injection method and equipment.

(b) Core record showing the depth, character, and fluid content, so far as determined, of all cores, including sidewall samples.

(c) Such other information as the supervisor may require for the performance of his statutory duties.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

History: 1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7). For history of former section, see Register 76, No. 39.

1724.1. Filing Records. Legible copies, in duplicate, of the complete and accurate well summary, core records, and history on current division forms or on forms previously approved by the supervisor, and two true and reproducible copies of all electrical, physical or chemical logs, tests, or surveys run, shall be filed with the division within 60 days after the completion, abandonment, or suspension of operations of a well, or upon written request of the supervisor. Dipmeter surveys shall be in a form indicating the computed direction and amount of dip. Submittal of hole caliper logs, if run, on development wells may be waived by the appropriate division district deputy.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

History: 1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1724.6. Underground Injection and Disposal Projects. Approval must be obtained from this division before any subsurface injection or disposal project can begin. The operator requesting approval for such a project must provide to the appropriate division district deputy any data that, in the judgment of the supervisor, are pertinent and necessary for the proper evaluation of the proposed project.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

History: 1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1724.7. Enhanced Recovery, Disposal, and Related Projects. The data required by the division prior to approval of enhanced recovery, disposal, and related projects include the following, where applicable:

(a) An engineering study, including but not limited to:

(1) Statement of primary purpose of the project.

(2) Reservoir characteristics of each injection zone, such as porosity, permeability, average thickness, areal extent, fracture gradient, original and present temperature and pressure, and residual oil, gas, and water saturations.

(3) Reservoir fluid data for each injection zone, such as oil gravity and viscosity, water quality, and specific gravity of gas.

(4) Casing diagrams, including cement plugs, and actual or calculated cement fill behind casing, of all idle, abandoned, or deeper-zone producing wells within the area affected by the project, and evidence that abandoned wells in the area will not have an adverse effect on the project or cause damage to life, health, property, or natural resources.

(5) The planned well-drilling and abandonment program to complete the project, including a flood-pattern map showing all injection, production, and abandoned wells, and unit boundaries.

(b) A geologic study, including but not limited to:

(1) Structural contour map drawn on a geologic marker at or near the top of each injection zone in the project area.

(2) Isopachous map of each injection zone or subzone in the project area.

(3) At least one geologic cross section through at least one injection well in the project area.

(4) Representative electric log to a depth below the deepest producing zone (if not already shown on the cross section), identifying all geologic units, formations, freshwater aquifers, and oil or gas zones.

(c) An injection plan, including but not limited to:

(1) A map showing injection facilities.

(2) Maximum anticipated surface injection pressure (pump pressure) and daily rate of injection, by well.

(3) Monitoring system or method to be utilized to ensure that no damage is occurring and that the injection fluid is confined to the intended zone or zones of injection.

(4) Method of injection.

(5) List of proposed cathodic protection measures for plant, lines, and wells, if such measures are warranted.

(6) Treatment of water to be injected.

(7) Source and analysis of the injection liquid.

(8) Location and depth of each water-source well that will be used in conjunction with the project.

(d) Copies of letters of notification sent to offset operators.

(e) Other data as required for large, unusual, or hazardous projects; for unusual or complex structures; or for critical wells. Examples of such data are: isogor maps, water-oil ratio maps; isobar maps; equipment diagrams; and safety programs.

(f) All maps, diagrams and exhibits required in Section 1724.7(a) through (e) shall be clearly labeled as to scale and purpose and shall clearly identify wells, boundaries, zones, contacts, and other relevant data.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

History: 1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).

1724.8. Cyclic Steam Injection.

The data required by the division prior to approval of a cyclic steam (steam soak) project include, but are not limited to, the following:

(a) A letter from the operator notifying the division of the intention to conduct cyclic steam injection operations on a specific lease, in a specific reservoir, or in a particular well.

(b) If cyclic steam injection is to be in wells adjacent to a lease boundary, a copy of a letter notifying each offset operator of the proposed project.

NOTE: Authority cited: Sections 3106 and 3107, Public Resources Code. Reference: Sections 3106, 3107, 3203, 3210–3215, 3219, 3220 and 3222–3224, Public Resources Code.

HISTORY:

1724.10. Filing, Notification, Operating, and Testing Requirements for Underground Injection Projects.

(a) The appropriate division district deputy 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 pressure. Such changes shall not be carried out without division approval.

(b) Notices of intention to drill, redrill, deepen, or rework, on current division forms, 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.

(c) An injection report on a current division form or in a computerized format acceptable to the division shall be filed with the division on or before the 30th day of each month, for the preceding month.

(d) A chemical analysis of the liquid being injected shall be made and filed with the division whenever the source of injection liquid is changed, or as requested by the supervisor.

(e) 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.

(f) All injection piping, valves, and facilities shall meet or exceed design standards for the maximum anticipated injection pressure, and shall be maintained in a safe and leak-free condition.

(g) All injection wells, except steam, air, and pipeline-quality gas injection wells, shall be equipped with tubing and packer set immediately above the approved zone of injection within one year after the effective date of this act. New or recompleted injection wells shall be equipped with tubing and packer upon completion or recompletion. Exceptions may be made when there is:

(1) No evidence of freshwater-bearing strata.

(2) More than one string of casing cemented below the base of fresh water.

(3) Other justification, as determined by the district deputy, based on documented evidence that freshwater and oil zones can be protected without the use of tubing and packer.

(h) 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, or loss of hydrocarbons, or upon written notice from the division. Project data shall be available for periodic inspection by division personnel.

(i) To determine the maximum allowable surface injection pressure, a step-rate test shall be conducted prior to sustained liquid injection. Test pressure shall be from hydrostatic to the pressure required to fracture the injection zone or the proposed injection pressure, whichever occurs first. Maximum allowable surface injection pressure shall be less than the fracture pressure. The appropriate district office shall be notified prior to conducting the test so that it may be witnessed by a division inspector. The district deputy may waive or modify the requirement for a step-rate test if he determines that surface injection pressure for a particular well will be maintained considerably below the estimated pressure required to fracture the zone of injection.

(j) All injection wells will be monitored to ensure that the injected fluid is confined to the intended zone or zones. Except for steam and air injection wells, sufficient surveys 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. Typical surveys used to monitor injection wells are the radioactive tracer, spinner, and static temperature. The monitoring schedule may be modified by the district deputy if supported by documented evidence showing good cause. The appropriate district office shall be notified before such surveys are made, as they may be witnessed by a division inspector.

(k) Additional requirements or modifications of the above requirements may be necessary to fit specific circumstances and types of projects. Examples of such additional requirements or modifications are:

(1) Injectivity tests.

(2) Graphs of time vs. oil, water, and gas production rates, maintained for each pool in the project and available for periodic inspection by division personnel.

Continued

(3) Graphs of time vs. tubing pressure, casing pressure, and injection rate maintained for each injection well and available for periodic inspection by division personnel.

(4) List of all observation wells used to monitor the project, indicating what parameter each well is monitoring (i.e., pressure, temperature, etc.), submitted to the division annually.

(5) List of all injection-withdrawal wells in a gas storage project, showing casing-integrity test methods and dates, the types of safety valves used, submitted to the division annually.

(6) Isobaric maps of the injection zone, submitted to the division annually.

(7) Notification of any change in waste disposal methods.

NOTE: Authority cited: Section 3106, Public Resources Code. Reference: Section 3106 Public Resources Code.

HISTORY:

1. New section filed 2-17-78; effective thirtieth day thereafter (Register 78, No. 7).
2. Amendment filed 6-30-80; effective thirtieth day thereafter (Register 80, No. 27).

Project coordinator — Robert Reid
Cover design — Jim Spriggs

EXHIBIT 8

Underground Injection Control Program
Memorandum of Agreement
Between
California Division of Oil and Gas
and
the United States Environmental Protection Agency
Region 9

I. General

This Memorandum of Agreement ("Agreement") establishes the responsibilities of and the procedures to be used by the Division of Oil and Gas ("Division") and the United States Environmental Protection Agency ("EPA") in administration of wells in the Class II portion ("Class II program") of the Underground Injection Control ("UIC") program in California. In general, this Agreement supplements the program described in the demonstration submitted in accordance with Section 1425(a) of the Safe Drinking Water Act ("1425 demonstration").

After it is signed by the Supervisor and the Regional Administrator, this Agreement shall become effective on the date notice of the Class II program approval is published in the Federal Register. The parties will review this Agreement at least once each year during preparation of the annual program update, during the State-EPA agreement ("SEA") process or at other times as appropriate (e.g. at mid-year review). The annual SEA shall be consistent with this Agreement and may not override this Agreement.

This Agreement may be modified upon the initiative of either party in order to ensure consistency with State or Federal statutory or regulatory modifications or supplements, or for any other purpose mutually agreed upon. Any such modifications or supplements must be in writing and must be signed by the Supervisor and Regional Administrator.

This Agreement shall remain in effect unless EPA determines that the Division's 1425 demonstration is no longer valid. Such a determination by EPA will be in accordance with Section 1425(c) of the Safe Drinking Water Act ("SDWA").

Nothing in this Agreement shall be construed to alter any requirements of SDWA or to restrict EPA's authority to fulfill its oversight and enforcement responsibilities under SDWA or other Federal laws, or to restrict the Division's authority to fulfill its responsibilities under State statutes. Nothing in this Agreement shall require or be construed to require EPA to violate Federal law or the Division to violate State law.

II.

A. Policy Statement

The purpose of the UIC program is to prevent any underground injection that endangers an underground source of drinking water ("USDW").

The Division has primary responsibility and authority over all Class II injection wells in the State of California. This includes Class II wells drilled and operated on Federally owned lands, but does not include such wells on Indian lands. The Division is responsible for administering the Class II program including but not limited to reports, permits, monitoring and enforcement actions. Implementation of the Class II program will be as described in the 1425 demonstration and will be supported by an appropriate level of staff and resources.

The Supervisor and the Regional Administrator agree to maintain a high level of cooperation and coordination between Division and EPA staff to assure successful and effective administration of the Class II program.

The Division shall promptly inform EPA of any proposed or pending modifications to laws, regulations, or guidelines, and any judicial decisions or administrative actions that might affect the program and the Division's authority to administer the program. The Division shall promptly inform EPA of any resource allocation changes (e.g. personnel, budget, equipment) that might affect its ability to administer the program.

EPA shall promptly notify the Division of the issuance, content, and meaning of Federal statutes, regulations, guidelines, standards, judicial decisions, policy decisions, directives, and other factors (including budgetary changes) that might affect the Class II program.

B. Information Sharing

1. Division

The Division agrees that all information and records obtained or used in the administration of the Class II program including all UIC permit files shall be available for inspection by EPA or its authorized representative upon request. Division records may be copied by the EPA only when they are required by EPA to bring an enforcement action or for other such specific purpose. Any information obtained from the Division by EPA that is subject to a claim of confidentiality shall be treated by EPA in accordance with EPA regulations governing confidentiality (40 CFR Part 2 and 40 CFR 122.19).

The Division shall retain records used in the administration of the program for at least three years (40 CFR 30 and 40 CFR 35). If an enforcement action is pending, then all records pertaining to such action shall be retained until such action is resolved or the previously mentioned time period is met.

2. EPA

Copies of any written comments about the Division's program administration received by EPA from regulated persons, the public, and Federal, State, and local agencies will be provided to the Supervisor within thirty (30) days of receipt.

3. Emergency Situations

Upon receipt of any information that any Class II injection operation is endangering human health or the environment and requires emergency response, the party in receipt of such information shall immediately notify by telephone the other party of the existence of such a situation.

C. Permits

1. Division

Within 10 working days of receipt, the Division shall provide a written response to any written notice of intent to commence drilling.

2. EPA

Upon receipt by EPA, any Class II permit application and supporting information shall be immediately forwarded to the Division.

Some facilities and activities may require permits from the Division and EPA (and/or other State agencies) under different programs. When appropriate, the Division and EPA will participate in a joint permit processing procedure. The procedure will be developed on a case by case basis.

D. Compliance, Monitoring and Enforcement

1. Division

The Division shall adhere to the compliance monitoring, tracking, and evaluation program described in the 1425 Demonstration. The Division shall maintain a timely and effective compliance monitoring system including timely and appropriate actions on non-compliance.

Each year, 100% of the disposal wells will be inspected for mechanical integrity.

2. EPA

EPA shall conduct periodic site and activity inspections on injection operations, giving priority to operations having the greatest potential to endanger public health.

EPA may participate with the Division in the inspection of wells or operator records. EPA shall notify the Division usually at least ten (10) days prior to any proposed inspection and shall describe the well(s) or record (s) to be inspected and the purpose of such inspection. If the Division fails to take adequate enforcement action against a person violating the requirements for a Class II well, EPA may take Federal enforcement action. Federal enforcement actions will be in accordance with the State, facility and public notification procedures in Section 1423 of SDWA.

3. Emergency Situations

Situations endangering human health will receive immediate and paramount attention by the Division and EPA. The party with initial knowledge of such situation shall immediately notify the other party by telephone.

E. Program Review and Evaluation

1. Division

The Division shall provide EPA with an annual report on the recent operation of the Class II program. Specific contents of the report are described in Attachment #1 and may be renegotiated from time to time. The period to be covered by the annual report shall be the calendar year ending December 31, with reports completed and available to EPA no more than 60 days later (March 1).

In addition, the Division shall provide a separate report of preventive actions taken by operators of new Class II wells. At minimum, this report shall include:

a. the number and general type (e.g. injection pressure limit) of preventive actions proposed in the applications;

b. the number and general type of preventive actions actually taken; and

c. if necessary, a brief summary explaining the reason(s) for any differences between proposed and actual preventive actions (e.g., pending actions).

The report is due within 3 months after the second anniversary of the effective date of this Agreement. The final format will be negotiated at least 3 months prior to the due date.

If the Division proposes to allow any mechanical integrity tests other than those specified or justified in the 1425 Demonstration, the Division shall provide in advance to EPA sufficient information about the proposed test that a judgment about its usefulness and reliability can be made.

2. EPA

EPA shall conduct mid-year evaluations at least during the first 2 years of the Division's operation of the program. In part, the mid-year evaluations will be based on the reports provided above. At least 10 days prior to the evaluation, EPA shall notify the Division regarding the information, material, and program areas that will be covered. This may include selected permit files, budget records and public notification and complaint files. The evaluation may be conducted at either the Division's headquarters or one of its district offices.

F. Public Participation

1. Division

The Division shall provide adequate public notice for its proposed actions as described in the Division's 1425 Demonstration. At minimum, the Division shall provide a 15 day public comment period, and make the non-confidential portions of the project plan and the representative Report on Proposed Operations available for review. If the Supervisor determines that a public hearing is necessary, public notice shall be provided at least 30-days prior to the public hearing.

If there are any substantial changes to the approved project plan or representative Report on Proposed Operations, additional public notice will be provided. Examples of substantial changes include significant increases in injection pressures, changes in injection zone, or significant changes in injection fluid.

Copies of such notices shall also be sent to:

a. Director, Water Management Division, EPA-Region 9;

b. Chairperson, State Water Resources Control Board; and

c. Chairperson of the affected Regional Water Quality Control Board.

The Division's final decision on proposed actions shall contain a response to comments that summarizes the substantive comments received and the disposition of the comments. This shall become a part of that particular project file.

At a minimum, the Division shall apply these public participation procedures to applications for new underground injection projects, significant modifications to existing permits, and to aquifer exemptions.

2. EPA

EPA shall participate at any scheduled public hearing at the request of the Division. Such requests shall be made at least 10 days prior to the hearing.

Any appropriate comments on the proposed action shall be made by EPA within the normal fifteen day comment period. The exception is the designation of exempted aquifers (see the section on Aquifer Exemptions).

G. Program Revision

A program revision may be necessary when the Division's or EPA's statutory authority is modified or when there is a substantial modification to the program. The procedure for revising the program shall be that described in 40 CFR 123.13(b).

H. Aquifer Exemption

An Underground Source of Drinking Water (USDW) may be exempted for the purposes of a Class II injection well if it meets the criteria in 40 CFR 146.04.

Aquifers exempted by the Division and EPA under this Agreement shall only be applicable for the injection of fluids related to Class II activities defined in 40 CFR 146.05(b).

Aquifer exemptions made subsequent to the effective date of this Agreement shall not be effective until approved by the Administrator or Regional Administrator (if delegated) in writing.

After the effective date of this Agreement, an aquifer exemption must be in effect prior to or concurrent with

the issuance of a Class II permit for injection wells into that aquifer.

Aquifers which were proposed for exemption in the 1425 Demonstration and exempted are identified in Attachment #2. Aquifers proposed for exemption in the 1425 Demonstration and not exempted will be phased out within 18 months of the effective date of this Agreement (Attachment #3). Any aquifer or portion of an aquifer denied an exemption may be resubmitted for consideration. At minimum, the resubmission should include either new data, new boundaries or other modification to the original proposal.

All exempted aquifers are subject to review by the Division and by EPA. For good reason and by mutual agreement between the Division and EPA, the exemption status of an aquifer can be withdrawn. The public participation procedures in the 1425 Demonstration shall be applied prior to the withdrawal of any exemption status.

1. EPA

Within 10 days after receipt of the information on the aquifer(s) proposed by the Division for exemption, EPA shall notify the Division if any additional information is deemed appropriate. EPA shall either approve or disapprove the aquifer exemption within 60 days after receipt of all appropriate information. Any disapproval by EPA shall state the reasons for the decision. Requests for additional information and final determinations on aquifer exemptions shall be in written form.

If the new aquifer proposed for exemption is a non-hydrocarbon bearing USDW, EPA will coordinate its public participation activities on aquifer exemptions with the Division's public participation activities during project review.

I. Other Agency Involvement

The Division shall administer the Class II program and maintain close cooperation with California's State Water Resources Control Board (SWRCB) and the Minerals Management Service.

J. Definitions

1. Class II well is defined in 40 CFR 146.05(b).

2. Aquifer is defined in 40 CFR 146.03 and 122.3.

3. Day in this Agreement is defined as a working day.

4. Underground Source of Drinking Water (USDW) is defined in 40 CFR 146.03 and 122.3.

5. 1425 Demonstration includes:

a. the Division's primacy application dated April, 1981;

b. the additional information provided by letter dated March, 1982; and

c. the clarifying information provided by letter dated September, 1982.

Sonia F. Crow
Regional Administrator
Environmental Protection Agency
Region 9

Sept. 29, 1982
Date

for Simon Cordova
M.G. Mefferd
State Oil and Gas Supervisor
California Division of Oil and Gas

Sept. 28, 1982
Date

Attachment 1

Annual Report Contents

At a minimum, the Annual Report shall include:

a. an updated inventory;

b. a summary of surveillance programs including results of monitoring and mechanical integrity testing, the number of inspections conducted, the number of new wells, corrective actions ordered and witnessed, instances of wells out of compliance and their current status;

c. an account of all complaints reviewed by the Division and the actions taken;

d. results of the review of existing wells made during the year;

e. a summary and status of the enforcement actions taken;

f. number of emergency permits issued and current status; and

g. instances of variances and discretionary exemptions during the year.

Attachment 2

Exempted 1425 Demonstration Aquifers

All oil and gas producing aquifers identified in Volumes I, II, and III of the California Oil and Gas Fields submitted in the 1425 Demonstration dated April 20, 1981 are exempted.

In addition, the following aquifers are also exempted.

DISTRICT	FIELD	FORMATION/ZONE
2	Ramona	Pico
2	Oat Mountain	Undiff.
2	Simi	Sespe
3	San Ardo	Santa Margarita
3	San Ardo	Monterey "D" Sand
3	San Ardo	Monterey "E" Sand
3	Monroe Swell	Santa Margarita
4	Buena Vista	Tulare
4	Kern Bluff	Vedder
4	Kern River	Vedder*
4	Mountain View	Kern River
4	Pleito	Chanac
4	Pleito	Kern River
4	Poso Creek	Santa Margarita
5	Coalinga	Santa Margarita
5	Coalinga	Etchegoin-Jacalitos
5	Guijarral Hills	Etchegoin-Jacalitos*
5	Helm	Tulare-Kern River
5	Riverdale	Pliocene
5	Turk Anticline	San Joaquin
6	Sutter Buttes Gas	Kione*

* oil and/or gas producing

Attachment 3

1425 Demonstration Aquifers Not Exempted

DISTRICT	FIELD	FORMATION/ZONE
2	South Tapo Canyon	Pico
4	Blackwell's Corner	Tumey
4	Kern Bluff	Kern River
4	Kern Front	Santa Margarita
4	Kern River	Chanac
4	Kern River	Santa Margarita
4	Mount Poso	Walker
4	Round Mountain	Olcese
4	Round Mountain	Walker
6	Bunker Gas	Undiff.
6	Wild Goose	Undiff.

EXHIBIT 9

STATE OF CALIFORNIA — RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
520 KENTUCKY STREET
BAKERSFIELD, CALIFORNIA 93305
(805) 322-4031

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

April 5, 1983

Gentlemen,

On March 14, 1983, the California Division of Oil and Gas recieved primacy over Class II injection wells under the Federal U.I.C. program. This primacy enables the D.O.G. to retain regulatory control over the reinjection of produced oilfield water with certain imposed restrictions and changes. Among these restrictions are non-exempt aquifers which have previously been approved for injection.

Under the new regulations, all injection into these non-exempt aquifers must cease by September 14, 1984. One of these zones is the Walker zone in Round Mountain field for which our records show you have a currently approved water disposal project.

An appeal of this decision is being prepared by this Division for submittal to the Environmental Protection Agency. If you have any data you feel may be helpful in this appeal or have any questions regarding the application, please contact this office. Should our appeal be rejected, all injection into the Walker zone, Round Mountain field, must be terminated by the September 14, 1984 deadline date.

Yours Truly,

A. G. Hluza
Deputy Supervisor

By David Mitchell
Associate Oil & Gas Engineer

STATE OF CALIFORNIA—RESOURCES AGENCY George Deukmejian, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
4800 STOCKDALE HWY., SUITE # 417
BAKERSFIELD, CALIFORNIA 93309
(805) 322-4031

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

June 16, 1983

Gentlemen,

As a result of an appeal made by the Division of Oil and Gas to the Environmental Protection Agency regarding the non-exempt status of the Walker Zone, Round Mountain field, the previous ruling has been overturned and the currently approved injection intervals in this zone have been exempted for the reinjection of produced oilfield water. This appeal could not have been made and won without your help and we wish to extend our appreciation for your efforts.

The September 14, 1984 deadline for the termination of injection into this zone is therefore rescinded and injection may continue under the prior D.O.G. permit. Should there be any further rulings which may affect any of your underground injection projects, you will be notified.

Yours Truly,

David Mitchell

David Mitchell
Associate Oil and Gas Engineer

STATE OF CALIFORNIA — RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
320 KENTUCKY STREET
BAKERSFIELD, CALIFORNIA 93305
(805) 322-4031

Mr. B. Nevill
SHELL CALIFORNIA PRODUCTION INC.
196 S. Fir Street
Ventura, CA. 93301

April 5, 1983

Gentlemen,

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A. G. Hluza
Deputy Supervisor

By David Mitchell
Associate Oil & Gas Engineer

STATE OF CALIFORNIA—RESOURCES AGENCY George Deukmejian, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
4800 STOCKDALE HWY., SUITE #417
BAKERSFIELD, CALIFORNIA 93309
(805) 322-4031

Mr. B. Nevill
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June 16, 1983

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Yours Truly,

David Mitchell

David Mitchell
Associate Oil and Gas Engineer

STATE OF CALIFORNIA—RESOURCES AGENCY George Deukmejian, Governor

DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS
4800 STOCKDALE HWY., SUITE # 417
BAKERSFIELD, CALIFORNIA 93309
(805) 322-4031

Mr. Donald R. Macpherson, Jr.
MACPHERSON OIL COMPANY
P.O. Box 5368
Oildale, CA. 93388

June 16, 1983

Gentlemen,

As a result of an appeal made by the Division of Oil and Gas to the Environmental Protection Agency regarding the non-exempt status of the Walker Zone, Round Mountain field, the previous ruling has been overturned and the currently approved injection intervals in this zone have been exempted for the reinjection of produced oilfield water. This appeal could not have been made and won without your help and we wish to extend our appreciation for your efforts.

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Yours Truly,

David Mitchell

David Mitchell
Associate Oil and Gas Engineer

EXHIBIT 10

STATE OF CALIFORNIA, RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

DEPARTMENT OF CONSERVATION

DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES

4800 Stockdale Highway • Suite 417 • BAKERSFIELD, CALIFORNIA 93309

PHONE 661 / 322-4031 • FAX 661 / 861-0279 • WEBSITE conservation.ca.gov/DOG

October 4, 2006

Mr. Wesley Duncan
Macpherson Oil Company
P.O. Box 5368
Bakersfield, CA 93388

WATER DISPOSAL PROJECT
Round Mountain Field-Main Area
Vedder-Walker Zones
Sec. 12,13, T.28S., R.28E.
Sec. 18, T.28S, R.29E.

Project Code: 62809014
Max. Permitted Well(s): 15

Dear Mr. Duncan:

The expansion 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,

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

cc: RWQCB
UIC file

uic\wp\wd
pr

DEPARTMENT OF CONSERVATION

Managing California's Working Lands

Division of Oil, Gas, & Geothermal Resources

4800 Stockdale Highway • Suite 417 • BAKERSFIELD, CALIFORNIA 93309

PHONE 661 / 322-4031 • FAX 661 / 861-0279 • WEBSITE conservation.ca.gov/DOG

January 2, 2012

Macpherson Oil Company (M0950)
Mr. Joseph Butler
P.O. Box 5368
Bakersfield, CA 93388

WATER DISPOSAL PROJECT
Round Mountain Field-Main Area
Vedder-Walker Zones
Sec. 12, 13, T.28S., R.28E.
Sec. 18, 20 T.28S., R.29E.

Project Code: 62809014

Dear Mr. Butler:

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, appropriate range, operating pressure gauge or pressure recording device shall be available at all times, and all injection wells shall be equipped for the installation and operation of such gauge or device

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 at Maximum Allowable Surface Injection Pressure MASP and as outlined in the Notice to Operators dated January 9, 1990. The SAPT shall be done prior to injecting into any well(s) being drilled, converted or reworked for the purpose of injection or as requested by the Division and at a frequency as outline in the CCR 1724.10 (j) (1). The Division shall be notified to witness such test(s).

9. Injection profile surveys for all fluid injection wells shall be filed with the Division within three (3) months after injection has commenced, and once annually thereafter, or 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 surface injection operating pressure and gradient is limited to 0.8 psi/ft as measured from the top perforation (the water gradient may be based on an injectate geochemical water analysis or assumed to be 0.45 psi/ft.). Prior to any sustained injection above the 0.8 psi/ft. gradient a step rate test shall be run. This test shall be witnessed by a Division engineer, unless otherwise instructed, and the test results submitted to this Division for approval or disapproval.

12. Prior to injection the operator shall swab the proposed injection zone waters 1.5 wellbore volumes and have a lab certified geochemical analysis of the swabbed waters submitted to the Division. The swab test shall be witnessed and sample collected by a Division field engineer.

13. 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.

14. Any well work or observed problems in any project formation penetrating well in order to protect oil, gas, or freshwater zones, shall be the responsibility of the project operator.

15. Additional data will be supplied upon the request of the Division.

16. The applicant shall adhere to conditions set forth in their application(s).

Sincerely,

Mr. Dan Wermiel
Senior Oil and Gas Engineer

cc: RWQCB UIC file
uic\wp\wd

EXHIBIT 11

EXHIBIT 11

RECEIVED
JUN 10 1985
DIVISION OF OIL & GAS
BAKERSFIELD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Mr. Tom Cornwell
Western Oil and Gas Association
727 West 7th Street
Los Angeles, CA 90017

17 MAY 1985

Dear Mr. Cornwell:

The staffs of EPA-Region 9 and the California Division of Oil and Gas (CDOG) have been meeting with members of the Western Oil and Gas Association (WOGA), the California Independent Producers Association (CAIPA), and the Independent Oil Producers Agency (IOPA) to determine how wells injecting specific types of oil field fluids will be regulated under the Underground Injection Control (UIC) program in California. The purpose of this letter is to clarify:

1. how wells injecting filter backwash (diatomaceous earth or multi-media filter backwash), water softener regeneration brine, or air scrubber waste will be classified and regulated under the UIC program in California;

2. the requirements, especially the regulatory deadlines for the submission of permit applications and inventory information for existing wells, for different classes of wells; and

3. which formations identified by CDOG in its primacy application were verified as Underground Sources of Drinking Water (USDW) and exempted and which formations were determined not to be USDWs and did not need to be exempted when primacy for CDOG was approved.

In general, the classification and regulation scheme for wells injecting filter backwash, water softener regeneration brine, or air scrubber wastes under the UIC program in California is:

- wells which inject filter backwash are Class II wells and are regulated by CDOG;

- wells which inject either water softener regeneration brine or air scrubber wastes for the purpose of enhancing oil or natural gas recovery are Class II wells and are regulated by CDOG; and

- wells which inject either water softener regeneration brine

or air scrubber wastes for disposal are either Class I or Class V wells and are regulated by EPA.

Attachment 1 provides: a precise statement about these well classifications; a brief description of each of the fluids being injected; clarification of how wells used to inject commingled fluids will be regulated; and a diagram which outlines how wells injecting the different types of fluids will be regulated and by whom in California.

Some, but not all, of the relevant requirements for Class I, II, and III wells under the UIC program implemented in California are:

* Class I wells - for existing wells (wells in operation prior to June 25, 1984) complete permit applications must be submitted to EPA by June 25, 1985 (40 CFR 144.31[c][1] and 147.251[B])

  - for new wells, permits must be in effect prior to any construction (40 CFR 144.11)

* Class II wells - CDOG has been delegated this portion of the UIC program and regulates this class of wells

* Class V wells - for existing wells, a completed inventory form and the required additional information must be submitted to EPA by June 25, 1985 (40 CFR 144.26[d][1] and 147.251[B])

  - for new wells, a complete inventory form and the required additional information should be submitted to EPA prior to construction.

Complete permit applications for existing Class I wells must be submitted to EPA by June 25, 1985. Considering the delays in classifying wells injecting filter backwash, water softener regeneration brine, or air scrubbing waste, allowances may be made for the submission of additional clarifying information after June 25, 1985. However, allowances can only be considered if an application has been been submitted by June 25, 1985 and if the application represents a reasonable and substantial effort toward a complete permit application.

Attachment 2 provides the exact definitions for the different classes of wells and other pertinent definitions in the UIC program. Attachment 3 and 4 are copies of the permit application and Class V Inventory Notification, respectively.

There appears to be some confusion about which formations in oil and gas fields are USDWs and which formations in oil and gas fields are not USDWs under the UIC program. When CDOG submitted

its application for the Class II portion of the UIC program, it submitted information about a large number of formations in oil fields to be considered for aquifer exemptions. These included formations which produced oil or gas and formations which did not produce any oil or gas. After reviewing the information from CDOG supporting the aquifer exemptions requests, all formations which were USDWs and produced oil or gas were exempted but only some of the formations which did not produce any oil or gas were granted aquifer exemptions. These latter formations were not exempted because the supporting information demonstrated that they were not USDWs as defined by the UIC program. They yielded water which had a Total Dissolved Solids concentration greater than 10,000 milligrams per liter.

Maps showing the lateral extent of any formation which was exempted can be found in California Oil and Gas Fields (Volumes I, II, and III) and Appendix B of CDOG's primacy application. They are available for review at the EPA office in San Francisco or at any of the CDOG district offices. A list of those formations, which did not produce any oil or gas and were considered for aquifer exemptions, is provided as Attachment 5. A list of those formations, which did not produce any oil or gas and which were USDWs and exempted, is provided as Attachment 6.

I would like to take this opportunity to thank those of your members who met and worked with us to clarify these points in the UIC program. If you have any further questions or need other points of clarification, please call Pete Uribe of my staff at (415) 974-7285.

Sincerely,

Frank M. Covington, Director
Water Management Division

ATTACHMENTS
1 - Well Classification and Regulation Scheme (3 pages)
2 - UIC Definitions (3 pages)
3 - Permit Application (10 pages)
4 - Class V Inventory Notification (7 pages)
5 - List of Formations Considered for Exemption (3 pages)
6 - List of Formations Exempted (1 page)

cc: M.G. Mefferd, CDOG
J. B. Braden, CAIPA
Les Clark, IOPA
Jim Cornelius, SWRCB
Bill Pfister, CVRWQCB
John Atcheson, EPA HQ

Policy Statement on Well Classifications

Wells which inject filter backwash (diatomaceous or multi-media filter backwash) are Class II wells.

Wells which inject water softener regeneration brine or air scrubber waste are not Class II wells, unless injection is for enhanced recovery, in which case the wells are Class II wells.

Wells which inject water softener regeneration brine or air scrubber waste commingled with other fluids (e.g. produced water or filter backwash) are not Class II wells, unless injection is for enhanced recovery, in which case the wells are Class II wells.

Description of Fluids being Injected

Filter backwash is a fluid with an elevated concentration of suspended solids which were removed from produced water. In general, produced water is passed through either diatomaceous or multi-media filters to remove suspended solids. Periodically, these filters are washed with either fresh or produced water, which has no additives, to remove the suspended solids concentrated in the filter resulting in a filter backwash.

Water softener regeneration brine is a fluid with high concentrations of total dissolved solids, especially calcium, magnesium, and chloride. In general, produced water is softened by passing it through a resin which replaces calcium and magnesium ions in the water with sodium ions. Periodically, the resin in the water softener unit is regenerated with concentrated solutions of sodium chloride, which replaces the calcium and magnesium ions captured on the resin with sodium ions in the solution, yielding a water softener regeneration brine.

Air scrubber waste is sulfur dioxide scrubber blowdown (also commonly known as scrubber liquor) with high concentrations of total dissolved solids (much greater than 10,000 ppm) In general, crude oil is burned for power to produce steam, which is injected to enhance the recovery of extremely heavy crude oil. Air scrubbers are required when the crude oil is burned because Kern County is a Non-Attainment Area for air quality with respect to sulfur dioxide.

Clarifying the Classification of Wells

Injecting Commingled Fluids

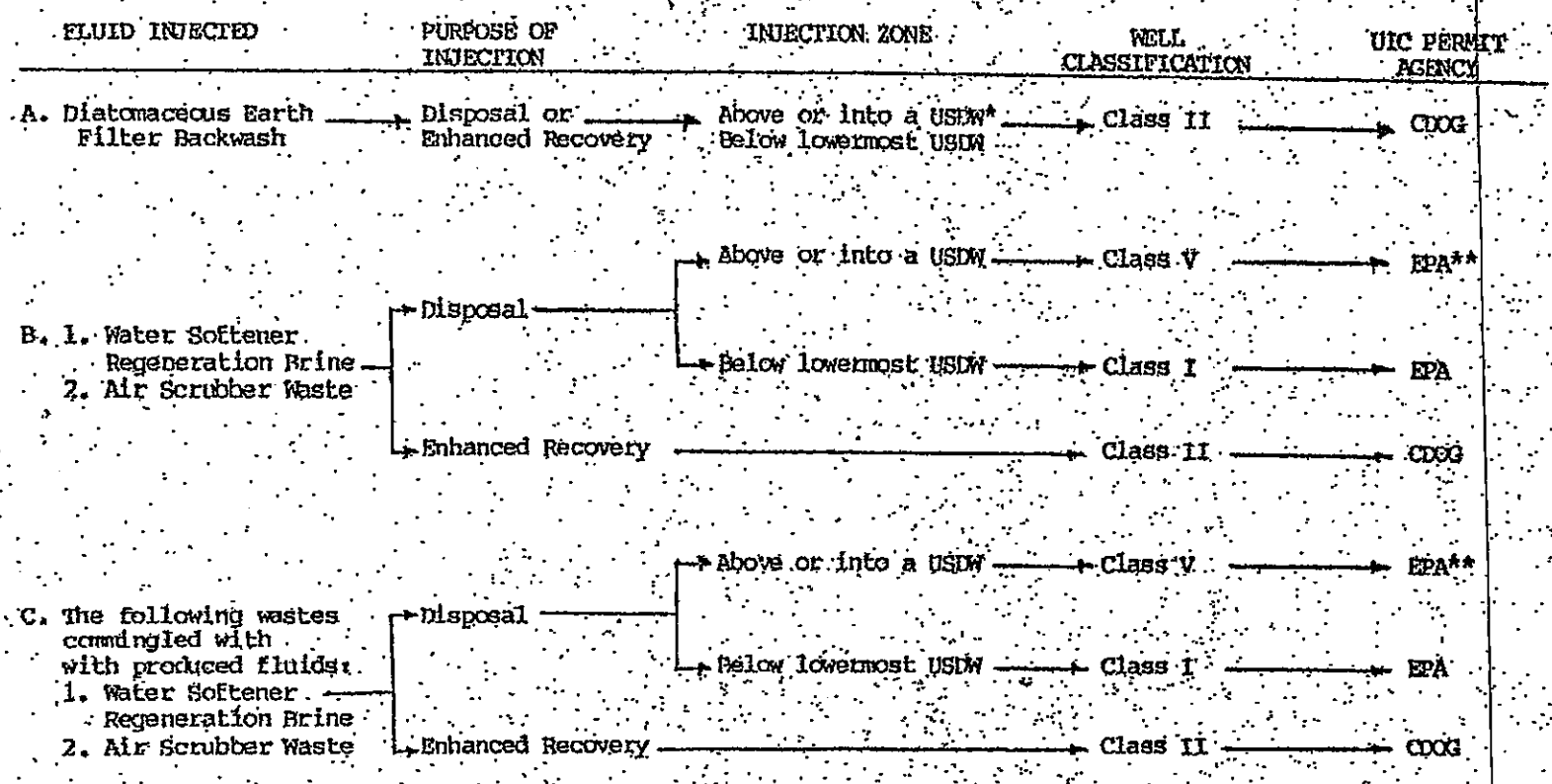
Wells injecting only filter backwash or filter backwash commingled with produced water will be Class II wells and will be regulated by CDOG.

Wells injecting fluids with either water softener regeneration brine or air scrubber wastes into oil and gas producing formations for the purpose of enhanced recovery will be Class II wells and will be regulated by CDOG.

Wells injecting only water softener regeneration brine or only air scrubber wastes into non-oil and gas producing formations are not Class II wells and will be directly regulated by the regional office as a Class I or V well.

Wells injecting either water softener regeneration brine or air scrubber wastes together with produced water into non-oil and gas producing formations are not Class II wells and will be directly regulated by the regional office as a Class I or V well.

On the next page is chart which summarizes whether CDOG or EPA is responsible for any given well based on the type of injectate and the injection formation.



* USDW (Underground Source of Drinking Water)- an aquifer or its portion that contains fewer than 10,000 mg/l total dissolved solids and is not an exempted aquifer (see 40 CFR 144.3 for full definition)

** EPA requirements for Class V wells are: submission of inventory information to EPA by operator (40 CFR 144.26) and that EPA assessment of those wells to determine the need for requirements or regulations (40 CFR 146.52(b)) There are currently no permitting requirements for Class V wells under EPA's UIC program. However, EPA has the option to require and the operator has the option to request a permit. EPA cannot preclude the State (CDOG) from regulating these wells under State laws or regulations, so CDOG's existing state program applies.

Region 9 UIC Program Information Sheet

General Information about the Underground Injection Control Program

The Safe Drinking Water Act (SDWA) of 1974, as amended, requires the U.S. Environmental Protection Agency (EPA) to establish a program which provides for the safety of our nation's drinking water. One part of this program, Underground Injection Control (UIC), has been established to prevent contamination of underground sources of drinking water due to improper design, construction and operation of injection wells. Although not recognized, the injection of waste materials is a very common practice. For example, the oil and gas industry operates tens of thousands of wells nationwide which inject brine or brackish wastewater in the production of oil and gas. Other types of injection wells include hazardous waste disposal operations wells, industrial waste disposal wells, municipal disposal operations wells, and nuclear storage and disposal wells.

Underground Sources of Drinking Water

By definition, an Underground Source of Drinking Water (USDW) is an aquifer or a portion of an aquifer:

which supplies any public water system; or

which contains significant quantity of ground water to supply a public water system; and

currently supplies drinking water for human consumption; or

contains fewer than 10,000 mg/l total dissolved solids (TDS) and is not an exempted aquifer.

An aquifer is a geological formation that is capable of yielding a significant amount of water to a well or to a springs. An exempted aquifer is an aquifer that cannot now and will not in the future serve as a source of drinking water, as determined by EPA.

Well Classification

A well is defined as a bored, drilled or driven shaft or dug hole whose depth is greater than the largest surface dimension. There are five classes of injection wells which are regulated by the UIC program. A specific well classification is made by determining the type of fluid to be injected and the geologic area into which the fluid is to be injected. Injection well classes are summarized as follows:

Class I — Class I wells are municipal and industrial disposal wells (including wells used by generators of hazardous waste and owners of hazardous waste management facillities) which inject fluids below the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.

Class II	Class II wells are associated with oil and gas production or liquid hydrocarbon storage. These wells inject fluids which are brought to the surface for the enhanced recovery of oil and natural gas and for the storage of hydrocarbons.
Class III	Class III wells inject fluids for the extraction of minerals and are used in conjunction with solution mining of minerals.
Class IV	Class IV wells are used by generators of hazardous and radioactive wastes. These wells inject into a formation which within one quarter of a mile of the well contains an underground source of drinking water. Class IV wells are prohibited.
Class V	Class V wells are wells which do not meet the criteria listed for classes I through IV. Generally, wells covered under this classification inject non-hazardous fluids into or above formations that contain underground sources of drinking water. Class V wells include the following, but are not limited to these types of wells:

1. air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump (Questionnaire II);

2. cesspools including multiple dwelling, community or regional cesspools, or other devices that receive wastes which have an open bottom and sometimes have perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary wastes and have the capacity to serve fewer than 20 persons a day (Questionnaire II);

3. cooling water return flow wells used to inject water previously used for cooling (Questionnaire II);

4. dry wells used for injection of wastes into a subsurface formation (Questionnaire II);

5. drainage wells used to drain surface fluid, primarily storm runoff, into a subsurface formation (Questionnaire II);

6. recharge wells used to replenish the water in an aquifer (Questionnaire II);

7. salt water intrusion barrier wells used to inject water into a fresh water aquifer to prevent the intrusion of of salt water in the fresh water (Questionnaire II);

8. sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines regardless of whether or not it is a radioactive waste (Questionnaire II);

9. septic system wells used to inject the waste of effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary wastes and have the capacity to serve fewer than 20 persons a day (Questionnaire II);

10. subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producting zone to reduce or eliminate subsidence associated with the overdraft of fresh water (Questionnaire II);

11. radioactive waste disposal wells other than Class IV (Questionnaire I);

12. injection wells associated with the recovery of geothermal energy for heating, aquaculture, and production of electric power (Questionnaire I);

13. wells used for solution mining of conventional mines such as stopes leaching (Questionnaire I);

14. wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts (Questionnaire I);

15. injection wells used in experimental technologies (Questionnaire I);

16. injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale (Questionnaire II);

17. agricultural drainage wells (Questionnaire II);

18. air scrubber waste disposal wells (except if injection is for enhanced recovery of oil and gas in California); and

19. water softener regeneration brine waste disposal wells (except if injection is for enhanced recovery of oil and gas in California).

Attachment 3

Form Approved. OMB No. 2000-0042, Expires 9-30-85
GSA No.

Form 4 UIC — EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT APPLICATION
(Collected under the authority of the Safe Drinking Water Act, Sections 1421, 1422, 40 CFR 144)

I. EPA ID NUMBER | F/A | C | U

READ ATTACHED INSTRUCTIONS BEFORE STARTING
FOR OFFICIAL USE ONLY

Application approved mo	day	year	Date Received mo	day	year	Permit/Well Number	Comments

II. FACILITY NAME AND ADDRESS

Facility Name

Street Address

City | State | ZIP Code

III. OWNER/OPERATOR AND ADDRESS

Owner/Operator Name

Street Address

City | State | ZIP Code

IV. OWNERSHIP STATUS *(Mark 'x')*

☐ A. Federal ☐ B. State ☐ C. Private
☐ D. Public ☐ E. Other *(Explain)*

V. SIC CODES

VI. WELL STATUS *(Mark 'x')*

☐ A. Operating | Date Started mo | day | year | ☐ B. Modification/Conversion ☐ C. Proposed

VII. TYPE OF PERMIT REQUESTED *(Mark 'x' and specify if required)*

☐ A. Individual ☐ B. Area | Number of Existing wells | Number of Proposed wells | Name(s) of field(s) or project(s)

VIII. CLASS AND TYPE OF WELL *(see reverse)*

A. Class(es) *(enter code(s))*	B. Type(s) *(enter code(s))*	C. If class is "other" or type is code 'x' explain.	D. Number of wells per type (if area permit)

IX. LOCATION OF WELL(S) OR APPROXIMATE CENTER OF FIELD OR PROJECT

X. INDIAN LANDS *(Mark 'x')* ☐ Yes ☐ No

A. Latitude Deg	Min	Sec	B. Longitude Deg	Min	Sec	Township and Range Twsp	Range	Sec	¼ Sec	Feet from	Line	Feet from	Line

XI. ATTACHMENTS

(Complete the following questions on a separate sheet(s) and number accordingly; see instructions)

FOR CLASSES I, II, III (and other classes) complete and submit on separate sheet(s) Attachments A — U (pp 2-6) as appropriate. Attach maps where required. List attachments by letter which are applicable and are included with your application.

XII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (Ref. CFR 122.6)

A. Name and Title *(Type or Print)* | B. Phone No. *(Area Code and No.)*

C. Signature | D. Date Signed

EPA Form 7520-6 (12-83)

Continued on Reverse

Well Class and Type Codes

Class I	Wells used to inject waste below the deepest underground source of drinking water.
Type "I"	Nonhazardous industrial disposal well
"M"	Nonhazardous municipal disposal well
"W"	Hazardous waste disposal well injecting below USDWs
"X"	Other Class I wells (not included in Type "I," "M," or "W")
Class II	Oil and gas production and storage related injection wells.
Type "D"	Produced fluid disposal well
"R"	Enhanced recovery well
"H"	Hydrocarbon storage well (excluding natural gas)
"X"	Other Class II wells (not included in Type "D," "R," or "H")
Class III	Special process injection wells.
Type "G"	Solution mining well
"S"	Sulfur mining well by Frasch process
"U"	Uranium mining well (excluding solution mining of conventional mines)
"X"	Other Class III wells (not included in Type "G," "S," or "U")
Other Classes	Wells not included in classes above.
	Class V wells which may be permitted under §144.12
	Wells not currently classified as Class I, II, III, or V.

INSTRUCTIONS - Form 4 - Underground Injection Control (UIC) Permit Application

Form 4 must be completed by all owners or operators of Class I, II, and III injection wells and others who may be directed to apply for a UIC permit by the Director.

I. EPA I.D. NUMBER - Fill in your EPA Identification Number. If you do not have a number, leave blank.

II. FACILITY NAME AND ADDRESS - Name of well, well field or company and address.

III. OWNER/OPERATOR NAME AND ADDRESS - Name and address of owner/operator of well or well field.

IV. OWNERSHIP STATUS - Mark the appropriate box to indicate the type of ownership.

V. SIC CODES - List at least one and no more than four Standard Industrial Codes (SIC) that best describe the nature of the business in order of priority.

VI. WELL STATUS - Mark Box A if the well(s) were operating as injection wells on the effective date of the UIC Program for the State. Mark Box B if the well(s) existed on the effective date of the UIC Program for the State but were not utilized for injection. Box C should be marked if the application is for an underground injection project not constructed or not completed by the effective date of the UIC Program for the State.

VII. TYPE OF PERMIT - Mark "Individual" or "Area" to indicate the type of permit desired. Note that area permits are at the discretion of the Director and that wells covered by an area permit must be at one site, under the control of one person and do not inject hazardous waste. If an area permit is requested the number of wells to be included in the permit must be specified and the wells described and identified by location. If the area has a commonly used name, such as the "Jay Field", submit the name in the space provided. In the case of a project or field which crosses State lines, it may be possible to consider an area permit if EPA has jurisdiction in both States. Each such case will be considered individually, if the owner/operator elects to seek an area permit.

VIII. CLASS AND TYPE OF WELL - Enter in these two positions the Class and type of injection well for which a permit is requested. Use the most pertinent code selected from the list on the reverse side of Form 4. When selecting type X please explain in the space provided.

IX. LOCATION OF WELL - Enter the latitude and longitude of the existing or proposed well expressed in degrees, minutes, and seconds or the location by township, and range, and section, as required by 40 CFR 146. If an area permit is being requested, give the latitude and longitude of the approximate center of the area.

X. INDIAN LANDS - Place an "X" in the box if any part of the facility is located on Indian lands.

XI. ATTACHMENTS - Note that information requirements vary depending on the injection well class and status. Attachments for Class I, II, and III are described on pages 3-7 of this document and listed by Class on page 8. Place EPA ID number in the upper right hand corner of each page.

XII. CERTIFICATION - All permit applications (except Class II) must be signed by a responsible corporate officer for a corporation, by a general partner for a partnership, by the proprietor of a sole proprietorship, and by a principal executive or ranking elected official for a public agency. For Class II, the person described above should sign, or a representative duly authorized in writing.

Attachments to be submitted with permit application for Class I, II, III and other wells.

A. AREA OF REVIEW METHODS - Give the methods and, if appropriate, the calculations used to determine the size of the area of review (fixed radius or equation). The area of review shall be a fixed radius of 1/4 mile from the well bore unless the use of an equation is approved in advance by the Director.

B. MAPS OF WELLS/AREA AND AREA OF REVIEW - Submit a topographic map, extending one mile beyond the property boundaries, showing the injection well(s) or project area for which a permit is sought and the applicable area of review. The map must show all intake and discharge structures and all hazardous waste, treatment, storage, or disposal facilities. If the application is for an area permit, the map should show the distribution manifold (if applicable) applying injection fluid to all wells in the area, including all system monitoring points. Within the area of review, the map must show the following:

Class I

The number, or name, and location of all producing wells, injection wells, abandoned wells, dry holes, surface bodies of water, springs, mines (surface and subsurface), quarries, water wells and other pertinent surface features, including residences and roads, and faults, if known or suspected. Only information of public record is required to be included on this map;

Class II

In addition to requirements for Class I, include pertinent information known to the applicant. Requirement does not apply to existing Class II wells;

Class III

In addition to requirements for Class I, include public water systems and pertinent information known to the applicant.

C. CORRECTIVE ACTION PLAN AND WELL DATA - Submit a tabulation of data reasonably available from public records or otherwise known to the applicant on all wells within the area of review, including those on the map required in B, which penetrate the proposed injection zone.

Such data shall include the following:

Class I

A description of each well's type, construction, date drilled, location, depth, record of plugging and/or completion, and any additional information the Director may require. In the case of new injection wells, include the corrective action proposed to be taken by the applicant under 40 CFR 144.55.

Class II

In addition to requirements for Class I, in the case of Class II wells operating over the fracture pressure of the injection formation, all known wells within the area of review which penetrate formations affected by the increase in pressure. This requirement does not apply to existing Class II wells.

Class III

In addition to requirements for Class I, the corrective action proposed under 40 CFR 144.55 for all Class III wells.

D. MAPS AND CROSS SECTIONS OF USDW'S - Submit maps and cross sections indicating the vertical limits of all underground sources of drinking water within the area of review (both vertical and lateral limits for Class I), their position relative to the injection formation and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection. (Does not apply to Class II wells.)

E. NAME AND DEPTH OF USDW'S (CLASS II) - For Class II wells, submit geologic name, and depth to bottom of all underground sources of drinking water which may be affected by the injection.

F. MAPS AND CROSS SECTIONS OF GEOLOGIC STRUCTURE OF AREA - Submit maps and cross sections detailing the geologic structure of the local area (including the lithology of injection and confining intervals) and generalized maps and cross sections illustrating the regional geologic setting. (Does not apply to Class II wells.)

G. GEOLOGICAL DATA ON INJECTION AND CONFINING ZONES (CLASS II) - For Class II wells, submit appropriate geological data on the injection zone and confining zones including lithologic description, geological name, thickness, depth and fracture pressure.

H. OPERATING DATA - Submit the following proposed operating data for each well (including all those to be covered by area permits): (1) average and maximum daily rate and volume of the fluids to be injected; (2) average and maximum injection pressure; (3) nature of annulus fluid; (4) for Class I wells, source and analysis of the chemical, physical, radiological and biological characteristics, including density and corrosiveness, of injection fluids; (5) for Class II wells, source and analysis of the physical and chemical characteristics of the injection fluid; (6) for Class III wells, a qualitative analysis and ranges in concentrations of all constituents of injected fluids. If the information is proprietary, maximum concentrations only may be submitted, but all records must be retained.

I. FORMATION TESTING PROGRAM - Describe the proposed formation testing program. For Class I wells the program must be designed to obtain data on fluid pressure, temperature, fracture pressure, other physical, chemical, and radiological characteristics of the injection matrix and physical and chemical characteristics of the formation fluids.

For Class II wells the testing program must be designed to obtain data on fluid pressure, estimated fracture pressure, physical and chemical characteristics of the injection zone. (Does not apply to existing Class II wells or projects.)

For Class III wells the program must be designed to obtain data on fluid pressure, fracture pressure, and physical and chemical characteristics of the formation fluids if the formation is naturally water bearing. Only fracture pressure is required if the formation is not water bearing. (Does not apply to existing Class III wells or projects.)

J. STIMULATION PROGRAM - Outline any proposed stimulation program.

K. INJECTION PROCEDURES - Describe the proposed injection procedures including pump, surge, tank, etc.

L. CONSTRUCTION PROCEDURES - Discuss the construction procedures (according to §146.12(b) for Class I) to be utilized. This should include details of the casing and cementing program, logging procedures, deviation checks, and the drilling, testing and coring programs, and proposed annulus fluid. (Request and submission of justifying data must be made to use an alternative to a packer for Class I.)

M. CONSTRUCTION DETAILS - Submit schematic or other appropriate drawings of the surface and subsurface construction details of the well.

N. CHANGES IN INJECTED FLUID - Discuss expected changes in pressure, native fluid displacement, and direction of movement of injected fluid. (Class II and III wells only.)

O. PLANS FOR WELL FAILURES - Outline contingency plans (proposed plans, if any, for Class II) to cope with all shut-ins or well failures, so as to prevent migration of fluids into any USDW.

P. MONITORING PROGRAM - Discuss the planned monitoring program. This should be thorough, including maps showing the number and location of monitoring wells as appropriate and a discussion of monitoring devices, sampling frequency, and parameters measured. If a manifold monitoring program is utilized, pursuant to §146.23(b)(5), describe the program and compare it to individual well monitoring.

Q. PLUGGING AND ABANDONMENT PLAN - Submit a plan for plugging and abandonment of the well including: (1) describe the type, number, and placement (including the elevation of the top and bottom) of plugs to be used; (2) describe the type, grade, and quantity of cement to be used; and (3) describe the method to be used to place plugs, including the method used to place the well in a state of static equilibrium prior to placement of the plugs. Also for a Class III well that underlies or is in an exempted aquifer, demonstrate adequate protection of USDW's.

R. NECESSARY RESOURCES - Submit evidence such as a surety bond or financial statement to verify that the resources necessary to close, plug or abandon the well are available.

S. AQUIFER EXEMPTIONS - If an aquifer exemption is requested, submit data necessary to demonstrate that the aquifer meets the following criteria: (1) does not serve as a source of drinking water; (2) cannot now and will not in the future serve as a source of drinking water; and (3)

the TDS content of the ground water is more than 3,000 and less than 10,000 mg/l and is not reasonably expected to supply a public water system. Data to demonstrate that the aquifer is expected to be mineral or hydrocarbon producing, such as general description of the mining zone, analysis of the amenability of the mining zone to the proposed method, and time table for proposed development must also be included. For additional information on aquifer exemptions, see 40 CFR 144.7 and 146.04.

T. EXISTING EPA PERMITS - List program and permit number of any existing EPA permits, for example, NPDES, PSD, RCRA, etc.

U. DESCRIPTION OF BUSINESS - Give a brief description of the nature of the business.

Attachments to Permit Application

Class	Attachments
I	
new well	A, B, C, D, F, H - S, U
existing	A, B, C, D, F, H - U
II	
new well	A, B, C, E, G, H, M, O, R; optional - I, J, K, N, Q, P, U
existing	A, E, G, H, M, O, R - U; optional - J, K, N, O, P, Q
III	
new well	A, B, C, D, F, H, I, J, K, M - S, U
existing	A, B, C, D, F, H, J, K, M - U
Other Classes	To be specified by the permitting authority

Attachment 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Re: Information on Class V Injection Wells for Underground Injection Control Program of the Environmental Protection Agency (EPA)

To whom it may concern:

As required by EPA regulations [Title 40 of the Code of Federal Regulations (CFR), Section 144.26], owners and operators of all Class V injection wells in American Samoa, Arizona, California, Hawaii, Nevada, and the Trust Territories must submit information about these wells to the EPA by June 25, 1985.

A well is defined as a "bored, drilled or driven shaft, or dug hole, whose depth is greater than the largest surface dimension (40 CFR 146.3)." Class V wells include a diverse group of wells used for residential, municipal or industrial purposes. A more detailed list of the types of Class V wells is enclosed (see attachment A).

Please provide EPA, Region 9 with information regarding Class V wells within your jurisdiction or operation. Include information on all injection wells located in the states mentioned above. Questionnaire I should be completed for radioactive waste disposal wells, geothermal energy recovery wells, brine return flow wells, municipal and industrial disposal wells (other than those classified as Class I as defined in the enclosed attachment), air scrubbers waste disposal wells (except if injection is for enhanced recovery of oil and gas in California), water softener regeneration brine waste disposal wells (except if injection is for enhanced recovery of oil and gas in California), wells used in experimental technologies and solution mining. Questionnaire II should be completed for all other well types of Class V wells.

Please complete either or both of these questionnaires to the best of your ability and return the information in the self-addressed envelope by June 25, 1985. If you do not have any or know of any Class V wells, please note on the questionnaires that you have no or know of no Class V wells. Your cooperation in this effort will be greatly appreciated. This information could result in the prevention or improvement of a water quality problem in the ground water in your area. If you have any questions, please contact Jayne Carlin of my staff at (415) 974-7116.

Sincerely,

Pete Uribe, Chief
Underground Injection Control Section
Water Management Division

Enclosures

QUESTIONNAIRE I

1. Facility Name: _____

Facility Address: _____

(Include County) _____

Telephone Number: ( ) _____

Name of Legal Contact: _____

Address of Legal Contact: _____

_____

Name of Owner: _____

Address of Owner: _____

_____

If subsidiary, name of parent co.: _____

Address of parent company: _____

_____

2. Ownership: ____ Private ____ Public ____ State ____ Federal ____ Indian Lands

3. Provide general information about the well(s):

Name or Identification of the well	Exact Location of Well*	Type of Well**	Status of Well***

****

* Exact Location of Well by Latitude and longitude to the nearest second; or by Township, Range, Section, Quarter-Sections; or by street address if located at a private address.

** For assistance in determining type of well, see Attachment A - pages 2 and 3.

***Codes for Well Status:
UC = under construction
AC = active
TA = temporarily plugged (no longer used but not plugged)
PA = permanently plugged & abandoned and approved by state

4. Explain the construction features of the well(s):

Name or Identification of Well	Date of Completion of Well	Casing and Cementing Records	Total Depth of Well	Average and Maximum Injection Pressure at Well Head	Date of Last Mechanical Integrity Test*

5. List the nature and volume of the fluids injected into the well:

Name or Identification of Well	Description of Injected Fluids**	Identification and Depth of Formation into which well is injected	Average and Maximum Injection Rate

6. Are any of the following fluids injected into the well(s)? If so, what is the volume and frequency of the injected fluid?

Washdown:

Stormwater:

Spills:

7. Identify and discuss each location, purpose, frequency of use and depth of all disposal wells on the site:

_____

_____

_____

8. Name and Title of Preparer of Questionnaire _____

* Liquid and gas pressure tests, annulus pressure tests etc. which test for leaks in casing, tubing or packer or significant movement into an underground source of drinking water through vertical channels adjacent to injection well bore.

** Include in your answer the process or business that produces the fluid and the chemical constituents of the fluid.

QUESTIONNAIRE II

Facility Name: _____

Facility Address: _____

(Include County) _____

Telephone Number: ( ) _____

Name of Legal Contact: _____

Address of Legal Contact: _____

_____

Name of Owner: _____

Address of Owner: _____

_____

Ownership: ____ Private ____ Public ____ State ____ Federal ____ Indian Lands

Number of Well(s)	Type of Well(s)*	Location of Well(s)	Status of Well(s)**

Name and Title of Preparer of Questionnaire _____

****

* For assistance in determining type of well, see Attachment A - page 2 and 3.

**Codes for Well Status:
UC = under construction TA = temporarily abandoned (no longer used but not plugged)
AC = active PA = permanently plugged & abandoned and approved by State

ATTACHMENT A

Region 9 UIC Program Information Sheet

General Information about the Underground Injection Control Program

The Safe Drinking Water Act (SDWA) of 1974, as amended, requires the U.S. Environmental Protection Agency (EPA) to establish a program which provides for the safety of our nation's drinking water. One part of this program, Underground Injection Control (UIC), has been established to prevent contamination of underground sources of drinking water due to improper design, construction and operation of injection wells. Although not recognized, the injection of waste materials is a very common practice. For example, the oil and gas industry operates tens of thousands of wells nationwide which inject brine or brackish wastewater in the production of oil and gas. Other types of injection wells include hazardous waste disposal operations wells, industrial waste disposal wells, municipal disposal operations wells, and nuclear storage and disposal wells.

Underground Sources of Drinking Water

By definition, an Underground Source of Drinking Water (USDW) is an aquifer or a portion of an aquifer:

which supplies any public water system; or

which contains significant quantity of ground water to supply a public water system; and

currently supplies drinking water for human consumption; or

contains fewer than 10,000 mg/l total dissolved solids (TDS) and is not an exempted aquifer.

An aquifer is a geological formation that is capable of yielding a significant amount of water to a well or to a springs. An exempted aquifer is an aquifer that cannot now and will not in the future serve as a source of drinking water, as determined by EPA.

Well Classification

A well is defined as a bored, drilled or driven shaft or dug hole whose depth is greater than the largest surface dimension. There are five classes of injection wells which are regulated by the UIC program. A specific well classification is made by determining the type of fluid to be injected and the geologic area into which the fluid is to be injected. Injection well classes are summarized as follows:

Class I — Class I wells are municipal and industrial disposal wells (including wells used by generators of hazardous waste and owners of hazardous waste management facillities) which inject fluids below the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.

Class II	Class II wells are associated with oil and gas production or liquid hydrocarbon storage. These wells inject fluids which are brought to the surface for the enhanced recovery of oil and natural gas and for the storage of hydrocarbons.
Class III	Class III wells inject fluids for the extraction of minerals and are used in conjunction with solution mining of minerals.
Class IV	Class IV wells are used by generators of hazardous and radioactive wastes. These wells inject into a formation which within one quarter of a mile of the well contains an underground source of drinking water. Class IV wells are prohibited.
Class V	Class V wells are wells which do not meet the criteria listed for classes I through IV. Generally, wells covered under this classification inject non-hazardous fluids into or above formations that contain underground sources of drinking water. Class V wells include the following, but are not limited to these types of wells:

1. air conditioning return flow wells used to return to the supply aquifer the water used for heating or cooling in a heat pump (Questionnaire II);

2. cesspools including multiple dwelling, community or regional cesspools, or other devices that receive wastes which have an open bottom and sometimes have perforated sides. The UIC requirements do not apply to single family residential cesspools nor to non-residential cesspools which receive solely sanitary wastes and have the capacity to serve fewer than 20 persons a day (Questionnaire II);

3. cooling water return flow wells used to inject water previously used for cooling (Questionnaire II);

4. dry wells used for injection of wastes into a subsurface formation (Questionnaire II);

5. drainage wells used to drain surface fluid, primarily storm runoff, into a subsurface formation (Questionnaire II);

6. recharge wells used to replenish the water in an aquifer (Questionnaire II);

7. salt water intrusion barrier wells used to inject water into a fresh water aquifer to prevent the intrusion of of salt water in the fresh water (Questionnaire II);

8. sand backfill and other backfill wells used to inject a mixture of water and sand, mill tailings or other solids into mined out portions of subsurface mines regardless of whether or not it is a radioactive waste (Questionnaire II);

9. septic system wells used to inject the waste or effluent from a multiple dwelling, business establishment, community or regional business establishment septic tank. The UIC requirements do not apply to single family residential septic system wells, nor to non-residential septic system wells which are used solely for the disposal of sanitary wastes and have the capacity to serve fewer than 20 persons a day (Questionnaire II);

10. subsidence control wells (not used for the purpose of oil or natural gas production) used to inject fluids into a non-oil or gas producting zone to reduce or eliminate subsidence associated with the overdraft of fresh water (Questionnaire II);

11. radioactive waste disposal wells other than Class IV (Questionnaire I);

12. injection wells associated with the recovery of geothermal energy for heating, aquaculture, and production of electric power (Questionnaire I);

13. wells used for solution mining of conventional mines such as stopes leaching (Questionnaire I);

14. wells used to inject spent brine into the same formation from which it was withdrawn after extraction of halogens or their salts (Questionnaire I);

15. injection wells used in experimental technologies (Questionnaire I);

16. injection wells used for in situ recovery of lignite, coal, tar sands, and oil shale (Questionnaire II);

17. agricultural drainage wells (Questionnaire II);

18. air scrubber waste disposal wells (except if injection is for enhanced recovery of oil and gas in California); and

19. water softener regeneration brine waste disposal wells (except if injection is for enhanced recovery of oil and gas in California).

NONHYDROCARBON-PRODUCING ZONE INJECTION DATA

DIST.	FIELD	FORMATION & ZONE	TDS OF ZONE WATER PRIOR TO INJECTION	TDS OF INJECTED WATER	VOLUME INJECTED (Barrels)	INJECTI STARTEI
1	Belmont Offshore	Repetto	30,800			
1	Huntington Beach	Lakewood				
		Alpha 1	37,200			
		Alpha 2	12,500			
1	Sawtelle	Puente	25,500			
1	Seal Beach	Repetto	29,700			
		Recent Sands	30,200			
1	Wilmington	Gaspur	28,200			
1	"	River Gravels	30,800			
2	Ramona	Pico	5,000	15,300 ppm NaCl	1,793,000	6/51
2	South Tapo Canyon	Pico	1,900 ppm NaCl	600 ppm NaCl	1,903,000	1/48
2	Oat Mountain	Undiff.	4,800	23,800 ppm NaCl	91,000	4/56
2	Simi	Sespe	4,300	25,500 ppm NaCl	695,000	6/48
3	Guadalupe	Knoxville	30,500			
3	Lompoc	Lospe	119,000			
3	Lompoc	Knoxville	30,500			
3	Russell Ranch	Branch Canyon	13,000			
3	San Ardo	Santa Margarita	3,700	5,600	81,800,000	11/66
3	"	Monterey "D" Sand	4,600	5,600	13,795,000	7/59
3	"	Monterey "E" Sand	6,400	5,600	6,057,000	3/68
3	Santa Maria Valley	Lospe-Franciscan	119,000			
3	Monroe Swell	Santa Margarita	3,700 ppm NaCl	9,600	?	1981
3	Point Conception	Camino Cielo	26,200			
3	Guadalupe	Franciscan	30,500			
4	Bellevue	Etchegoin	26,500 (Analysis from adjacent field)			
4	Bellevue, West	Tulare	12,000*			
4	"	Etchegoin	26,500 (Analysis from adjacent field)			
4	Blackwell's Corner	Tumey	2,100 -2,600*	29,000 ppm NaCl	400,000	5/75
4	Buena Vista	Tulare	9,200	5,300-36,500	50,798,000	11/72
4	Cal Canal	Tulare-San Joaquin	Excess of 10,000*	22,000	537,000	5/79
4	Canfield Ranch	Etchegoin	≈12,800-26,500 (Analysis from adjacent ffelds)			

*"E" log calculation

17 MAY 1983

Attachment 5
Page 1 of 3

DIST.	FIELD	FORMATION & ZONE	TDS OF ZONE WATER PRIOR TO INJECTION	TDS OF INJECTED WATER	VOLUME INJECTED (Barrels)	INJECT STARTE
4	North Coles Levee	Tulare	12,900			
4	"	San Joaquin	40,000-45,600			
4	"	Etchegoin	30,200			
4	South Coles Levee	Tulare	12,000-13,300			
4	"	San Joaquin	12,000-16,900			
4	Greeley	Etchegoin	26,500			
4	Kern Bluff	Kern River	± 400- 900 (From Kern River Field)	600		
4	"	Vedder	± 7,800-16,100	" 11,700-213,000	551,500	7/80
4	Kern Front	Santa Margarita	2,300	1,100	4,099,000	3/80
4	Kern River	Chanac	238- 925	374- 865	1,071,000	9/75 6/77
4	"	Santa Margarita	600- 2,600	475- 16,200	154,994,000	9/73
4	"	Vedder	7,800-16,200		33,204,000	
4	Lakeside	San Joaquin	21,500			
4	Los Lobos	Tulare	33,300*			
4	Midway-Sunset	Alluvium	No water	3,600- 25,700		
4	Mount Poso	Walker	2,800*	830- 1,440	22,632,000	7/59
4	Mountain View	Kern River	4,660*	1,200- 3,800	3,681,000	9/75
4	Pleito	Chanac & Kern River	7,900-11,800	12,800-30,800	889,000	12/65
4	Poso Creek	Vedder	12,500			8/74
4	Rio Viejo	San Joaquin	21,000*			
4	Rosedale	Etchegoin	26,500 (Analysis from adjacent field)			
4	Round Mountain	Olcese	2,700	1,337- 1,965	29,797,000	7/74
4	"	Walker	1,930	1,600- 2,100	203,319,000	8/72
4	Seventh Standard	Etchegoin	17,100-30,000 (NaCl only)			
4	Strand	Etchegoin	8,600 (NaCl only)		1,195,000	7/62
4	"	San Joaquin	33,400	16,500-25,600 (NaCl only)		
4	Ten Section	San Joaquin	12,900			
5	Burrel	Santa Margarita	35,000 (Analysis from Helm field)			
5	"	Tulare-Kern River	20,500 (Analysis from S.E. Burrel field)			
5	Southeast Burrel	Tulare-Kern River	20,500			
5	Coalinga	Santa Margarita	8,244	3,100- 3,500	(145,000,000	2/63
5	"	Etchegoin-Jacalitos	2,650- 2,900	2,650-2,700	(	2/63
5	Gill Ranch Gas	Zilch	14,500			

"E" log calculation

DIST.	FIELD	FORMATION & ZONE	TDS OF ZONE WATER PRIOR TO INJECTION	TDS OF INJECTED WATER	VOLUME INJECTED (Barrels)	INJECT STARTE
5	Guijarral Hills	Etchegoin-Jacalitos	9,400	20,500	931,000	4/67
5	Helm	Santa Margarita	35,900		(143,000,000	
5	"	Tulare-Kern River	5,100-23,900	11,600-43,400	(	12/52
5	Jacalitos	Etchegoin-Jacalitos	33,749	5,500 (Cl only)	180,000	10/78
5	Kettleman North Dome	San Joaquin-Etchegoin	10,000	23,800-31,200	48,608,000	8/64
5	Raisin City	Pliocene	12,800-34,000			
5	"	Santa Margarita	35,000	(Analysis from Helm field)		
5	Riverdale	Pliocene	4,786-16,200		(72,626,000	7/57
5	"	Santa Margarita	35,900	(Analysis from Helm field)	(	
5	San Joaquin	Pliocene	17,100			
5	San Joaquin, Northwest	Basal McClure	50,000	18,500	Test well-no injection	
5	Turk Anticline	San Joaquin	3,700- 4,440	9,500- 9,800	466,000	11/76
6	Bunker Gas	Undiff.	1,200	11,000	388,000	1/75
6	Grimes Gas	Kione	16,800			
6	Grimes, West, Gas	Kione	34,000*			
6	La Honda (South Area)	Vaqueros	41,000			
6	Lathrop Gas	Starkey	15,400*			
6	River Break Gas	Capay	6,900*	7,000	93,000	7/75
6	Roberts Island Gas	Undiff.	18,000*			
6	Sutter Buttes Gas	Kione	2,500	4,600-23,000	644,000	7/77
6	Union Island Gas	Mokelumne River	5,000-6,000*	7,800	471,000	7/77
6	Wild Goose	Undiff.	2,800-5,000*	21,400	823,000	11/69

* "E" log calculation

17 MAY 1985

Attachment 6
Page 3 of 3

Attachment 2

Exempted 1425 Demonstration Aquifers

All oil and gas producing aquifers identified in Volumes I, II, and III of the California Oil and Gas Fields submitted in the 1425 Demonstration dated April 20, 1981 are exempted.

In addition, the following aquifers are also exempted.

DISTRICT	FIELD	FORMATION/ZONE
2	Ramona	Pico
2	Oat Mountain	Undiff.
2	South Tapo Canyon	Pico
2	Simi	Sespe
2	San Ardo	Santa Margarita
3	San Ardo	Monterey "D" Sand
3	San Ardo	Monterey "E" Sand
3	Monroe Swell	Santa Margarita
4	Blackwell's Corner	Tumey
4	Kern Bluff	Kern River
4	Kern Front	Santa Margarita
4	Kern River	Chanac
4	Kern River	Santa Margarita
4	Mount Poso	Walker
4	Round Mountain	Olcese
4	Round Mountain	Walker
4	Buena Vista	Tulare
4	Kern Bluff	Vedder
4	Kern River	Vedder*
4	Mountain View	Kern River
4	Pleito	Chanac
4	Pleito	Kern River
4	Poso Creek	Santa Margarita
5	Coalinga	Santa Margarita
5	Coalinga	Etchegoin-Jacalitos
5	Guijarral Hills	Etchegoin-Jacalitos*
5	Helm	Tulare-Kern River
5	Riverdale	Pliocene
5	Turk Anticline	San Joaquin
6	Sutter Buttes Gas	Kione*
6	Bunker Gas	Undiff.
6	Wild Goose	Undiff.

*Oil and/or gas producing

EXHIBIT 12

MACPHERSON OIL
COMPANY

August 14, 2014

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

Re: Macpherson Oil Company
Order Pursuant To California Water Code Section 13267

Dear Mr. Rodgers:

Yesterday, August 13, 2014, we received an Order Pursuant To California Water Code Section 13267 dated August 11, 2014 and issued by the Central Valley Regional Water Quality Control Board ("CVRWQCB") with respect to two water injection wells identified as API 02918114 and 02918119 (the "Order"). We want to alert you to the following.

Please note that the Order indicates that it was delivered by personal service and certified mail. However, there is no documentation indicating the date of service. As a result, the letter suggests by its date that delivery occurred three days ago, when in fact it occurred yesterday by Certified Mail. The Order contains some very short time deadlines to respond to the order. For example, the recipient is required to contact Dane Johnson of the CVRWQCB by today, August 14, to discuss a proposed work plan to comply with the Order. Although our representatives will contact Mr. Johnson today to discuss the Order, 24 hours is not sufficient time to consider the possible options that might be implemented, much less to have a meaningful conversation about them. Please correct your records to reflect the fact that the order was not delivered to the recipient until yesterday, August 13.

Second, please note that the Order was delivered to the wrong entity. Macpherson Oil Company is the operator of record with respect to the subject wells. Please direct future communications to Macpherson Oil Company.

Third, we wish to confirm that the Order requires only the collection and submission of data and information as described in the Order to the CVRWQCB. It does not contain an order to cease and desist injection pending collection of the information requested and therefore injection may continue in the interim. Please send written confirmation to Tim Lovley at Tim_Lovley@MacphersonOil.com. We do not intend to violate any order by the CVRWQCB.

Very truly yours,

Tim Lovley

cc: Steven R. Bohlen, State Oil and Gas Supervisor, Department of Conservation, DOGGR
File

POST OFFICE BOX 5368 BAKERSFIELD, CALIFORNIA 93388 TEL.661.393.3204 FAX.661.393.8065

MACPHERSON OIL
COMPANY

August 14, 2014

Clay Rodgers
Assistant Executive Officer
Central Valley Water Board
1685 E Street,
Fresno, CA 93706

Subject: Macpherson Oil Company, Request for Extension To Requirements in Order Pursuant to California Water Code Section 13267 dated 11August 2014 regarding API 02918119 (Malta 3).

Mr. Rodgers:

As required by the Central Valley Regional Water Quality Control Board (RWQCB) Order referenced above Macpherson Oil Company (MOC) is submitting this request for an extension to the well testing and information request required by the order issued by CVRWQCB on August 11, 2014 hereby referred to as the Order. Below is a status of preparation, explanation of this request, and a revised timeline on page 2 of this request for an extension to comply with the Order.

- As of this time, MOC has reached out to Dane Johnson at CVRWQCB and left a voice mail message requesting a return call.
- MOC received this order on August 13, 2014 at 1353 (1:53 PM). MOC is currently identifying available resources to assist in complying with the Order.

MOC proposes the revised schedule on page 2.

Sincerely,

Tim Lovley

I certify under penalty of the 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.

cc: Steven R. Bohlen, State Oil and Gas Supervisor, Department of Conservation, DOGGR
File

POST OFFICE BOX 5368 BAKERSFIELD, CALIFORNIA 93388 TEL.661.393.3204 FAX.661.393.8065

TASK for API 02918119 (Malta 3)	Scheduled Days	DATE
1. Contact Dane Johnson to discuss a proposed work plan		On or before August 21, 2014
2. Submit a work plan that adequately describes the procedures to collect a representative ground water sample from the injection zone(s) for each of the injection wells subject to this order.		On or before August 26, 2014
3. Submit a technical report that contains a list and location map of all water supply wells within one mile of each injection well of each injection well subject to this order.		On or before September 11, 2014
4. Submit a technical report that contains all available information for each identified water supply well noted page 3 item B. of the Order		On or before September 11, 2014
5. Submit all previously –obtained analytical data for fluid samples collected from any injection zones within one (1) mile of the injection wells subject to this order.		On or before September 11, 2014
6. If a representative sample cannot feasibly be collected from the injection zones as written on page 2 in the Order as item 1. Note: "If a representative sample cannot feasibly be collected from one or more of the injection zones for any injection wells subject to this Order within the required timeframe (e.g., due to constraints posed by the design of the injection well),…."		On or before September 3, 2014
7. Submit a technical report with the analyses of each of the ground water samples, in accordance with the water quality analysis and reporting requirements contained in Attachment A of this Order. See lines below for required time to process samples.	35	After the sample is retrieved
LABORATORY ANALYSIS		
Transport Groundwater sample to Certified Laboratory. If the sample arrives at the lab on a Friday the analytical work will begin the following Monday.	1	
Analysis, 25 calendar days	25	
Report/Table preparation	2	
Overnight delivery to the RWQCB and DOGGR	1	
TOAL # of DAYS: 35	34.35(35)	

MACPHERSON OIL
COMPANY

August 14, 2014

Clay Rodgers
Assistant Executive Officer
Central Valley Water Board
1685 E Street,
Fresno, CA 93706

Subject: Macpherson Oil Company, Request for Extension To Requirements in Order Pursuant to California Water Code Section 13267 dated 11August 2014 regarding API 02918114 (Bishop 6).

Mr. Rodgers:

As required by the Central Valley Regional Water Quality Control Board (RWQCB) Order referenced above Macpherson Oil Company (MOC) is submitting this request for an extension to the well testing and information request required by the order issued by CVRWQCB on August 11, 2014 hereby referred to as the Order. Below is a status of preparation, explanation of this request, and a revised timeline on page 2 of this request for an extension to comply with the Order.

- As of this time, MOC has reached out to Dane Johnson at CVRWQCB and left a voice mail message requesting a return call.
- MOC received this order on August 13, 2014 at 1353 (1:53 PM). MOC is currently identifying available resources to assist in complying with the Order.

MOC proposes the revised schedule on page 2.

Sincerely,

Tim Lovley

I certify under penalty of the 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.

cc: Steven R. Bohlen, State Oil and Gas Supervisor, Department of Conservation, DOGGR
File

POST OFFICE BOX 5368 BAKERSFIELD, CALIFORNIA 93388 TEL.661.393.3204 FAX.661.393.8065

TASK for API 02918114 (Bishop 6)	Scheduled Days	DATE
1. Contact Dane Johnson to discuss a proposed work plan		On or before August 20, 2014
2. Submit a work plan that adequately describes the procedures to collect a representative ground water sample from the injection zone(s) for each of the injection wells subject to this order.		On or before August 25, 2014
3. Submit a technical report that contains a list and location map of all water supply wells within one mile of each injection well of each injection well subject to this order.		On or before September 10, 2014
4. Submit a technical report that contains all available information for each identified water supply well noted page 3 item B. of the Order		On or before September 10, 2014
5. Submit all previously –obtained analytical data for fluid samples collected from any injection zones within one (1) mile of the injection wells subject to this order.		On or before September 10, 2014
6. If a representative sample cannot feasibly be collected from the injection zones as written on page 2 in the Order as item 1. Note: "If a representative sample cannot feasibly be collected from one or more of the injection zones for any injection wells subject to this Order within the required timeframe (e.g., due to constraints posed by the design of the injection well),...."		On or before August 29, 2014
7. Submit a technical report with the analyses of each of the ground water samples, in accordance with the water quality analysis and reporting requirements contained in Attachment A of this Order. See lines below for required time to process samples.	35	After the sample is retrieved
LABORATORY ANALYSIS		
Transport Groundwater sample to Certified Laboratory. If the sample arrives at the lab on a Friday the analytical work will begin the following Monday.	1	
Analysis, 25 calendar days	25	
Report/Table preparation	2	
Overnight delivery to the RWQCB and DOGGR	1	
TOAL # of DAYS: 35	34.35(35)	