



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

May 4, 2018

Kenneth A. Harris Jr.
State Oil and Gas Supervisor
Division of Oil, Gas, and Geothermal Resources
California Department of Conservation
801 K Street, MS 18-05
Sacramento, CA 95814-3530

Re: Aquifer Exemption Request for the Poso Creek Oil Field, Kern County, California

Dear Mr. Harris:

Based on a thorough review of the supporting documents submitted by the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources and the State Water Resources Control Board, the U.S. Environmental Protection Agency (EPA) hereby approves the aquifer exemption request for portions of the Basal Etchegoin Member of the Etchegoin Formation and the Chanac Formation in the Poso Creek Oil Field in Kern County, California.

The approved aquifer exemption boundaries and depths, along with EPA's analyses and rationale in support of the approval, are detailed in the enclosed Record of Decision, also available at: <https://www.epa.gov/pacific-southwest-media-center/epas-oversight-californias-underground-injection-control-uic-program>. In accordance with applicable regulations at 40 C.F.R. Parts 144, 145, and 146, we find that this aquifer exemption request is a non-substantial program revision, and that the requested formations meet federal exemption criteria:

- The portions of the formations proposed for exemption do not currently serve as a source of drinking water; and
- The portions of the formations proposed for exemption cannot now and will not in the future serve as a source of drinking water because they are commercially hydrocarbon-producing.

If you have any questions, please contact David Albright, Manager, Drinking Water Protection Section, at (415) 972-3971.

Sincerely,

A handwritten signature in black ink, appearing to read "Tomás Torres".

Tomás Torres
Director, Water Division

Enclosure: Aquifer Exemption Record of Decision for Poso Creek Oil Field

cc: Jonathan Bishop, Chief Deputy Director, State Water Resources Control Board

DESCRIPTION OF PROPOSED AQUIFER EXEMPTION

Aquifers to be Exempted: Portions of the Basal Etchegoin Member of the Etchegoin Formation and the Chanac Formation in the McVan Area and portions of the Basal Etchegoin Member of the Etchegoin Formation in the Premier & Enas Areas of the Poso Creek Oil Field.

Areal Extent of Aquifer Exemption: The areal extent of the aquifers proposed for exemption within the McVan Area and the Premier & Enas Areas are presented in the table below. DOGGR provided GIS shapefiles that delineate the AE boundaries, which are included in the administrative record for this ROD. Refer to Figures 2.1 through 2.3 for a depiction of the proposed exempt formations.

A breakdown of the proposed exempted area of the aquifers and the existing exempted areas of the Basal Etchegoin Member follows:

Aquifer	Proposed Area (acres)	Existing Area (acres)
Chanac Formation (McVan Area)	1,532	0
Basal Etchegoin Member (McVan Area)	1,243	288
Basal Etchegoin Member (Premier & Enas areas)	3,576	4,293

The lateral boundaries of the proposed exempt areas are defined by sealing faults, the previously exempted area of the Basal Etchegoin Member, and the extent of the oil within the formation.

Lithology, Total Dissolved Solids (TDS), Depth, Thickness, Porosity, and Permeability of the Aquifers: The following table presents the lithology, range of TDS levels, depth, and thickness, and average porosity and permeability information about the aquifers proposed for exemption.

<i>Aquifer</i>	Chanac Formation (McVan Area)	Basal Etchegoin Member (McVan Area)	Basal Etchegoin Member (Premier & Enas Areas)
<i>Lithology</i>	Medium to coarse-grained, massive unsorted sand with some pebbles.	Medium to coarse-grained, unsorted sands with some pebbles and thin intervening beds of claystone.	Fine- to coarse-grained, well-sorted shallow marine sand.
<i>TDS (mg/L)</i>	450 to 560 mg/L.	260 to 680 mg/L.	480 to 1,300 mg/L.
<i>Depth to Top</i>	Approximately 35 to -520 feet mean sea level (MSL), or 915 to 1,625 feet below ground surface (BGS).	Approximately 120 to -420 feet MSL, or 830 to 1,560 feet BGS.	Approximately -1,060 to -2,050 feet MSL, or 1,800 to 2,600 feet BGS.
<i>Thickness (feet)</i>	90 to 140 feet.	50 to 120 feet.	70 to 130 feet.

<i>Porosity and Permeability</i>	Porosity: approx. 31 to 41%. Permeability: approx. 500 to 10,000 millidarcies (mD).	Porosity approx. 31 to 41%. Permeability: approx. 500 to 8,000 mD.	Porosity: approx. 25 to 40%. Permeability: approx. 90 to 8,000 mD.
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Confining Zone(s): In the McVan Area, the Basal Etchegoin Member and Chanac Formation are confined above by the Macoma Claystone, and below by the Lower Chanac Claystone. In the Premier & Enas Areas, the Macoma Shale provides vertical confinement above the Basal Etchegoin Member, and an unnamed shale provides confinement below. In both areas of the Poso Creek Oil Field, lateral confinement is provided by faulting and operational controls that will contain the injected water within the exempted area. [Refer to Figures 3.1 through 3.6.]

BACKGROUND

On February 21, 2018, the EPA received a request from DOGGR for approval to exempt portions of the Basal Etchegoin Member and the Chanac Formation in the McVan Area of the Poso Creek Oil Field, and a portion of the Basal Etchegoin Member in the Premier & Enas Areas of the Poso Creek Oil Field, in Kern County, California. DOGGR reviewed the operator’s request and proposed this AE based on the criteria at 40 CFR §146.4(a): it does not currently serve as a source of drinking water; and at 40 CFR §146.4(b)(1): it cannot now and will not in the future serve as a source of drinking water because it is mineral, hydrocarbon, or geothermal energy-producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible. Subsequent to the EPA’s approval of the AE, the exempt formations would not be protected as “underground sources of drinking water” (USDWs) under the Safe Drinking Water Act (SDWA) and DOGGR would be authorized, subject to state regulatory requirements, to approve Class II injection into the identified formations.

The McVan Area of the Poso Creek Oil Field was discovered in 1932 and production from the Basal Etchegoin Member and the Chanac Formation began that year. By 1957, oil production averaged 40 barrels (bbls) of oil per day. In 1964, steam injection (steaming) was initiated, and daily oil production increased to 872 bbls/day. The next extensive steaming operations began in 1977, and by late 1983, oil production had reached approximately 1,700 bbls/day. Oil production then declined in the mid-1980s. In 2004, steaming activities were reinitiated, and by mid-2015, oil production had reached nearly 5,000 bbls/day. As of September 1, 2015, the McVan Area has produced a total of 19.81 million bbls of oil.

In the Premier & Enas Areas, the oil-bearing zones of the Basal Etchegoin Member have been producing oil since 1974. Since the 1930s, production in the Premier & Enas Areas of the Poso Creek Oil Field has totaled 16,449,358 bbls of oil.

BASIS FOR DECISION

Regulatory Criteria under which the AE is Requested and Approved

40 CFR § 146.4(a) It does not currently serve as a source of drinking water.

In their concurrence on this AE request, the State Water Resources Control Board (State Water Board) determined that the Basal Etchegoin Member and the Chanac Formation do not currently serve as sources of drinking water, and are not hydraulically connected to domestic or public water supply wells. This is based on an evaluation of information about water supply wells in the area, groundwater flow patterns, and confinement of groundwater flow. These reviews demonstrate that the aquifers proposed for exemption do not currently serve as sources of drinking water because there are no existing drinking water supply wells, public or private, that currently or in the future would draw water from the Basal Etchegoin Member or the Chanac Formation. In addition, the formations are vertically and laterally confined (i.e., separated) from other USDWs and no aquifers that serve as sources of drinking water are hydraulically connected to these formations. Further, within the State's water well search area (described more fully below), the Basal Etchegoin Member and the Chanac Formation are not currently sources of drinking water. The undifferentiated Kern River/Upper Etchegoin Formations (which serve as the shallow fresh water source in the area) are approximately 400 to more than 1,900 vertical feet above the top of the Basal Etchegoin Member (which lies above the Chanac Formation).

Water Supply Wells: DOGGR's AE request included information about wells in the area proposed for exemption to establish that no drinking water wells draw from the aquifers proposed for exemption.

McVan Area

In the McVan Area, the applicant searched well records to identify wells within a water supply well search area ("study area") that includes a one-mile buffer around the boundary of the proposed AE area. Well record searches of the Kern County Water Agency, Department of Water Resources (DWR) Water Data Library, and the U.S. Geological Survey's National Water Information System were performed. The applicant also reviewed water well driller's reports, a 2009 Phase 1 Environmental Assessment Report, and information supplied by landowners Linn Energy and Yurosek Farms. After completing the well search, the applicant also held follow-up discussions with landowners in the study area to supplement the database searches.

The water well survey identified records of 30 water wells. These include 13 domestic drinking water wells, 8 irrigation wells, 6 industrial or oil field operation wells, 1 municipal drinking water well, and 2 wells of other type. Most of the wells identified are in an area beyond the one-mile buffer around the proposed AE area. See Table 1.1. All but four of the 30 wells are screened in the undifferentiated Kern River/Upper Etchegoin Formations above the Macoma Clay (the upper confining layer) and are separated from the aquifers proposed for exemption by 60 to 1,400 vertical feet of sands and clays. The other four wells are irrigation wells that are not currently being used.

The nearest public water system well to the McVan Area is about 3.7 miles from the boundary of the proposed AE area, and is completed above the Macoma Claystone, with approximately 550 feet of vertical separation between the bottom of the well and the base of the Macoma Clay. None of the drinking water wells are located within the proposed exempt area, plus a radius of a one-mile buffer.

Premier & Enas Areas

In the Premier & Enas Areas, the applicant searched well records to identify wells within a study area that includes a one-mile buffer around the boundary of the proposed AE area. Well record searches of the DWR and Kern County Environmental Health (KCEH) were performed and cross-referenced using the GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) online database. The applicant verified this information with field investigations.

The water well search identified 97 wells, including: 35 domestic wells, 5 active public water system wells, 1 inactive public water system well, 7 industrial wells, 45 irrigation wells, and 4 wells of other type. (See Table 1.2.) Depth information was provided for all but one of the wells, an irrigation well. Almost all the wells are screened in the undifferentiated Kern River/Upper Etchegoin Formations and are separated from the top of the Basal Etchegoin Member by between 366 and 2,734 feet of clays and sands. (The one exception is an irrigation well that is screened in the Basal Etchegoin Member.) Cross sections in the AE request demonstrate that the irrigation well that is screened in the Basal Etchegoin Member is hydraulically isolated from the AE area by the fault that defines the eastern boundary of the area proposed for exemption. All the domestic drinking water wells are screened in the undifferentiated Kern River/Upper Etchegoin Formations, at least 458 feet above the top of the Basal Etchegoin Member, and the public drinking water system wells are screened between 1,644 and 1,925 feet above the top of the Basal Etchegoin Member in the undifferentiated Kern River/Upper Etchegoin Formations. The closest public water supply well is approximately 0.4 mile west of the area proposed for exemption.

Thus, DOGGR's well search investigation confirmed that there are no domestic or public drinking water supply wells that draw water from the Basal Etchegoin Member or the Chanac Formation, and that the formations proposed for exemption are not currently a source of drinking water.

Groundwater Flow Patterns: DOGGR evaluated available hydrogeologic information on the aquifers proposed for exemption, including depth to groundwater (based on the interpretation of geophysical logs) and comparisons of the volumes of fluids that are injected and produced in the field. Groundwater flow in both the McVan and Premier & Enas Areas of the Poso Creek Oil Field is driven by an inward pressure gradient caused by historic and existing production in the area. In the McVan Area, groundwater flow is controlled by recharge and pumping activities, and is assumed to be toward the producing wells. In the Premier & Enas Areas, groundwater flow in the proposed area is to the east and toward the producing wells, based on an evaluation of fluid level data in idle wells.

Confinement of the Formations to Groundwater Flow: The Poso Creek Oil Field consists of a series of rock layers dipping to the west (known as a "homocline"), cut by sealing faults that create barriers ("traps") to fluid and hydrocarbon migration within the productive areas. Vertical confinement is provided by impermeable clays and/or shales above and below the aquifers proposed for exemption, and lateral confinement is provided by faulting and operational controls. Specific information about confinement in each area of the oil field is provided below.

McVan Area

In the McVan Area of the Poso Creek Oil Field, the 60 to 100-foot thick Macoma Claystone provides confinement above the aquifers proposed for exemption. Core samples, the trapping of hydrocarbons, and differences in water quality above and below the zone provide evidence for the confining nature of the Macoma Claystone. The low-permeability Lower Chanac Claystone provides confinement below the aquifers proposed for exemption.

Lateral confinement in the McVan Area is provided by faults to the east, south, and west, and a pressure drop off to the north. See Figures 3.1 through 3.3.

- *To the east*, containment is provided by the Fitzhugh Fault and the East McVan Fault. Upward movement of the East McVan Fault has juxtaposed the formations to seal off the movement of fluids. The lack of oil in wells on the opposite sides of the faults, clay smear, geophysical (seismic) data, the fact that hydrocarbons have not migrated upward out of the reservoir units, and differences in water quality provide evidence that the faults do not allow fluids to migrate.
- *To the south and west*, the Southwest McVan Fault provides containment by juxtaposing the permeable Etchegoin and Chanac Formations with impermeable layers. Evidence for this is provided by clay smear along the fault, well data, and the results from geophysical (seismic) surveys.
- *To the north*, confinement is achieved by negative pressure that causes fluids to move inward toward the producing wells. This “pressure sink” results from hydrocarbon production activities within the McVan Area, where more fluids have been withdrawn (produced) from the formation than have been injected. Between February 1977 and September 2015, a total of 491 million bbls of oil and water have been produced, and a cumulative total of 117.35 million bbls of water and steam have been injected. This equals a total net withdrawal of 375.21 million bbls of fluid. Other evidence for the existence of this pressure sink includes pressure measurements in wells, geophysical logs, and the results of modeling.

Premier & Enas Areas

In the Premier & Enas Areas, upper confinement is provided by the Macoma Shale. This is the same stratigraphic formation as the Macoma Claystone that is present in the McVan Area, and it ranges from 40 to 170 feet thick. Evidence of the confining nature of the Macoma Shale includes sidewall core samples and the fact that it traps hydrocarbons within the oil field. Below the Basal Etchegoin Member, an unnamed shale that averages 15 feet in thickness provides lower confinement.

Lateral confinement to fluid migration is provided by faults to the north and east, the previously exempted area to the south, and a “pressure sink” to the west. See Figures 3.4 through 3.6.

- *To the north and east*, unnamed faults provide confinement. The faults are demonstrated to be sealing by the absence of oil on one side of the fault block, as seen in well logs. Additional evidence that the faults prevent movement of fluids between formations is the difference in water quality between the Basal Etchegoin Member and the Kern River

Formation, which are described in a supplemental report that was conducted at the request of the State Water Board.

- *To the south*, confinement is provided by the Basal Etchegoin Member that was previously exempted at the time DOGGR received primacy to implement the Class II UIC program.
- *To the west* of the Premier Area, confinement is provided by an inward pressure gradient caused by differences in the volumes of water injected versus the fluids produced from the field. (All of the Enas Area lies east of the Premier Area, and is therefore also confined by this pressure gradient.) The applicant provided cumulative production and injection data from the Premier Area showing a net cumulative fluid withdrawal in the Basal Etchegoin Member of 208,259,660 bbls. The inward pressure gradient was demonstrated by presenting 22 years of fluid level data to show that subsurface fluids within the AE area migrate from areas of high to low pressure, and toward the producing wells.

After reviewing information regarding the location and depth of the existing drinking water supply wells, groundwater flow within the Basal Etchegoin Member and the Chanac Formation, and the lateral and vertical confinement of the formations as described in the AE request, the EPA concludes that the Basal Etchegoin Member of the Etchegoin Formation and the Chanac Formation are not currently sources of drinking water and are not hydraulically connected to any domestic or public drinking water supply wells. Therefore, the EPA has determined that the aquifers proposed for exemption meet the criteria at 40 CFR § 146.4(a).

40 CFR § 146.4(b)(1) *It cannot now and will not in the future serve as a source of drinking water because it is mineral, hydrocarbon, or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.*

DOGGR provided information on hydrocarbon production in the areas proposed for exemption along with supporting documentation such as well logs which depict the presence of oil, historic production data, and the locations of current and historical producing wells, to demonstrate the presence of commercially producible quantities of oil in the Basal Etchegoin Member of the Etchegoin Formation and the Chanac Formation.

In the McVan Area, the AE request presents the interpretation of well logs for several wells that were used to estimate the thickness and extent of productive oil sands. These logs were correlated to core samples, and summarized in the AE request. DOGGR's AE request also includes maps that illustrate the presence of hydrocarbons in the Basal Etchegoin Member of the Etchegoin Formation and the Chanac Formation in the areas proposed for exemption. DOGGR's AE request also includes cumulative oil production data from the formations within the McVan Area. Well logs in the McVan Area indicate the Basal Etchegoin Member is saturated with hydrocarbons in the range of 20% to 94%, and that the Chanac Formation is saturated with hydrocarbons in the range of 20% to 89%. As of 2015, over 19.8 million bbls of oil have been produced from the Basal Etchegoin Member and the Chanac Formation in the McVan Area. (See Figure 4.)

In the Premier & Enas Areas, well logs indicate that the Basal Etchegoin Member is saturated with hydrocarbons, in the range of 45% to 75%, within the area proposed for exemption. Other evidence of oil production in the Basal Etchegoin Member includes historic production data, a geologic type log, and the information provided from conventional and sidewall core samples. The AE request also includes test results for core samples from 16 wells completed at various depths within the Basal Etchegoin Member—including permeability, porosity, and relative fluid saturation (oil vs. water) data—to support the demonstration of commercially producible quantities of oil within the area proposed for exemption. Since the 1930s, over 16.4 million bbls of oil have been produced from existing and historic wells in the Basal Etchegoin Member in the Premier & Enas Areas. (See Figure 5.)

Based on a review of information such as well logs, production data, and oil presence, the long history of oil production, and the implementation of enhanced recovery techniques such as steaming, the EPA has determined that the aquifers proposed for exemption meet the criteria at 40 CFR § 146(b)(1).

PUBLIC NOTICE AND COMMENT

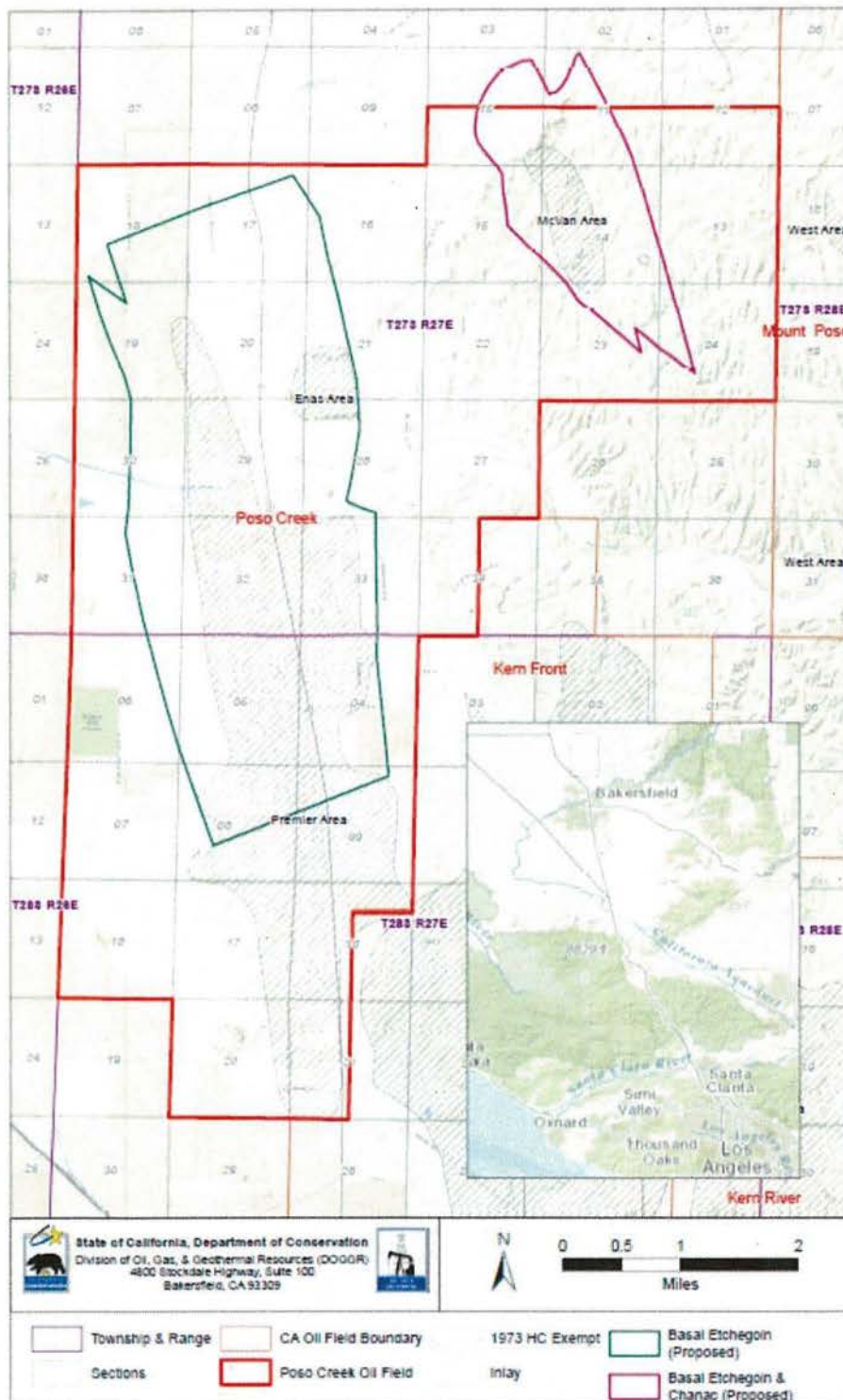
DOGGR provided public notice of this proposed AE on October 30, 2017, and held a public hearing on November 29, 2017 in Bakersfield, CA. The public comment period closed on November 29, 2017. DOGGR provided the EPA a summary of the public comments, copies of the public comments submitted, a transcript of the public hearing, and their responses to the written and oral comments. DOGGR received one written comment and six comments in the public hearing; all comments were in support of the aquifer exemption.

CONCLUSION AND DECISION

Based on a review of the entire record, including all written and oral comments submitted to DOGGR during its public comment process, the EPA finds that the exemption criteria at 40 CFR § 146.4(a) and § 146.4(b)(1) have been met, and the EPA approves the aquifer exemption request as a non-substantial program revision.

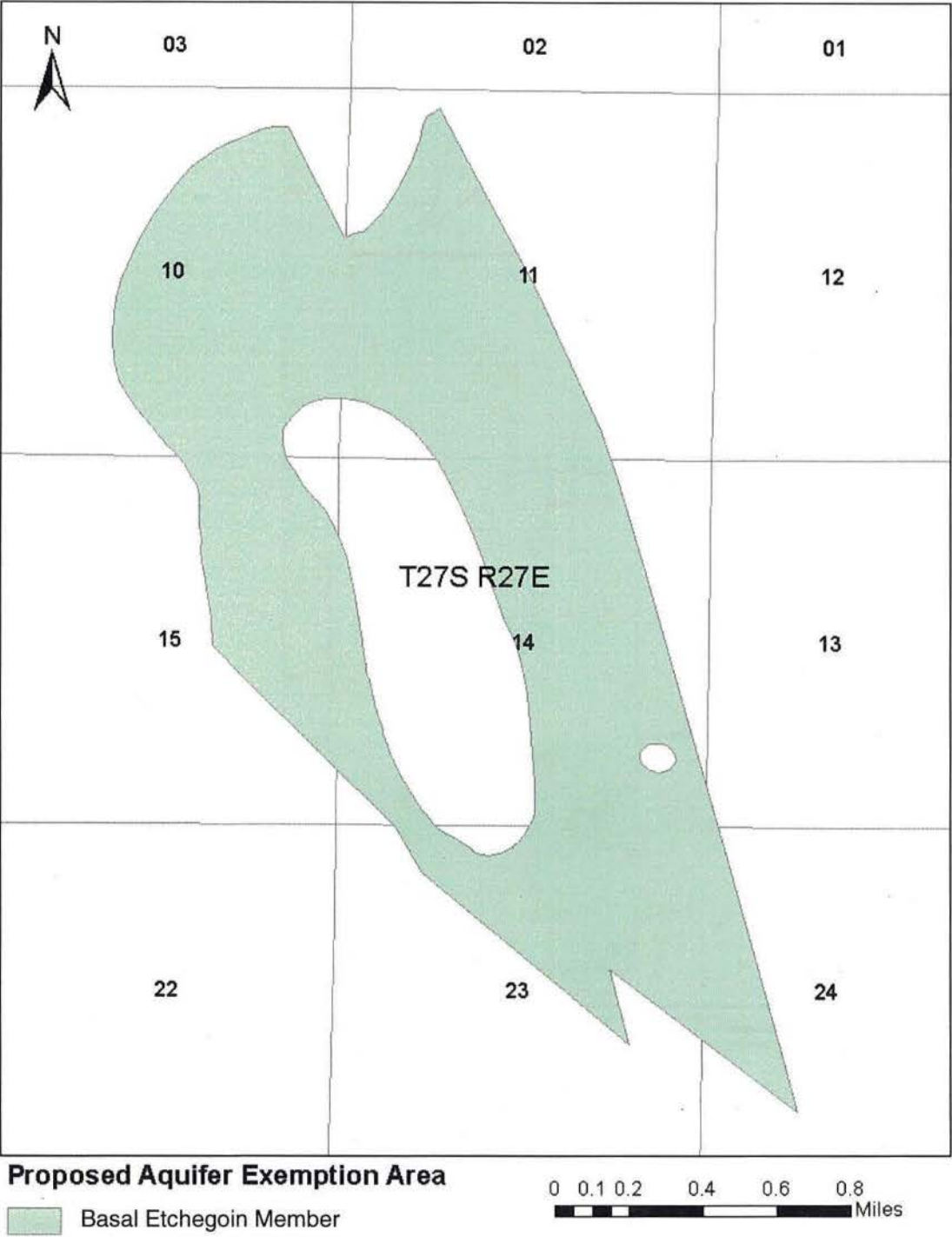
Effective Date: May 4, 2018

Figure 1: Location of the Poso Creek Oil Field, Kern County, California



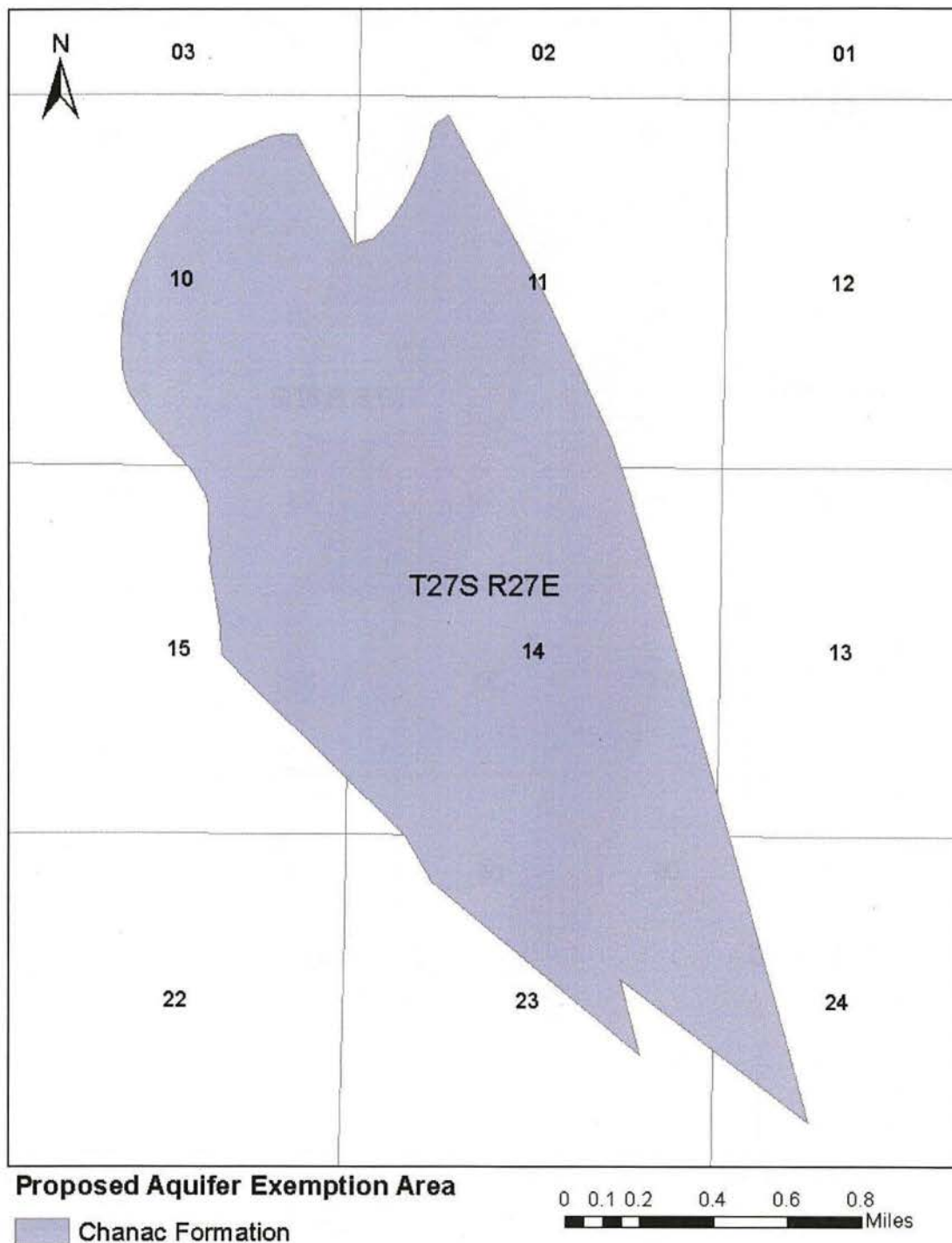
Source: Statement of Basis for DOGGR’s Aquifer Exemption Application for the Poso Creek Oil Field

Figure 2.1: Basal Etchegoin Member Aquifer Exemption Location Map, Poso Creek Oil Field – McVan Area, Kern County, California



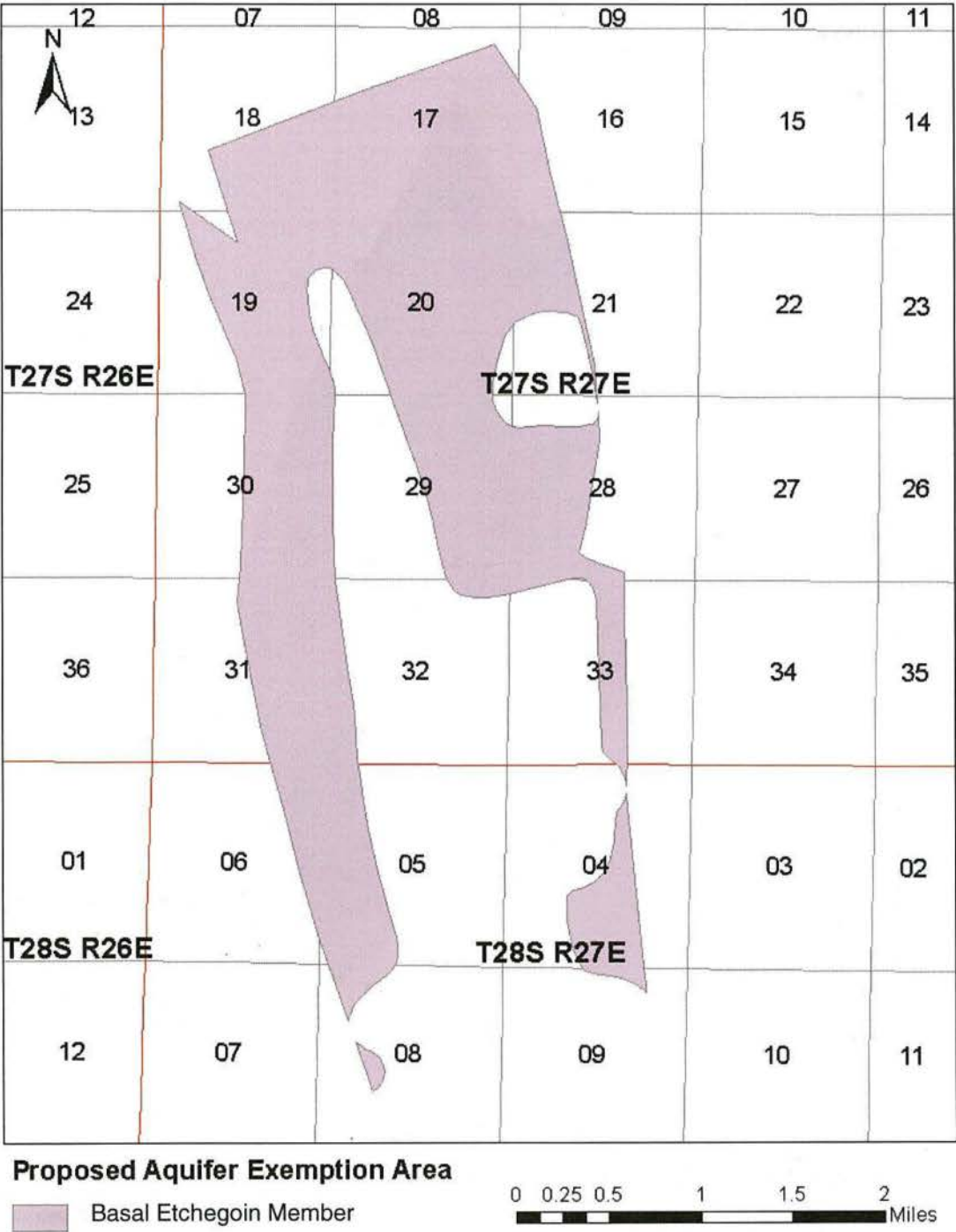
Source: DOGGR’s Aquifer Exemption Application for the Poso Creek Oil Field

Figure 2.2: Chanac Formation Aquifer Exemption Location Map, Poso Creek Oil Field – McVan Area, Kern County, California



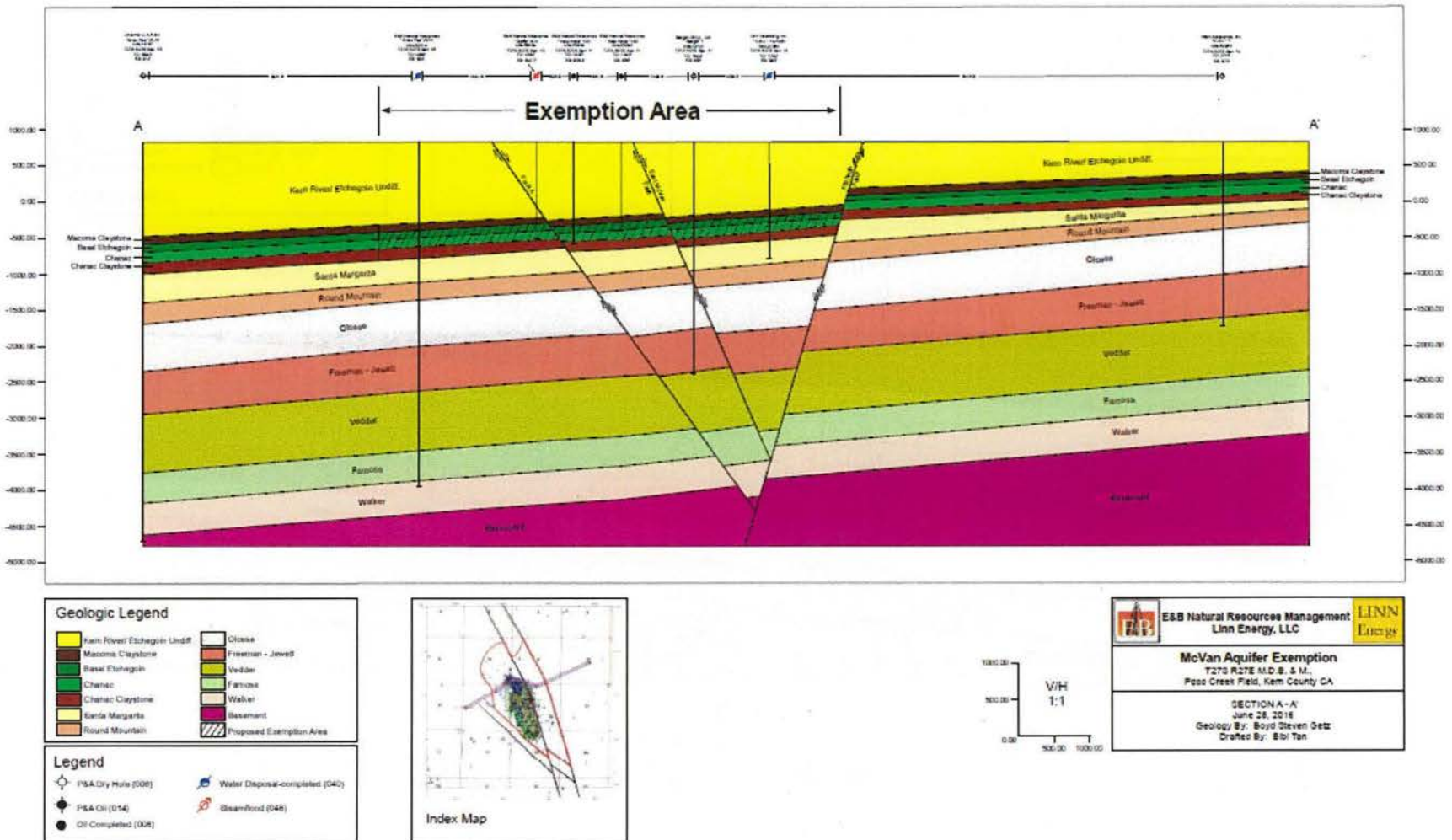
Source: DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field

Figure 2.3: Basal Etchegoin Member Aquifer Exemption Location Map, Poso Creek Oil Field – Premier & Enas Areas, Kern County, California



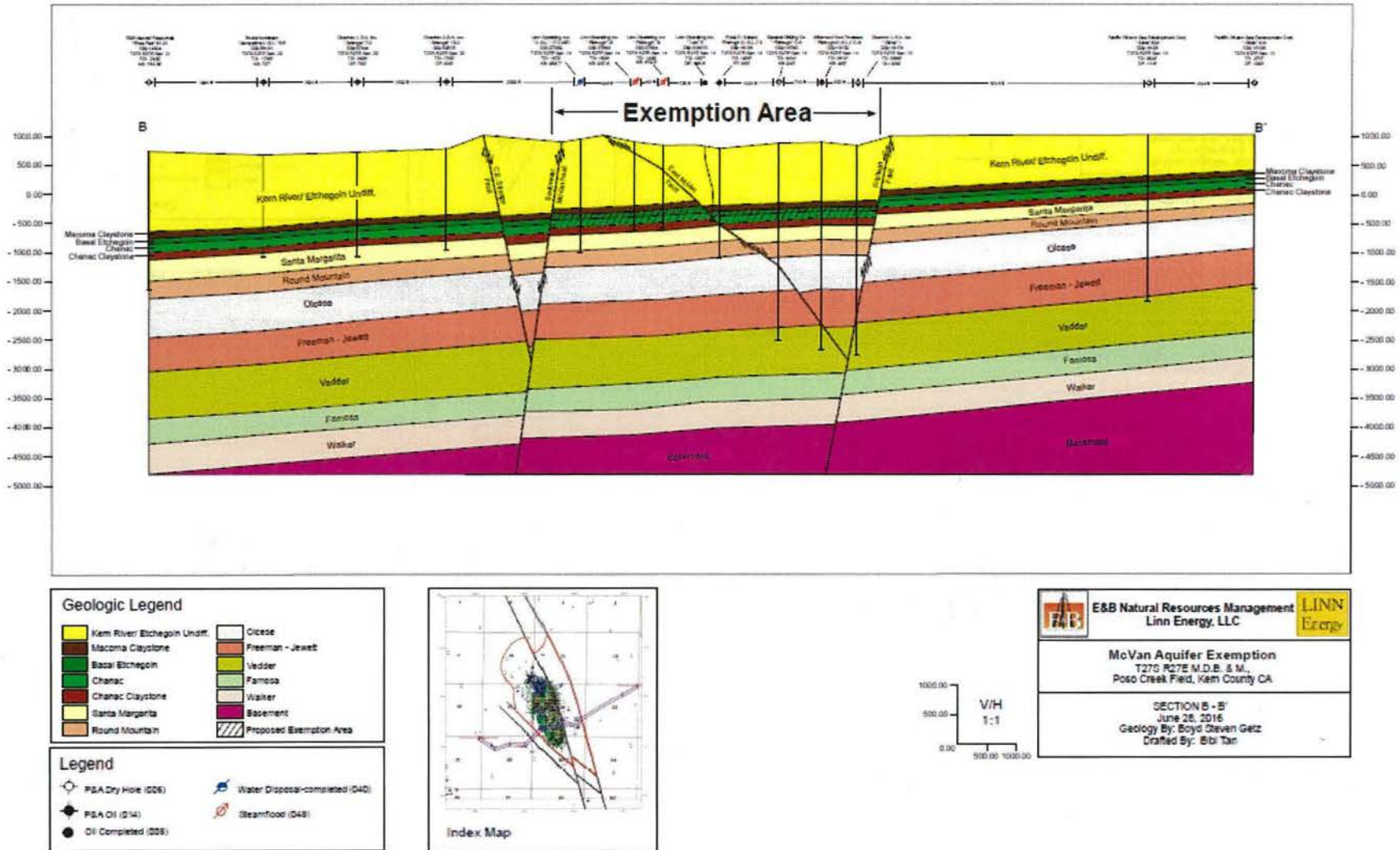
Source: DOGGR’s Aquifer Exemption Application for the Poso Creek Oil Field

**Figure 3.1: Cross Section A-A' across the Basal Etchegoin Member and Chanac Formation Aquifer Exemption Area
Poso Creek Oil Field – McVan Area, Kern County, California**



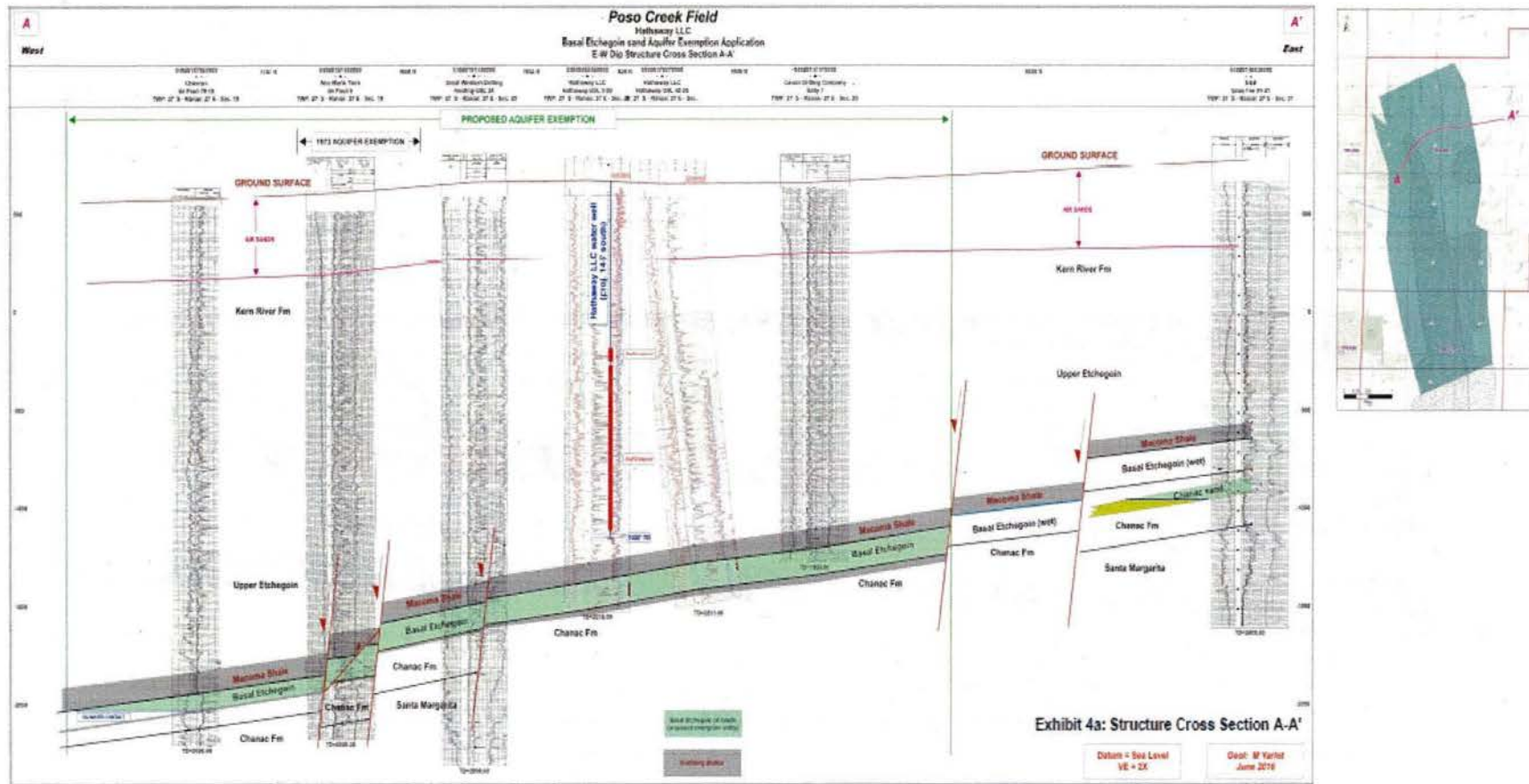
Source: Exhibit 3, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – McVan Area

**Figure 3.2: Cross Section B-B' across the Basal Etchegoin Member and Chanac Formation Aquifer Exemption Area
Poso Creek Oil Field – McVan Area, Kern County, California**



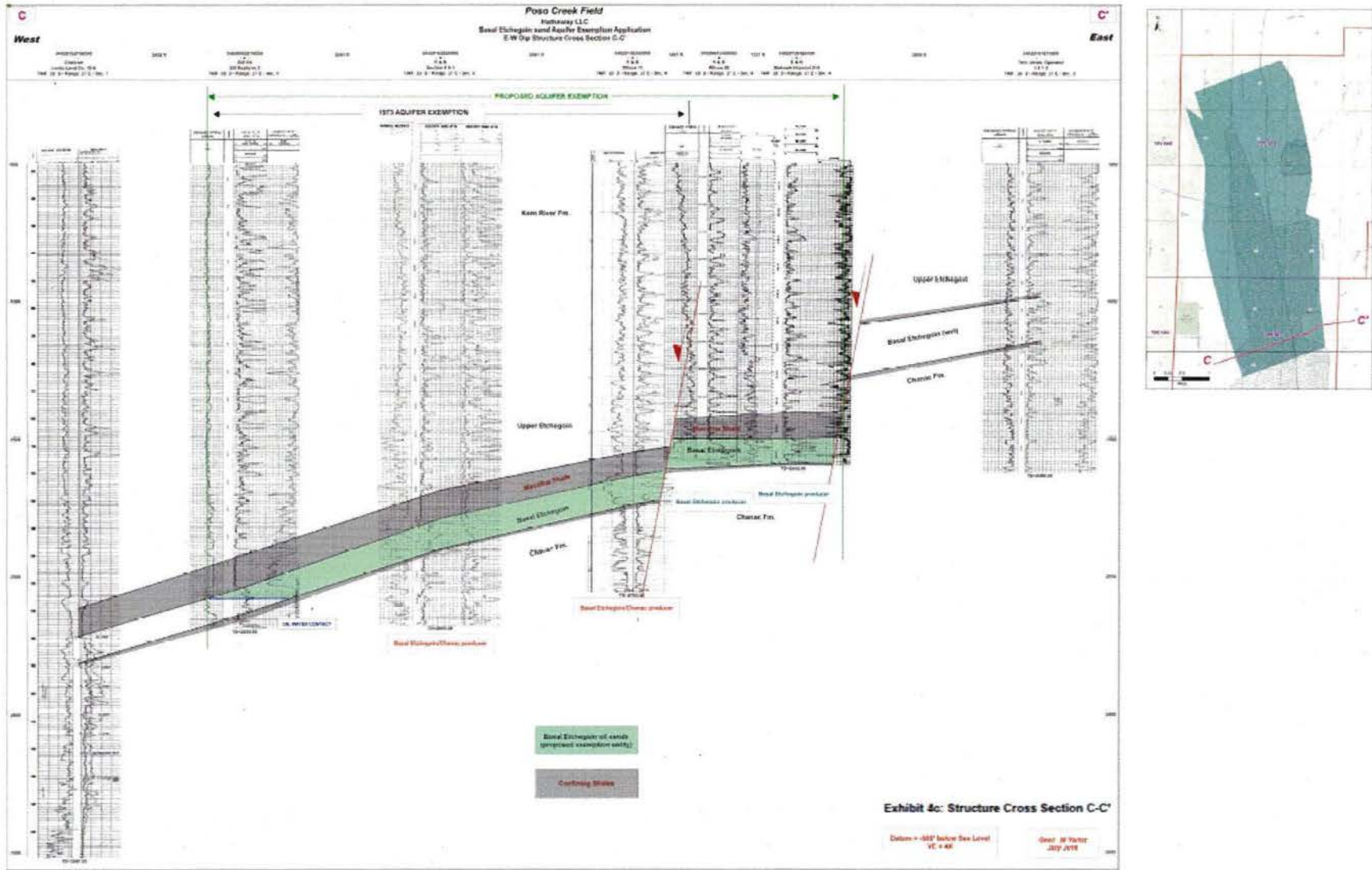
Source: Exhibit 4, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – McVan Area

**Figure 3.4: Cross Section A-A' across the Basal Etchegoin Member Aquifer Exemption Area
Poso Creek Oil Field – Premier & Enas Areas, Kern County, California**



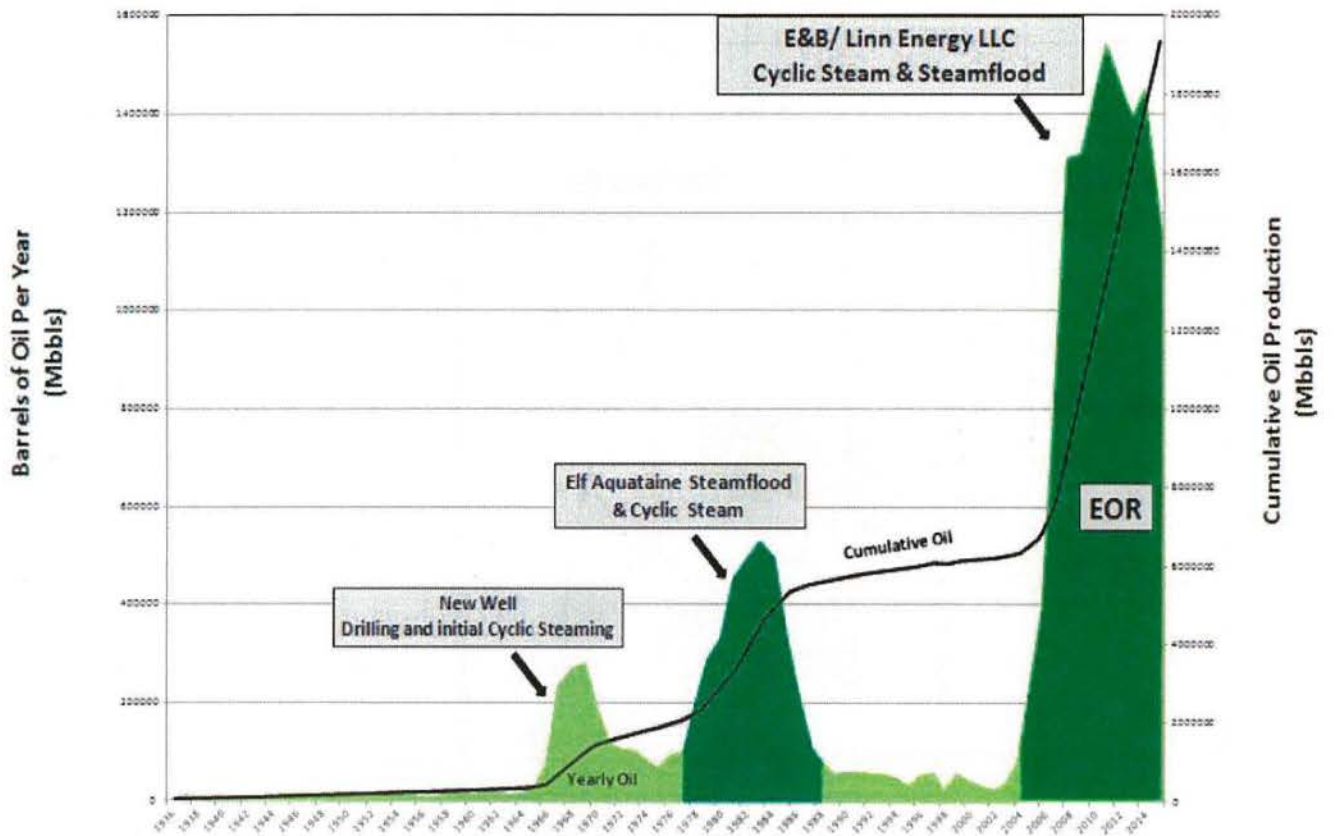
Source: Exhibit 4a, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – Premier & Enas Areas

**Figure 3.6: Cross Section C-C' across the Basal Etchegoin Member Aquifer Exemption Area
Poso Creek Oil Field – Premier & Enas Areas, Kern County, California**



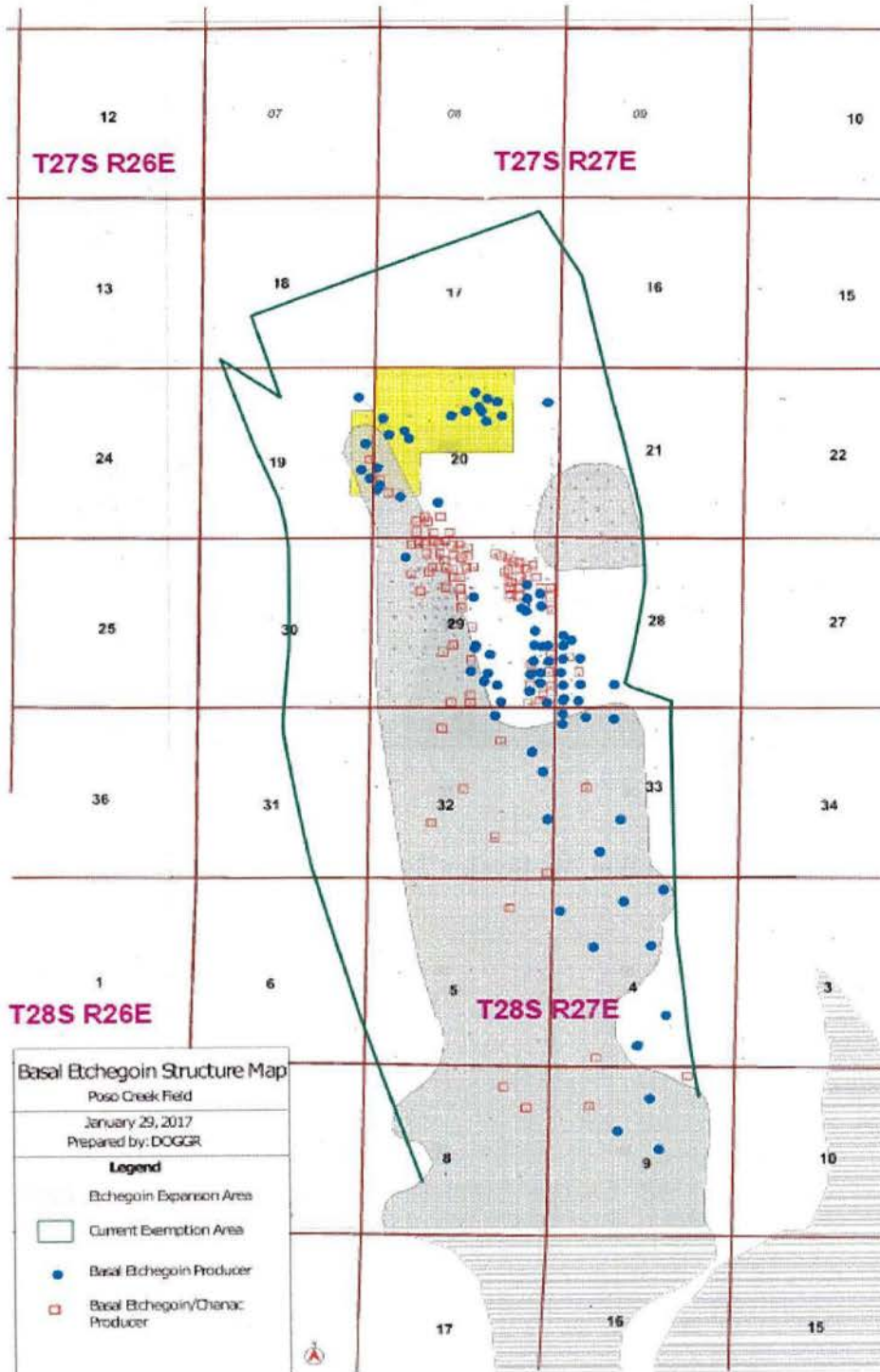
Source: Exhibit 4c, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – Premier & Enas Areas

Figure 4: Annual McVan Oil Production/Cumulative Oil Production



Source: Figure 1, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – McVan Area

Figure 5: Current and Historical Producing Wells – Premier & Enas Areas



Source: Exhibit 10, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – Premier & Enas Areas

Table 1.1: List of Water Supply Wells – McVan Area

Location	Well Number (As Labeled on Exhibit 1)	Date Drilled	Depth Drilled	Depth Completed (feet)	Water Depth (standing fluid level)	Screened Interval	Proposed Use	Zone	Estimated vertical separation TD to Base Macoma	Source
10-27S/27E	1	NA	NA	NA	622', 241' above sea level	NA	irrigation	NA	NA	Phase 1 ESA, EnviroTech, July 2009, & Dept. Water Resources
14-27S/27E	2	10/9/1979	979'	979'	506', 271' above sea level	574.6'-976'	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	98'	USGS, Well Driller's Report, Phase 1ESA, EnviroTech, July 2009, KCWA
14-27S/27E	3	1957	950'	950'	NA	NA	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	180'	Phase 1ESA, EnviroTech, July 2009, and Linn Energy
14-27S/27E	4	1957	1245' and plugged back to 746'	746'	NA	NA	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	374'	Phase 1ESA, EnviroTech, July 2009, and Linn Energy
28-27S/27E	5	1/22/2005	1000'	980'	320', 282' above sea level	740'-980'	Domestic	Kern River/Upper Etchegoin	550'	Well Driller's Report, KCWA
28-27S/27E	6	7/8/2003	1000'	970'	NA	770'-970'	Domestic	Kern River/Upper Etchegoin	600'	Dept. of Water Resources, Water Well Driller's Report, KCWA
28-27S/27E	7	11/5/1992	1000'	980'	390', 260' above sea level	780'-980'	Domestic	Kern River/Upper Etchegoin	650'	Dept. of Water Resources, Water Well Driller's Report, KCWA
28-27S/27E	8	NA	800'	800'	300'	600'-800'	Domestic	Kern River/Upper Etchegoin	864'	Dept. of Water Resources, Water Well Driller's Report, KCWA
28-27S/27E	9	4/20/2005	880'	880'	327'	520'-880'	Domestic	Kern River/Upper Etchegoin	920'	Dept. of Water Resources, Water Well Driller's Report, KCWA
28-27S/27E	10	6/22/1999	800'	800'	NA	500'-700'	Domestic	Kern River/Upper Etchegoin	1038'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
28-27S/27E	11	9/11/1990	600'	600'	NA	500'-600'	Domestic	Kern River/Upper Etchegoin	1136'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH

Location	Well Number (As Labeled on Exhibit 1)	Date Drilled	Depth Drilled	Depth Completed (feet)	Water Depth (standing fluid level)	Screened Interval	Proposed Use	Zone	Estimated vertical separation TD to Base Macoma	Source
28-27S/27E	12	4/30/1988	1420'	1420'	485', 15' below sea level	840'-1420'	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	645'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
28-27S/27E	13	7/23/1990	1600'	1600'	530', 50' above sea level	900'-1600'	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	588'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
28-27S/27E	14	7/29/1992	1000'	1000'	NA	600'-1000'	Domestic	Kern River/Upper Etchegoin	762'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
28-27S/27E	15	6/10/1996	720'	720'	NA	520'-720'	Domestic	Kern River/Upper Etchegoin	1434'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
27-27S/27E	16	8/23/1951	481'	477'	NA	327'-477'	Industrial/Oil Field Operations	Kern River/Upper Etchegoin	1200'	Dept. of Water Resources, Water Well Driller's Report, KCWA
29-27S/27E	17	NA	534'	534'	NA	200'-534'	Other	Kern River/Upper Etchegoin	1776'	Dept. of Water Resources, Water Well Driller's Report, KCWA KCEH
29-27S/27E	18	NA	615'	615'	NA	285'-615'	Other	Kern River/Upper Etchegoin	1210'	Water Well Driller's Report, KCWA
20-27S/27E	19	NA	1000'	1000'	630'	800'-1000'	Domestic	Kern River/Upper Etchegoin	>500'	Water Well Driller's Report, KCWA
20-27S/27E	20	7/24/2013	1820'	1790'	525'	850'-1790'	irrigation	Kern River/Upper Etchegoin	230'	Dept. of Water Resources, Water Well Driller's Report, KCWA
17-27S/27E	21	3/8/2012	1620'	1590'	585'	870'-1590'	Domestic	Kern River/Upper Etchegoin	+/-600'	Dept. of Water Resources, Water Well Driller's Report, KCWA
9-27S/27E	22	7/15/1974	1920'	1920'	NA	842'-1920'	irrigation	Kern River/Upper Etchegoin/Basal Etchegoin/Chanac	NA	Dept. of Water Resources, Water Well Driller's Report, KCWA
9-27S/27E	23	12/13/1971	1975'	1975'	NA	NA	irrigation	Kern River/Upper Etchegoin/Basal Etchegoin/Chanac/ Santa Margarita	NA	Yurosek Farms
8-27S/27E	24	2/3/2012	1421'	1420'	NA	720'-1420'	irrigation	Kern River/Upper Etchegoin	619'	Dept. of Water Resources, Water Well Driller's Report, KCWA

Table 1.1 (continued)

Location	Well Number (As Labeled on Exhibit 1)	Date Drilled	Depth Drilled	Depth Completed (feet)	Water Depth (standing fluid level)	Screened Interval	Proposed Use	Zone	Estimated vertical separation TD to Base Macoma	Source
8-27S/27E	25	12/13/1943	504'	504'	NA	396'-504'	Irrigation	Kern River/Upper Etchegoin	+/- 1400'	Water Well Driller's Report, KCWA
5-27S/27E	26	1/1/2009	1510'	1425'	586'	700'-1425'	Irrigation	Kern River/Upper Etchegoin	400'	Dept. of Water Resources, Water Well Driller's Report, KCWA
4-27S/27E	27	11/14/2003	1304'	1241'	NA	800'-1241'	Domestic	Kern River/Upper Etchegoin	60'	Dept. of Water Resources, Water Well Driller's Report, KCWA
3-27S/27E	28	9/5/1974	1900'	1900'	NA	793'-1900'	Irrigation	Kern River/ Upper Etchegoin/Basal Etchegoin/Chanac/ Santa Margarita	NA	Dept. of Water Resources, Water Well Driller's Report, KCWA
1-27S/27E	29	11/12/1992	610'	600'	450'	100'-600'	Domestic	Kern River/Upper Etchegoin	300'	Dept. of Water Resources, Water Well Driller's Report, KCWA
11-27S/26E	30	2/21/1974	785'	785'	NA	440'-785'	Public Water Systems	Kern River/Upper Etchegoin	1965'	Dept. of Water Resources, Water Well Driller's Report, KCWA

Source: Table 2, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – McVan Area

Table 1.2: List of Water Supply Wells – Premier & Enas Areas

Well ID	Map ID	Well Type	DWR Log Number	KCEH Log Number	Date Completed	Total Depth, TD (ft bgs)	Perforations		Ground Elevation (EL, ft)	Estimated Top Macoma Claystone (ft bgs)	Estimated Top Macoma Claystone (EL SS, ft)	Estimated Vertical Separation (TD - Top Macoma, ft)	Estimated Base Macoma Claystone / Top Basal Etchequin (ft bgs)	Estimated Base Macoma Claystone / Top Basal Etchequin (EL SS, ft)	Estimated Vertical Separation (TD - Base Macoma, ft)	Formation of Water Well Completion
							From (ft bgs)	To (ft bgs)								
T 27S, R 27E, Sec 5-1	1	Irrigation	c0086630	WP00110349	11/15/2008	1,520	700	1500	764	1,890	-1,126	370	2,080	-1,316	560	KR-UE, U
T 27S, R 27E, Sec 8-1	2	Irrigation	-	-	-	504	-	-	761	1,845	-1,084	1,341	2,050	-1,289	1,546	KR-UE, U
T 27S, R 27E, Sec 8-2	3	Irrigation	e0146233	-	2/3/2012	1,421	720	1420	725	1,875	-1,150	454	2,130	-1,405	709	KR-UE, U
T 27S, R 27E, Sec 9-1	4	Irrigation	99918	-	7/5/1974	1,920	842	1920	826	1,744	-918	-176	1,813	-987	-107	KR-UE, U, BE
T 27S, R 27E, Sec 17-1	5	Domestic	e0173339	WP13755	3/8/2013	1,620	870	1600	741	2,003	-1,262	383	2,126	-1,385	506	KR-UE, U
T 27S, R 27E, Sec 18-1	6	Irrigation	116493	-	6/17/1965	1,830	550	1830	646	2,220	-1,574	390	2,500	-1,854	670	KR-UE, U
T 27S, R 27E, Sec 19-1	7	Irrigation	411890	WP0003678	3/16/1993	1,414	429	1388	600	2,220	-1,620	806	2,500	-1,900	1,088	KR-UE, U
T 27S, R 27E, Sec 19-2	8	Irrigation	518095	WP0005262	11/17/1997	1,500	700	1500	571	2,220	-1,649	720	2,500	-1,929	1,000	KR-UE, U
T 27S, R 27E, Sec 19-3	9	Irrigation	085800	-	5/5/1981	1,802	350	1800	830	2,220	-1,620	418	2,500	-1,900	698	KR-UE, U
T 27S, R 27E, Sec 19-4	10	Irrigation	085791	-	3/3/1981	900	260	900	571	2,220	-1,649	1,320	2,500	-1,929	1,600	KR-UE, U
T 27S, R 27E, Sec 20-1	11	Irrigation	e0184989	-	7/24/2013	1,820	850	1780	686	1,930	-1,244	110	2,186	-1,500	366	KR-UE, U
T 27S, R 27E, Sec 20-2	12	Domestic	-	EH 2328	8/9/2005	1,000	800	1000	665	1,930	-1,265	930	2,165	-1,500	1,165	KR-UE, U
T 27S, R 27E, Sec 27-1	13	Industrial	-	-	-	463	327	477	561	1,380	-819	697	1,493	-932	1,010	KR-UE, U
T 27S, R 27E, Sec 28-1	14	Domestic	381249	WP0003596	11/19/1992	1,000	780	980	630	1,580	-950	580	1,665	-1,035	665	KR-UE, U
T 27S, R 27E, Sec 28-2	15	Domestic	e024388	WP0008064	4/20/2005	880	520	880	571	1,676	-1,105	786	1,776	-1,205	896	KR-UE, U
T 27S, R 27E, Sec 28-3	16	Domestic	1095260	WP0008162	1/22/2005	1,000	740	980	604	1,475	-871	475	1,564	-960	564	KR-UE, U
T 27S, R 27E, Sec 28-4	17	Domestic	804332	WP0007327	7/8/2003	1,000	770	970	607	1,522	-915	522	1,602	-995	602	KR-UE, U
T 27S, R 27E, Sec 28-5	18	Domestic	749010	WP0006649	9/18/2001	800	600	800	531	1,566	-1,035	766	1,668	-1,135	866	KR-UE, U
T 27S, R 27E, Sec 28-6	19	Domestic	-	WP0005326	6/22/1999	800	500	700	615	1,735	-1,120	935	1,838	-1,223	1,038	KR-UE, U
T 27S, R 27E, Sec 28-7	20	Domestic	-	WP0001933	9/11/1990	600	500	600	586	1,596	-1,010	996	1,736	-1,150	1,136	KR-UE, U
T 27S, R 27E, Sec 28-8	21	Industrial	156902	WP0001437	4/30/1988	1,420	840	1420	570	1,935	-1,365	515	2,065	-1,495	645	KR-UE, U
T 27S, R 27E, Sec 29-9	22	Industrial	156901	WP0001438	7/23/1990	1,500	900	1600	618	2,088	-1,470	488	2,188	-1,570	588	KR-UE, U
T 27S, R 27E, Sec 28-10	23	Domestic	-	WP0003333	7/29/1982	1,000	600	1000	582	1,662	-1,080	662	1,762	-1,180	762	KR-UE, U
T 27S, R 27E, Sec 28-11	24	Domestic	541695	WP0004653	6/10/1996	720	520	720	584	2,074	-1,490	1,354	2,154	-1,570	1,434	KR-UE, U
T 27S, R 27E, Sec 29-1	25	Other	-	-	-	615	285	615	522	1,980	-1,458	1,365	2,087	-1,565	1,472	KR-UE, U
T 27S, R 27E, Sec 29-2	26	Other	-	-	-	534	220	534	544	2,250	-1,706	1,716	2,300	-1,756	1,766	KR-UE, U
T 27S, R 27E, Sec 30-1	27	Domestic	71046	WP0001768	1/20/1989	1,300	900	1300	558	2,400	-1,842	1,100	2,600	-1,950	1,300	KR-UE, U
T 27S, R 27E, Sec 30-2	28	Domestic	-	-	-	957	-	-	528	2,650	-2,122	1,893	2,940	-2,412	1,983	KR-UE, U
T 27S, R 27E, Sec 30-3	29	Irrigation	81936	-	8/22/1963	1,231	381	1231	626	2,340	-1,714	1,109	2,546	-1,900	1,315	KR-UE, U
T 27S, R 27E, Sec 30-4	30	Domestic	e0066628	-	11/15/2008	1,520	700	1500	525	2,650	-2,125	1,130	2,940	-2,415	1,420	KR-UE, U
T 27S, R 27E, Sec 30-5	31	Irrigation	E0227536	-	7/25/2014	1,535	1060	1520	646	2,340	-1,694	805	2,546	-1,900	1,011	KR-UE, U
T 27S, R 27E, Sec 31-1	32	Domestic	749033	WP0007020	11/19/2002	970	790	970	657	2,400	-1,743	1,430	2,600	-1,950	1,630	KR-UE, U

Table 1.2 (continued)

Well ID	Map ID	Well Type	DWA Log Number	KCEH Log Number	Date Completed	Total Depth, TD (ft bgs)	Perforations		Ground Elevation (EL, ft)	Estimated Top Macoma Claystone (ft bgs)	Estimated Top Macoma Claystone (EL SS, ft)	Estimated Vertical Separation (TD - Top Macoma, ft)	Estimated Base Macoma Claystone / Top Basal Etchegoin (ft bgs)	Estimated Base Macoma Claystone / Top Basal Etchegoin (EL SS, ft)	Estimated Vertical Separation (TD - Base Macoma, ft)	Formation of Water Well Completion
							From (ft bgs)	To (ft bgs)								
T 27S, R 27E, Sec 32-1	33	Industrial	118616		7/15/1968	950	600	950	656	2,350	-1,694	1,400	2,600	-1,944	1,650	KR-UE, U
T 27S, R 27E, Sec 34-1	34	Domestic	278659	WP0003611	12/2/1992	750	600	750	769	1,530	-761	760	1,569	-800	819	KR-UE, U
T 27S, R 27E, Sec 34-2	35	Domestic	458518	WP0004067	12/8/1983	760	620	750	688	1,105	-417	345	1,218	-530	458	KR-UE, U
T 27S, R 27E, Sec 34-3	36	Domestic	780445	WP0007181	8/29/2003	710	800	700	747	1,330	-583	620	1,455	-708	745	KR-UE, U
T 27S, R 27E, Sec 34-4	37	Irrigation	26448		3/30/1968	911	161	911	836	1,570	-734	659	1,660	-824	749	KR-UE, U
T 27S, R 27E, Sec 34-5	38	Domestic	499693	WP0005781	10/3/1999	800	600	800	800	1,480	-680	680	1,553	-763	763	KR-UE, U
T 27S, R 27E, Sec 34-5	39	Domestic		WP0007693	5/15/2004	800	660	800	712	1,140	-428	340	1,287	-575	487	KR-UE, U
T 27S, R 27E, Sec 34-7	40	Domestic		WP0011675	5/19/2009	1,000	800	1000	978	1,593	-715	593	1,673	-795	673	KR-UE, U
T 27S, R 27E, Sec 34-8	41	Domestic	743795	WP0007112	2/10/2003	850	650	850	827	1,507	-680	657	1,587	-760	737	KR-UE, U
T 27S, R 27E, Sec 34-9	42	Domestic	499658	WP0004791	3/25/1996	800	500	800	800	1,460	-660	860	1,540	-740	740	KR-UE, U
T 27S, R 27E, Sec 34-10	43	Domestic		WP0005045	2/27/1997	950	650	900	870	1,610	-740	660	1,690	-820	740	KR-UE, U
T 27S, R 27E, Sec 34-11	44	Domestic		WP0005382	1/4/2001	700	600	700	783	1,403	-620	703	1,483	-700	783	KR-UE, U
T 27S, R 26E, Sec 11-1	45	Public Water System	87611		2/21/1974	785	440	785	634	2,450	-1,816	1,665	2,710	-2,076	1,925	KR-UE, U
T 27S, R 26E, Sec 12-1	46	Irrigation	-		9/25/1954	1,230	830	1230	682	2,140	-1,458	910	2,420	-1,738	1,190	KR-UE, U
T 27S, R 26E, Sec 13-1	47	Irrigation	40538		4/12/1978	1,850	1006	1850	626	2,650	-2,024	800	2,962	-2,336	1,112	KR-UE, U
T 27S, R 26E, Sec 13-2	48	Irrigation	E0182468		5/31/2013	1,700	890	1650	594	2,750	-2,156	1,050	3,062	-2,468	1,362	KR-UE, U
T 27S, R 26E, Sec 13-3	49	Irrigation	E0247946		12/19/2014	1,520	680	1480	656	2,200	-1,544	680	2,500	-1,844	980	KR-UE, U
T 27S, R 26E, Sec 24-1	50	Irrigation	48320		3/30/1959	1,200	510	1200	664	2,750	-2,186	1,550	3,100	-2,536	1,900	KR-UE, U
T 27S, R 26E, Sec 24-2	51	Irrigation	E0190018		8/1/2013	1,720	870	1690	564	2,780	-2,216	1,060	3,100	-2,536	1,380	KR-UE, U
T 27S, R 26E, Sec 25-1	52	Irrigation	32112		3/4/1955	1,200	450	1200	590	2,770	-2,180	1,570	2,790	-2,200	1,590	KR-UE, U
T 27S, R 26E, Sec 25-2	53	Irrigation	116324		12/31/1964	1,236	402	1236	535	2,750	-2,215	1,514	3,100	-2,200	1,864	KR-UE, U
T 27S, R 26E, Sec 25-3	54	Irrigation	943146	WP0010442	9/26/2007	1,071		1071	525	2,650	-2,125	1,579	2,940	-2,200	1,669	KR-UE, U
T 27S, R 26E, Sec 25-4	55	Irrigation	E0078980	WP0011476	12/12/2008	1,020	299	1000	581	2,650	-2,069	1,630	2,940	-2,200	1,920	KR-UE, U
T 27S, R 26E, Sec 35-1	56	Irrigation			10/26/1944	1,520	394	1490	548	3,648	-3,100	2,128	3,648	-3,300	2,328	KR-UE, U
T 27S, R 26E, Sec 36-1	57	Irrigation	e0096483	WP0011798	2/3/2008	1,480	640	1460	604	3,354	-2,750	1,874	3,504	-2,900	2,024	KR-UE, U
T 28S, R 26E, Sec 1-1	58	Irrigation	24314		2/4/1972	1,400	579	1400	544	3,294	-2,750	1,894	3,494	-2,950	2,094	KR-UE, U
T 28S, R 26E, Sec 1-2	59	Irrigation	-		8/15/1944	1,000			584	3,584	-3,000	2,584	3,734	-3,150	2,734	KR-UE, U
T 28S, R 26E, Sec 1-3	60	Irrigation	-		2/14/1952	1,428	744	1428	541	3,591	-3,050	2,163	3,741	-3,200	2,313	KR-UE, U
T 28S, R 26E, Sec 1-4	61	Irrigation	-		3/19/1952	990	480	965	525	3,325	-2,800	2,335	3,525	-3,000	2,535	KR-UE, U
T 28S, R 26E, Sec 12-1	62	Irrigation	99939		8/25/1975	1,100	500	1100	528	2,878	-2,350	1,778	3,028	-2,500	1,928	KR-UE, U
T 28S, R 26E, Sec 12-2	63	Irrigation	-		-	1,420	823	1420	515	2,965	-2,450	1,545	3,115	-2,600	1,695	KR-UE, U

Table 1.2 (continued)

Well ID	Map ID	Well Type	DWR Log Number	KCEH Log Number	Date Completed	Total Depth, TD (ft bgs)	Perforations		Ground Elevation (EL, ft)	Estimated Top Macoma Claystone (ft bgs)	Estimated Top Macoma Claystone (EL SS, ft)	Estimated Vertical Separation (TD - Top Macoma, ft)	Estimated Base Macoma Claystone / Top Basal Etchegoin (ft bgs)	Estimated Base Macoma Claystone / Top Basal Etchegoin (EL SS, ft)	Estimated Vertical Separation (TD - Base Macoma, ft)	Formation of Water Well Completion
							From (ft bgs)	To (ft bgs)								
T 28S, R 26E, Sec 12-3	64	Irrigation	-	-	12/11/1950	1,325	382	1270	489	3,339	-2,850	2,014	3,489	-3,000	2,164	KR-UE, U
T 28S, R 27E, Sec 4-1	65	Domestic	780422	-	10/4/2002	820	500	800	800	2,215	-1,415	1,395	2,300	-1,500	1,480	KR-UE, U
T 28S, R 27E, Sec 4-2	66	Domestic	e033607	WP0007635	12/13/2005	1,000	50	1000	836	1,690	-854	690	1,820	-984	820	KR-UE, U
T 28S, R 27E, Sec 4-3	67	Domestic	804334	WP0007358	10/14/2003	1,000	800	1000	841	1,591	-850	691	1,821	-880	821	KR-UE, U
T 28S, R 27E, Sec 4-4	68	Domestic	900048	WP0007785	6/17/2004	1,000	500	1000	779	2,222	-1,443	1,222	2,300	-1,521	1,300	KR-UE, U
T 28S, R 27E, Sec 4-5	69	Domestic	e057999	WP0010321	9/19/2007	995	775	995	802	1,832	-1,030	637	1,872	-1,070	877	KR-UE, U
T 28S, R 27E, Sec 4-6	70	Domestic	-	WP0010417	8/1/2007	1,000	800	1000	763	2,170	-1,407	1,170	2,273	-1,510	1,273	KR-UE, U
T 28S, R 27E, Sec 4-7	71	Domestic	0900035	WP0007634	6/29/2004	1,000	512	1000	836	1,800	-964	800	1,856	-1,020	856	KR-UE, U
T 28S, R 27E, Sec 4-8	72	Irrigation	-	-	-	-	-	-	-	-	-	-	-	-	-	KR-UE, U
T 28S, R 27E, Sec 6-1	73	Public Water System	570070	WP0005238	11/4/1997	1,248	600	1233	587	2,627	-2,040	1,379	2,737	-2,150	1,480	KR-UE, U
T 28S, R 27E, Sec 6-2	74	Domestic	353559	WP0002984	10/22/1991	880	740	860	604	2,419	-1,815	1,539	2,529	-1,925	1,649	KR-UE, U
T 28S, R 27E, Sec 6-3	75	Domestic	77238	-	9/9/1984	704	604	704	607	2,547	-1,940	1,643	2,657	-2,050	1,953	KR-UE, U
T 28S, R 27E, Sec 6-4	76	Domestic	77217	-	9/24/1983	702	602	702	594	2,624	-2,030	1,922	2,734	-2,140	2,032	KR-UE, U
T 28S, R 27E, Sec 6-5	77	Irrigation	411857	WP0002984	3/28/1992	1,410	0	1366	587	2,602	-2,015	1,192	2,712	-2,125	1,302	KR-UE, U
T 28S, R 27E, Sec 6-6	78	Public Water System	321037	-	6/1/1990	1,200	550	1200	564	2,673	-2,115	1,478	2,789	-2,225	1,589	KR-UE, U
T 28S, R 27E, Sec 6-7	79	Irrigation	-	-	8/15/1955	1,200	-	-	561	2,751	-2,190	1,551	2,861	-2,300	1,661	KR-UE, U
T 28S, R 27E, Sec 7-1	80	Public Water System	-	-	9/15/1951	1,200	300	1200	564	2,732	-2,168	1,532	2,844	-2,280	1,644	KR-UE, U
T 28S, R 27E, Sec 7-2	81	Public Water System	-	-	8/5/1940	1,023	630	1008	559	2,747	-2,168	1,724	2,859	-2,500	1,836	KR-UE, U
T 28S, R 27E, Sec 7-3	82	Public Water System, Inactive	-	WP0003083	9/27/1991	1,023	500	1000	548	2,786	-2,238	1,763	2,898	-2,350	1,875	KR-UE, U
T 28S, R 27E, Sec 7-4	83	Irrigation	2296	-	3/7/1951	950	485	990	513	2,596	-1,973	1,596	2,698	-2,085	1,708	KR-UE, U
T 28S, R 27E, Sec 7-5	84	Irrigation	e0093150	WP0011799	5/6/2009	1,460	640	1440	606	2,629	-2,023	1,169	2,741	-2,135	1,281	KR-UE, U
T 28S, R 27E, Sec 7-6	85	Irrigation	76883	-	9/23/1976	1,200	600	1200	541	2,726	-2,185	1,526	2,841	-2,300	1,641	KR-UE, U
T 28S, R 27E, Sec 15-1	86	Industrial	085411	-	8/15/1980	1,453	651	1450	827	2,080	-1,253	627	2,134	-1,307	681	KR-UE, U
T 28S, R 27E, Sec 15-2	87	Other	-	-	-	471	102	471	751	2,110	-1,359	1,839	2,134	-1,383	1,663	KR-UE, U
T 28S, R 27E, Sec 17-1	88	Industrial	72584	-	3/24/1962	1,100	600	1100	607	2,747	-2,140	1,647	2,857	-2,250	1,757	KR-UE, U
T 28S, R 27E, Sec 17-2	89	Irrigation	804736	WP0006809	4/8/2002	1,450	630	1370	581	2,621	-2,040	1,171	2,731	-2,150	1,281	KR-UE, U
T 28S, R 27E, Sec 17-3	90	Irrigation	1084918	WP0008363	2/8/2005	1,470	600	1500	574	2,714	-2,140	1,244	2,824	-2,250	1,354	KR-UE, U
T 28S, R 27E, Sec 17-4	91	Irrigation	-	WP0006797	1/7/2002	1,400	600	1400	579	2,629	-2,050	1,229	2,739	-2,160	1,339	KR-UE, U
T 28S, R 27E, Sec 18-1	92	Industrial	71045	WP0001712	2/6/1989	700	450	700	492	3,012	-2,520	2,312	3,142	-2,550	2,442	KR-UE, U
T 28S, R 27E, Sec 18-2	93	Irrigation	118501	-	11/15/1965	1,300	480	1300	505	2,835	-2,330	1,535	2,965	-2,460	1,665	KR-UE, U
T 28S, R 27E, Sec 18-3	94	Other	-	-	8/31/1944	1,500	382	1500	551	2,771	-2,220	1,271	2,901	-2,350	1,401	KR-UE, U
T 28S, R 27E, Sec 18-4	95	Irrigation	-	-	2/10/1955	1,176	856	1176	525	2,795	-2,270	1,619	2,925	-2,400	1,749	KR-UE, U
T 28S, R 27E, Sec 18-5	96	Irrigation	-	-	-	828	270	810	541	2,736	-2,195	1,913	2,866	-2,325	2,043	KR-UE, U
T 28S, R 27E, Sec 18-6	97	Irrigation	-	-	12/17/1945	1,000	835	920	502	2,972	-2,470	1,972	3,102	-2,600	2,102	KR-UE, U

Geologic Formations

KR-UE, U = Kern River-Upper Etchegoin, Undifferentiated

BE = Basal Etchegoin

Source: Table 3, DOGGR's Aquifer Exemption Application for the Poso Creek Oil Field – Premier & Enas Areas