The State of Aquifer Exemptions*

Jeff Kimber[1] and Matt Van Grinsven[1]

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Abstract

Oil and water will not mix unless sheared at high speeds, forming an emulsion. This is an interesting metaphor considering that a fierce emulsion of interests, tied to the Safe Drinking Water Act (SDWA), is churning around and about California's aquifers. The driving question is this: What water should be protected? Although this question inspires ongoing discussions and disagreements between regulatory agencies, the public, and the State's energy providers, a rational, data-based approach is beginning to prevail. Enacted in 1974, the SDWA is the federal law that protects public drinking water supplies throughout the nation. The SDWA assumes all groundwater with less than 10,000 mg/L (ppm) TDS is a potential source of drinking water and mandates its protection. Hundreds of oil and gas reservoirs throughout the state have been exempted from the SDWA, but the areas exempted are limited to the oil productive areas of 1973. Today, many oil and gas operators wish to expand their injection operations beyond these exempted areas and have submitted massive amounts of data to the DOGGR to demonstrate that the targeted aquifer areas meet exemption criteria. The State, in cooperation with the EPA and operators, works to evaluate the protected waters to determine if their classification as an underground source of drinking water (USDW) is warranted. The process, to be detailed during the presentation, has evolved over the last two years and is now more efficient and transparent. The presentation will include details on the rigorous scientific review of regional and subsurface parameters.

Reference Cited

California Oil and Gas Fields, 1973, Volumes I and II: California Division of Oil and Gas.

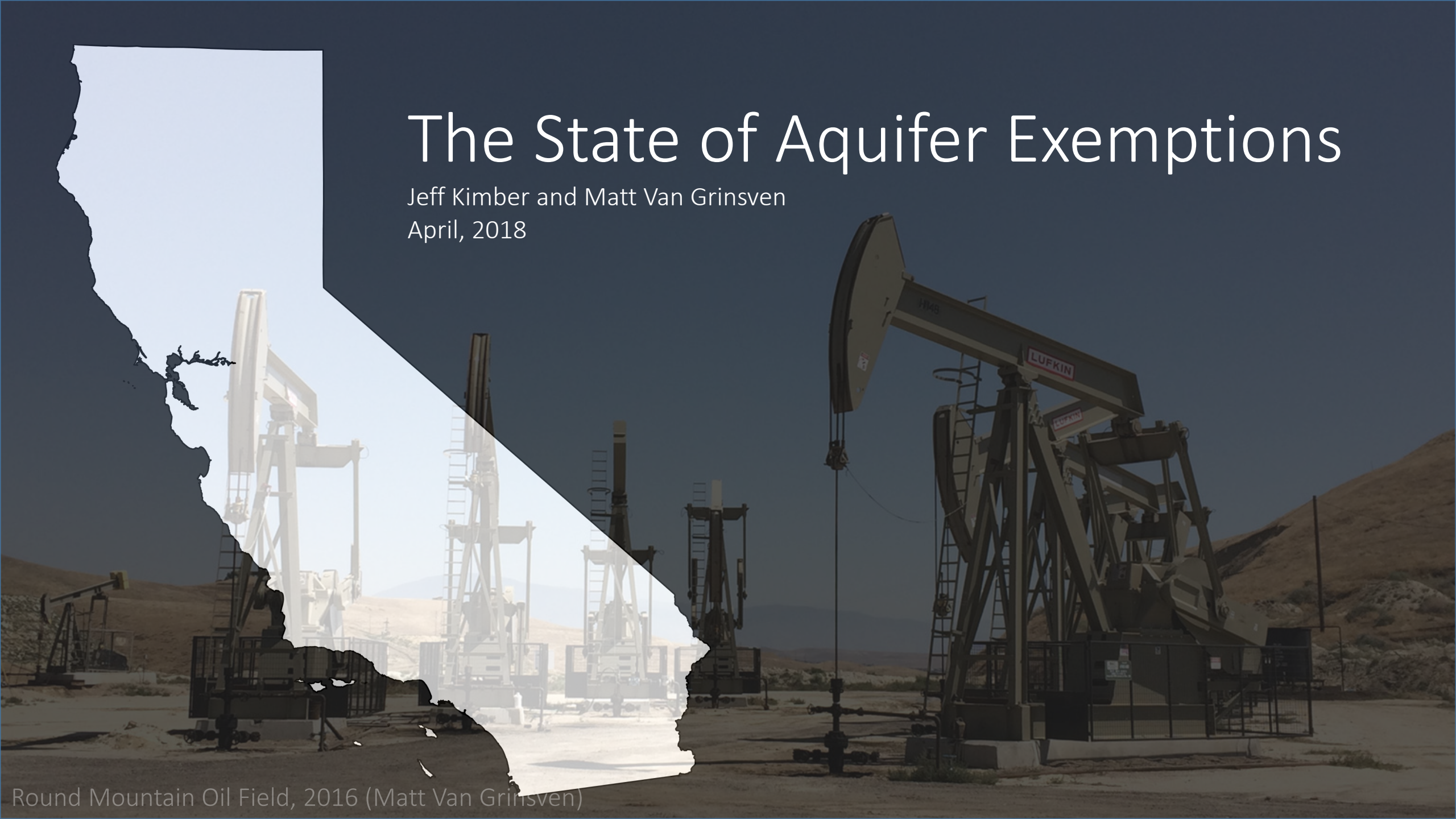
Website Cited

https://www.epa.gov/sites/production/files/2015-04/documents/epa816f04030.pdf Website accessed June 2018.

The State of Aquifer Exemptions

Jeff Kimber and Matt Van Grinsven

April, 2018



Round Mountain Oil Field, 2016 (Matt Van Grinsven)

The Safe Drinking Water Act (SDWA)

- Enacted in 1974, amended in 1986 and 1996 to further protect drinking water and its sources.
- An Underground Source of Drinking Water (USDW) is defined as:

  an aquifer or its portion: (a)(1) Which supplies any public water system; or (2) Which contains a sufficient quantity of ground water to supply a public water system; and (i) Currently supplies drinking water for human consumption; or (ii) Contains fewer than 10,000 mg/l total dissolved solids; and (b) Which is not an exempted aquifer (40 CFR 144.3).

- An exempted aquifer is no longer classified as a source of drinking water.

https://www.epa.gov/sites/production/files/2015-04/documents/epa816f04030.pdf

The Safe Drinking Water Act (SDWA)

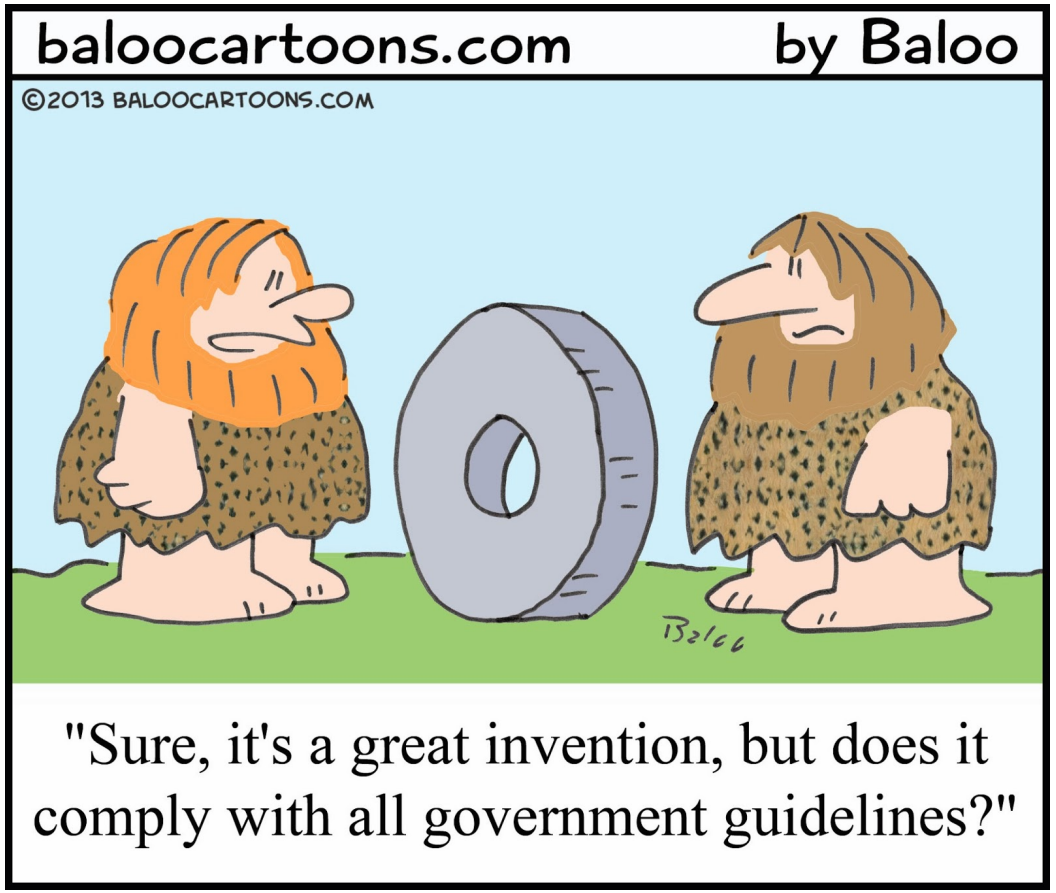
- To be exempted, it must be demonstrated that:
  - a) [The Aquifer] does not currently serve as a source of drinking water; and
  - b) It cannot now and will not in the future serve as a source of drinking water because:
    - 1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated 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.
    - 2) It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical;
    - 3) It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
  - c) The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system (40 CFR 146.4).
- The US EPA is agency that makes the decision for whether an exemption is appropriate.

https://www.epa.gov/sites/production/files/2015-04/documents/epa816f04030.pdf

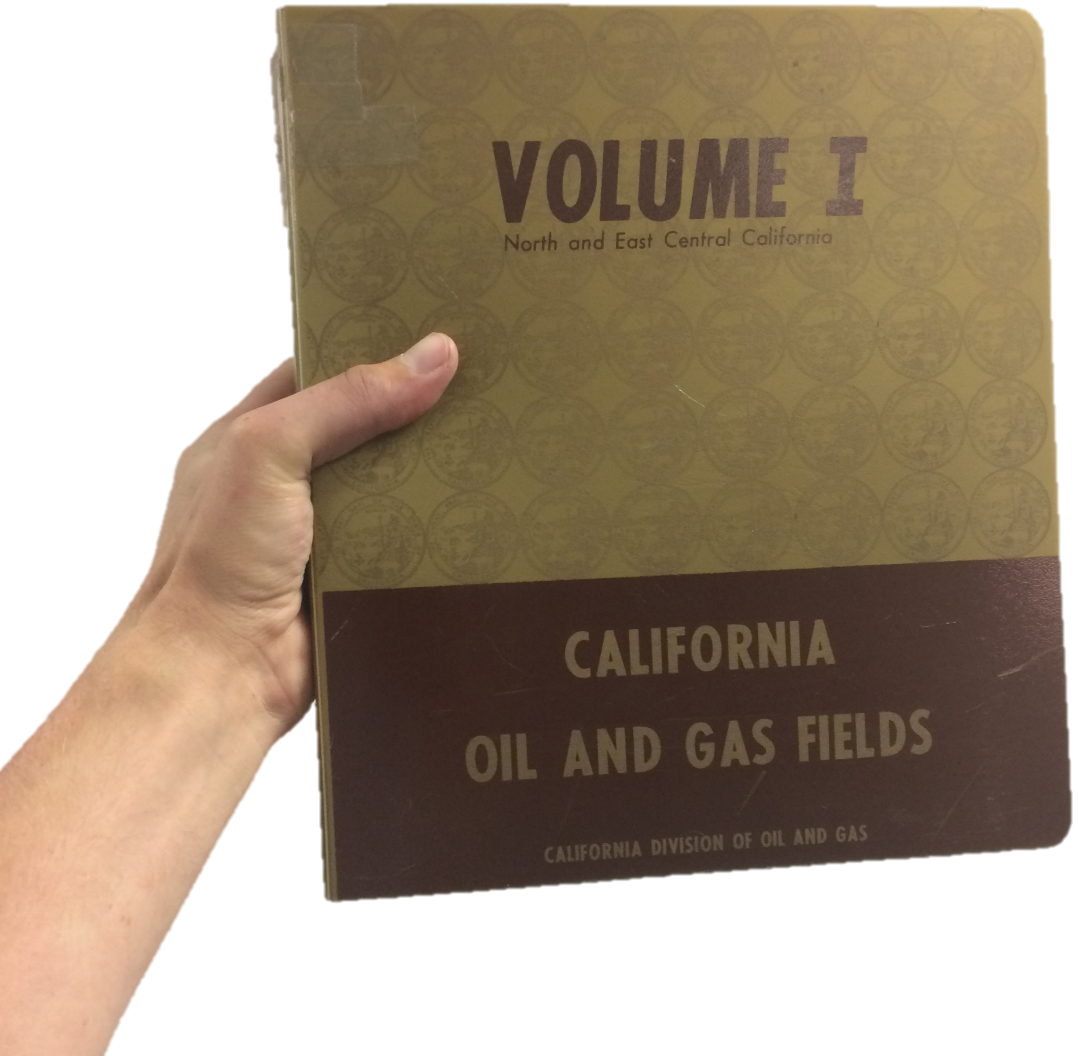
So if the EPA makes the decision, how does DOGGR and the WB get involved?

State Agency Involvement

- The Division follows PRC 3131 (a) that mandates further scrutiny prior to proposing to the EPA.
- Notably, applications must demonstrate:
  - The injection of fluids will not affect the quality of water that is, or may reasonably be, used for any beneficial use.
  - The injected fluid will remain in the aquifer or portion of the aquifer that would be exempted.
  - The Water Boards must be consulted and the State Water Board must concur that the proposal merits consideration.

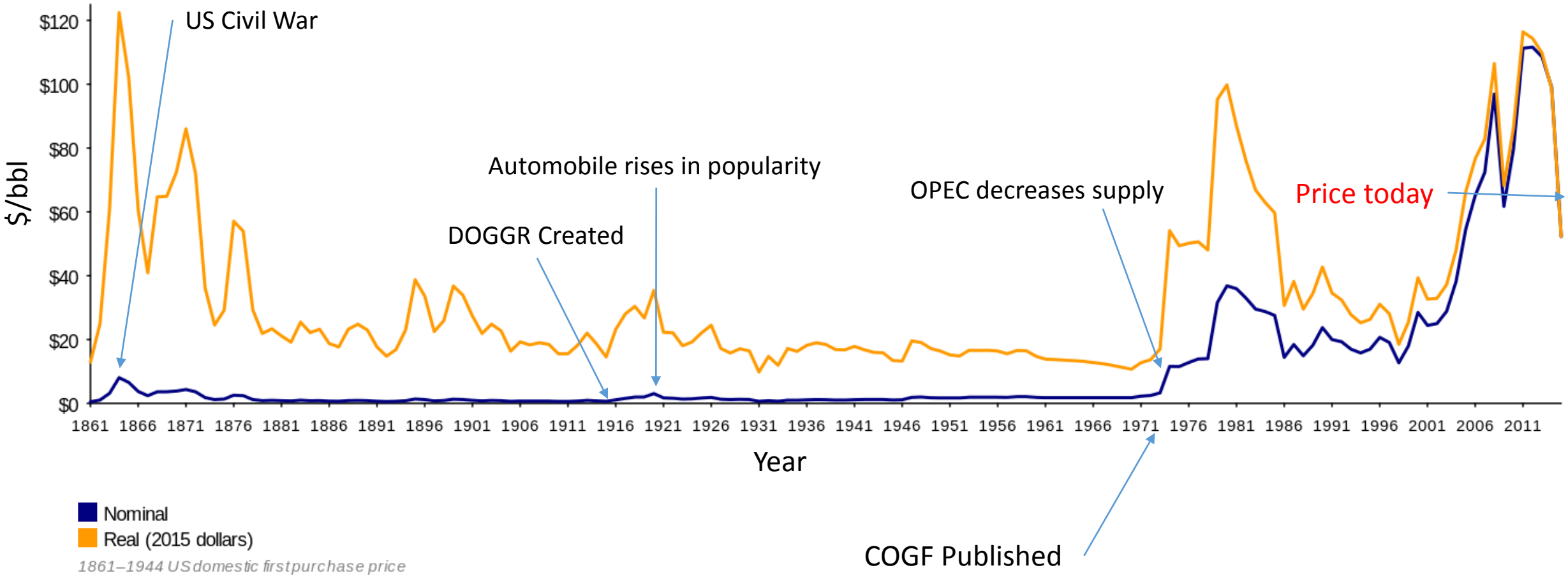


What areas and formations are exempt?



- The Primacy Agreement between the DOGGR and US EPA defines the productive areas outlined in 1973 COGF as the exempt aquifers.
- California Oil and Gas Fields (1973) identifies the exempt zones with the title "Productive Zone" *Newer editions are available, but the productive area identified is not the area that is exempt. These newer editions have updated data (maps, initial production/ pressure, bubble point, the application of EOR techniques).*
- As production techniques innovate and oil price fluctuate, the productive area has expanded, but the exemption areas have remained static.
- This leaves potential for new exemptions and expansions of current exemptions to be sought.

Price of Oil

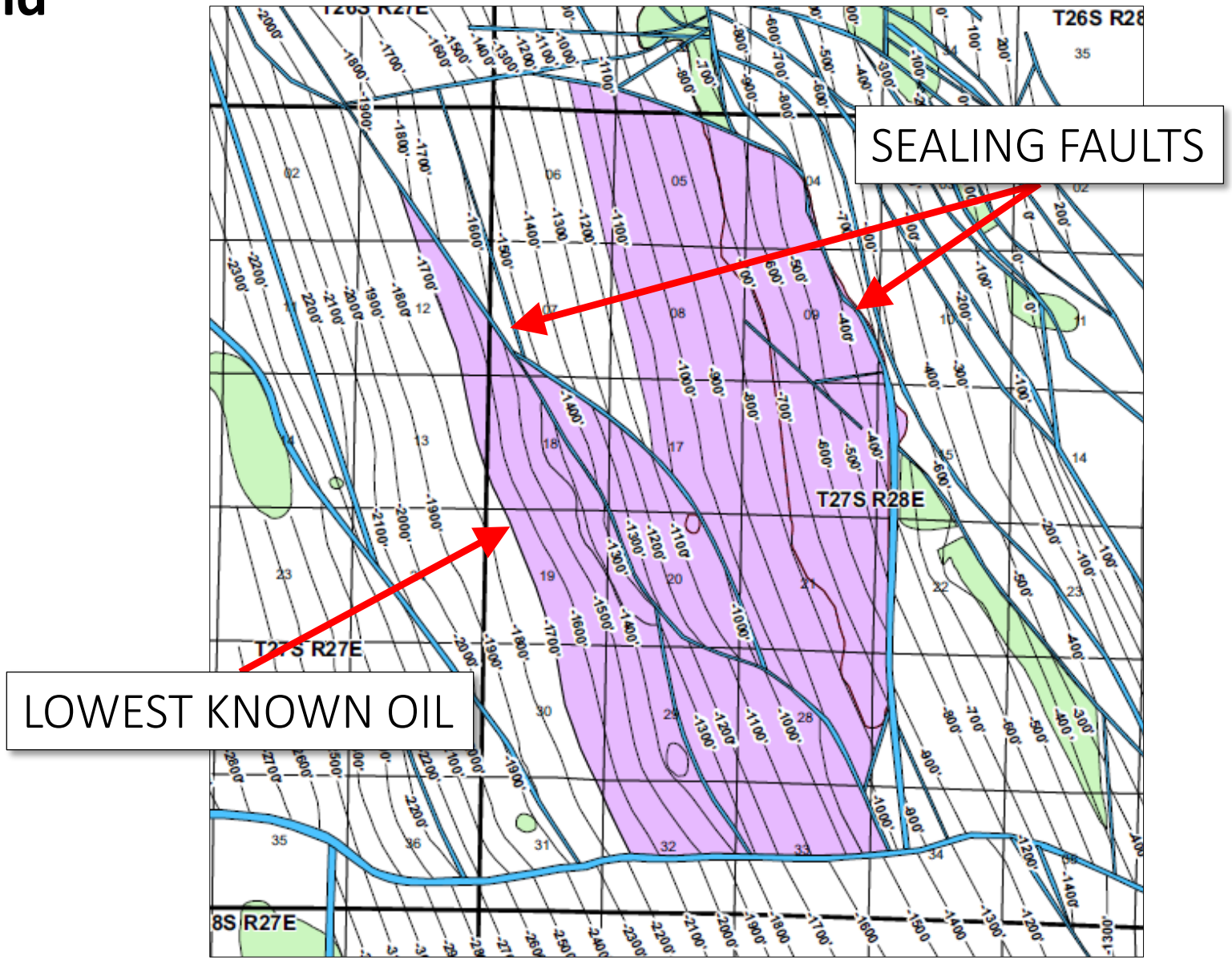


1861–1944 US domestic first purchase price
1945–1985 Arabian Light posted at Ras Tanura
1986–2015 Brent Spot
Source: Energy Information Administration

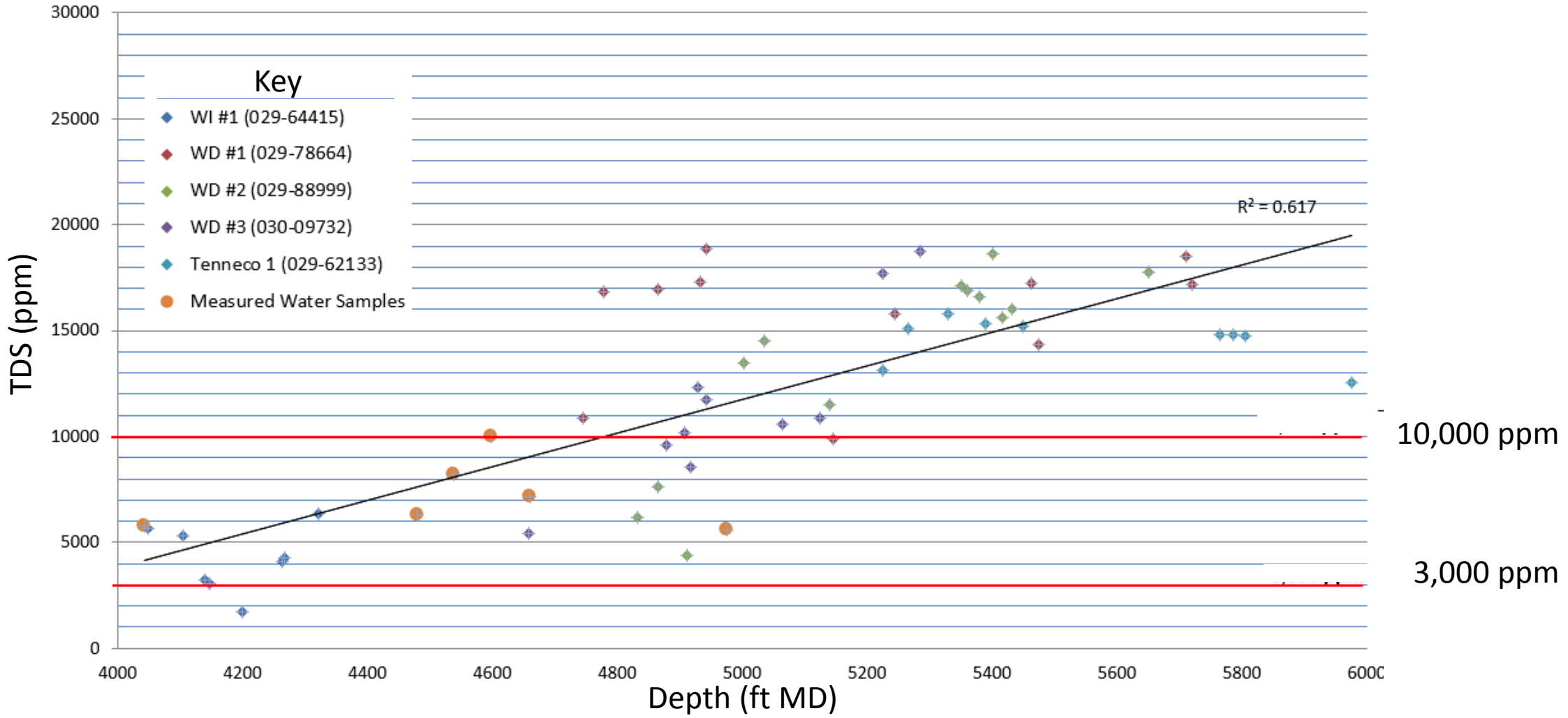

Aquifer Exemption
Application

WATER WELL SEARCH

Mt Poso Field



TDS Calculated from Resistivity and Porosity E-logs: Santa Margarita Fm. Fruitvale Oil Field



Presenter's notes: This chart shows the relationship between the salinity of Santa Margarita Formation waters with depth. This chart includes both measured and calculated TDS values. Notice that as depth increase salinity rises and values are consistently greater than 3,000 parts per million (short pause).

40 CFR 146.4 (c): The total dissolved solids content of the ground water is more than 3,000 and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

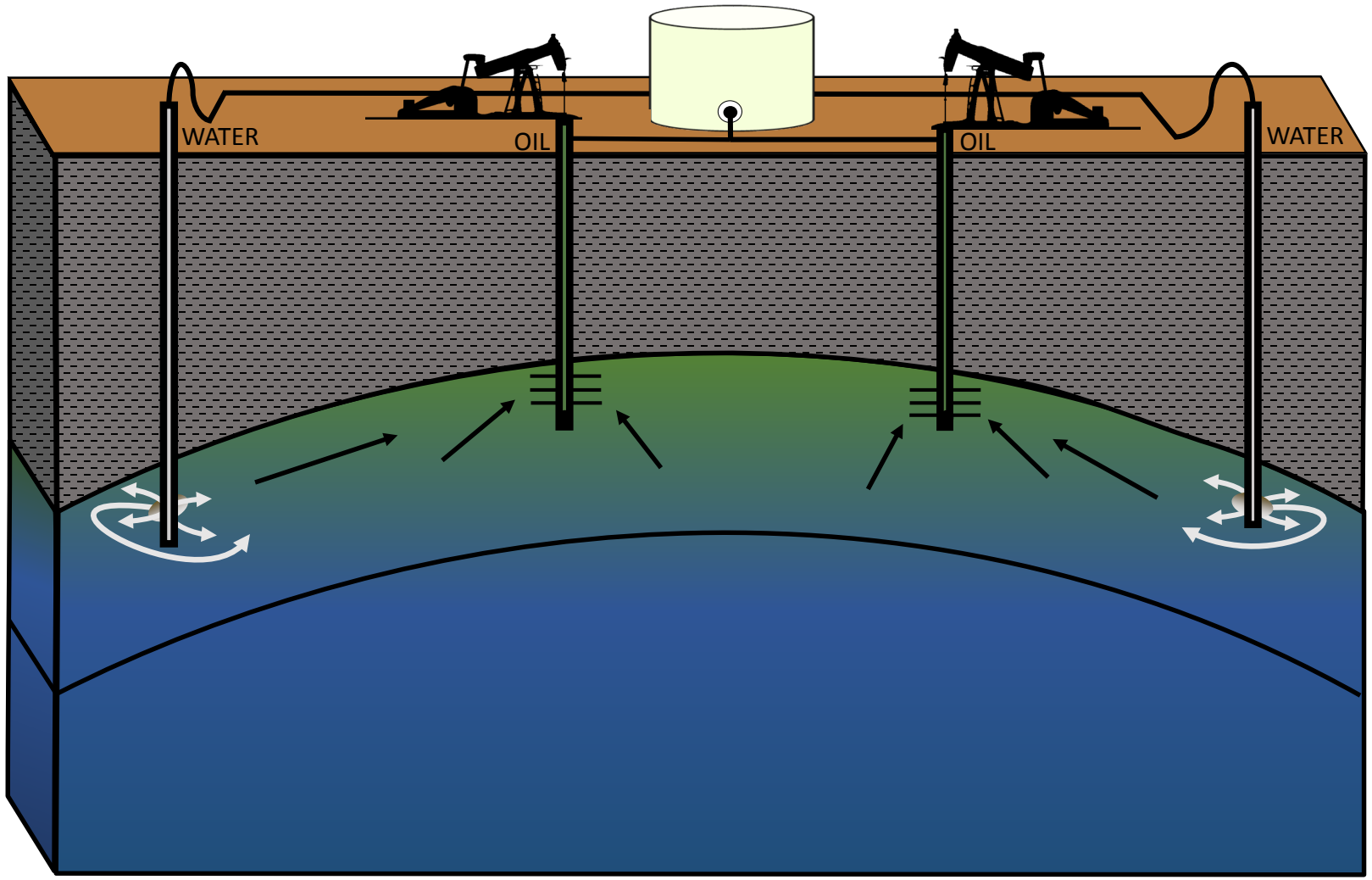
CA Title 22 Drinking Water Standards		Avg. Santa Margarita Fm.	
Constituent	**Max. Contaminant Level (mg/l)**	**Measured Contaminant Level (mg/l)**	**Comments**
Total Dissolved Solids*	1,000	**7,179**	Exceeds by 6.2X
Chloride	500	3,818	Exceeds by 6.6X
Iron	0.3	2,864	Exceeds by 9,546X
pH	8.5 Units	9	Exceeds by 0.06X
Sulfate	500	322	Acceptable Level
Specific Conductance	1,600 Micromohs	14,493	Exceeds by 8.1X
Boron	1	7	Exceeds by 6X
Calcium	120	369	Exceeds by 2.1X
Magnesium	120	43	Acceptable Level
Potassium	None	77	—
Sodium	100	2,005	Exceeds by 19X
Benzene (µg/l)	1	2,705	Exceeds by 2,703X
Ethylbenzene (µg/l)	680	2,696	Exceeds by 3.0X
Toluene (µg/l)	100	2,043	Exceeds by 19.4 X
Xylene (µg/l)	1,750	2,656	Exceeds by 0.5X

Presenter's notes: The waters of the Santa Margarita Formation are not expected to supply a public water system because the aquifer is so contaminated that it would be uneconomic and impractical to make the water fit for human consumption. This chart shows the maximum contaminant level accepted within the state of California for various constituents. It is apparent that the Average Santa Margarita Formation waters regularly exceed these thresholds by several orders of magnitude. Furthermore, many of these chemicals are known to be hazardous to human health. Because of this, groundwater from the Santa Margarita Formation should not be used as a source of drinking water.

TEJON OIL FIELD Transition Zone

AFFECTING BENEFICIAL USE

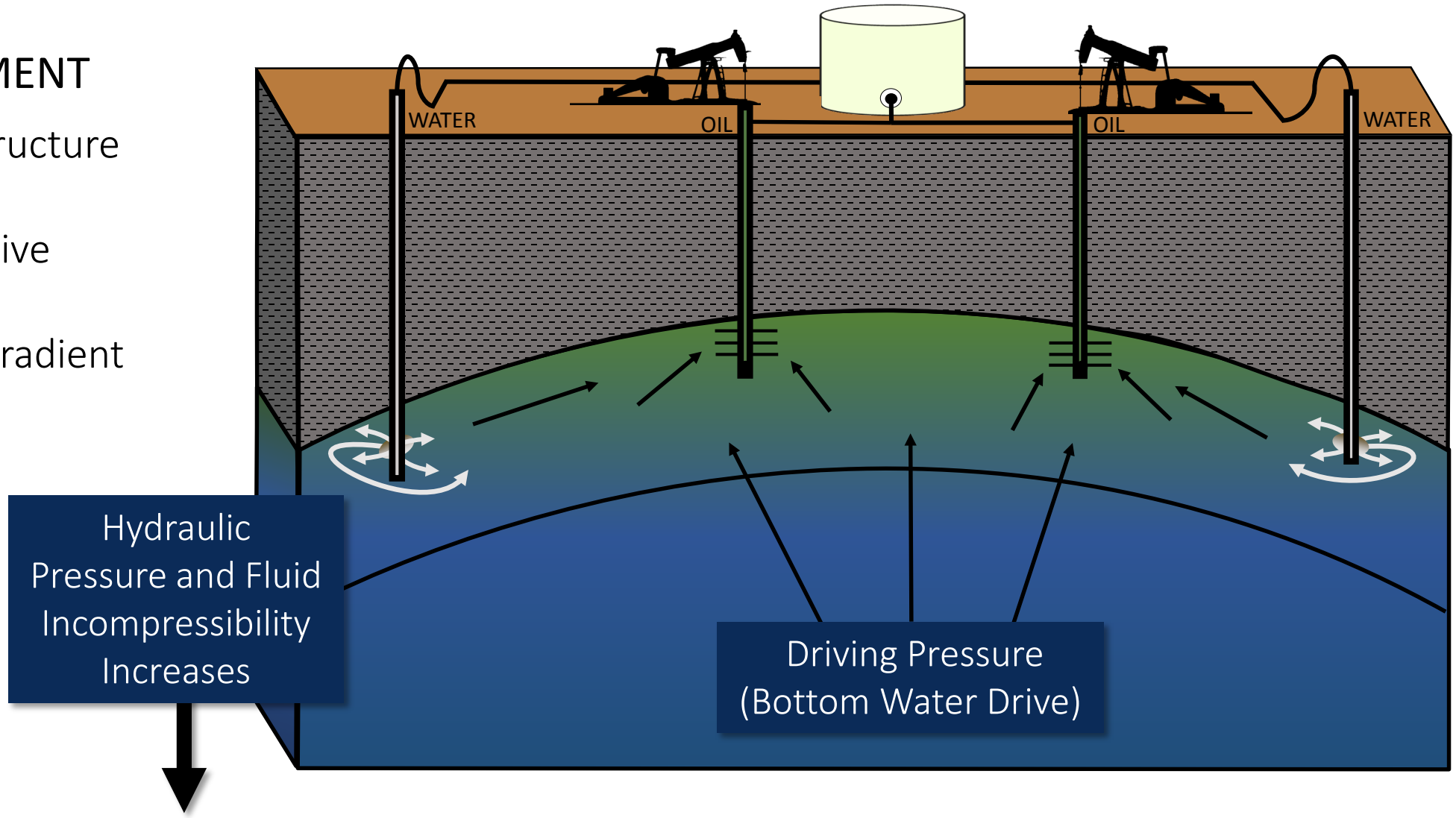
- Injectate = Produced water
- Injectate is not affecting any beneficial use.



TEJON OIL FIELD Transition Zone

CONFINEMENT

- Dome Structure
- Water Drive
- Inward Gradient

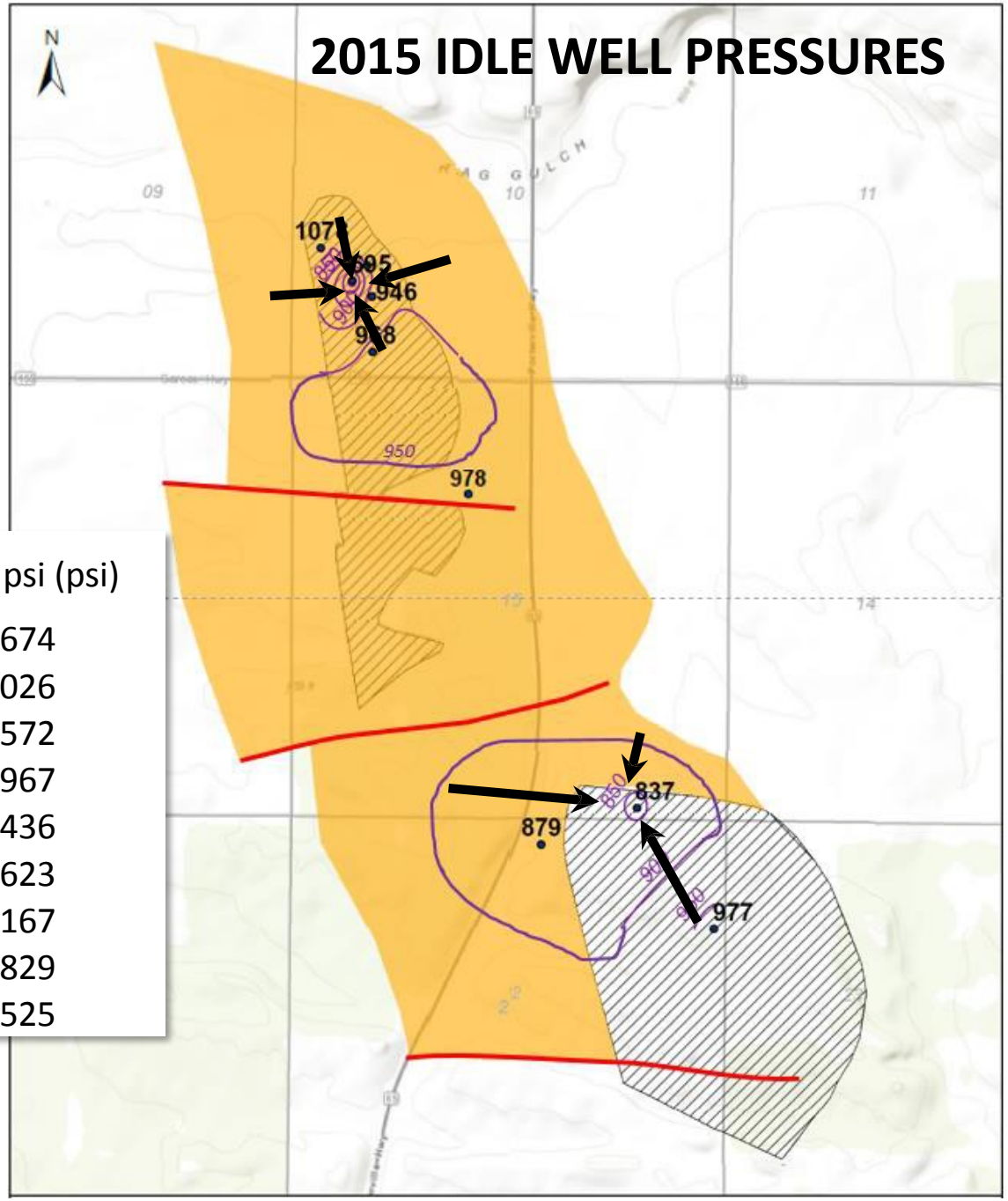


JASMIN OIL FIELD Cantleberry Sand

$$SG = \frac{141.5}{(°API + 131.5)}$$

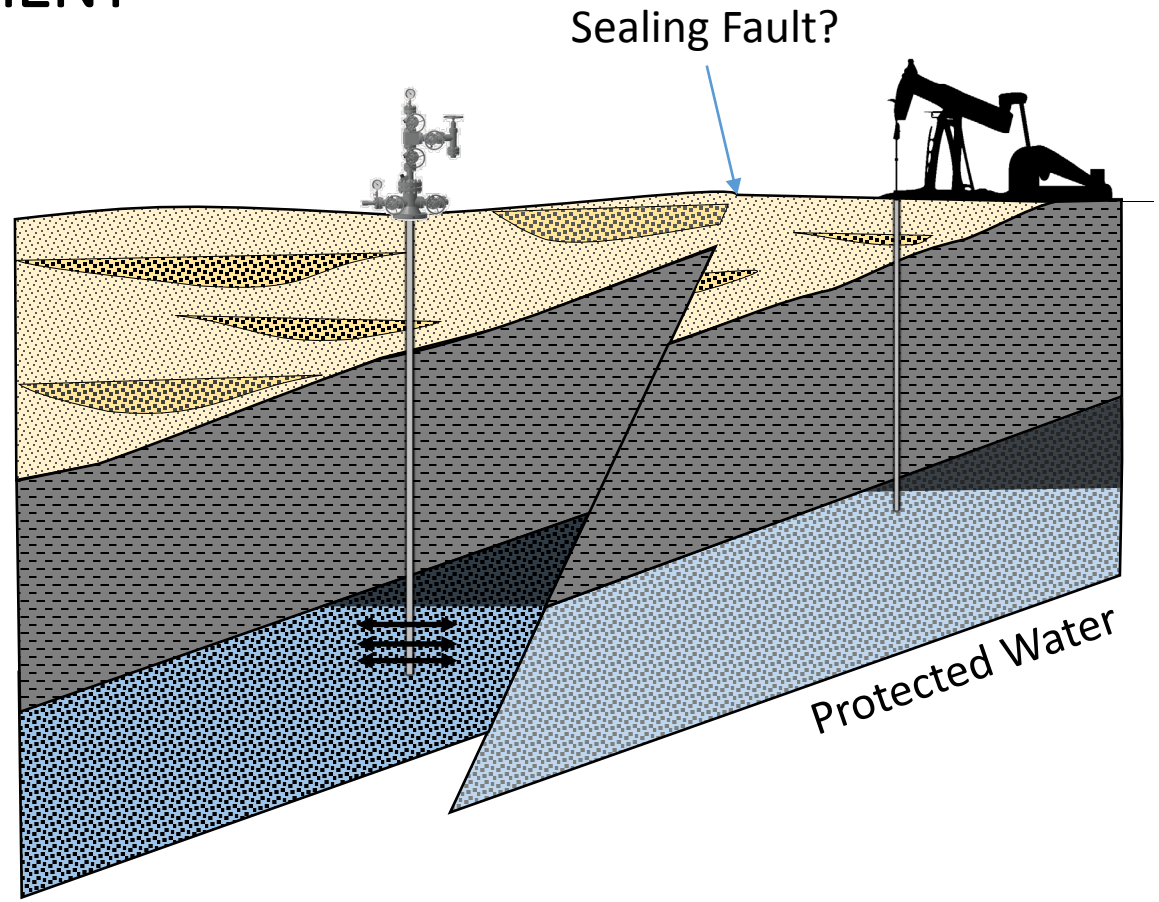
psi = [(SG * 62.4 lb/ft^3) * (height of fluid ft)]

Fluid Height (ft)	°API	SG (60 °F)	Psi gradient (lb/ft^3)	Reservoir psi (psi)
2244	14	0.97	60.6845	945.6674
2297	14	0.97	60.6845	968.0026
2557	14	0.97	60.6845	1077.572
2152	14	0.97	60.6845	906.8967
1650	14	0.97	60.6845	695.3436
1987	14	0.97	60.6845	837.3623
2321	14	0.97	60.6845	978.1167
2086	14	0.97	60.6845	879.0829
2318	14	0.97	60.6845	976.8525

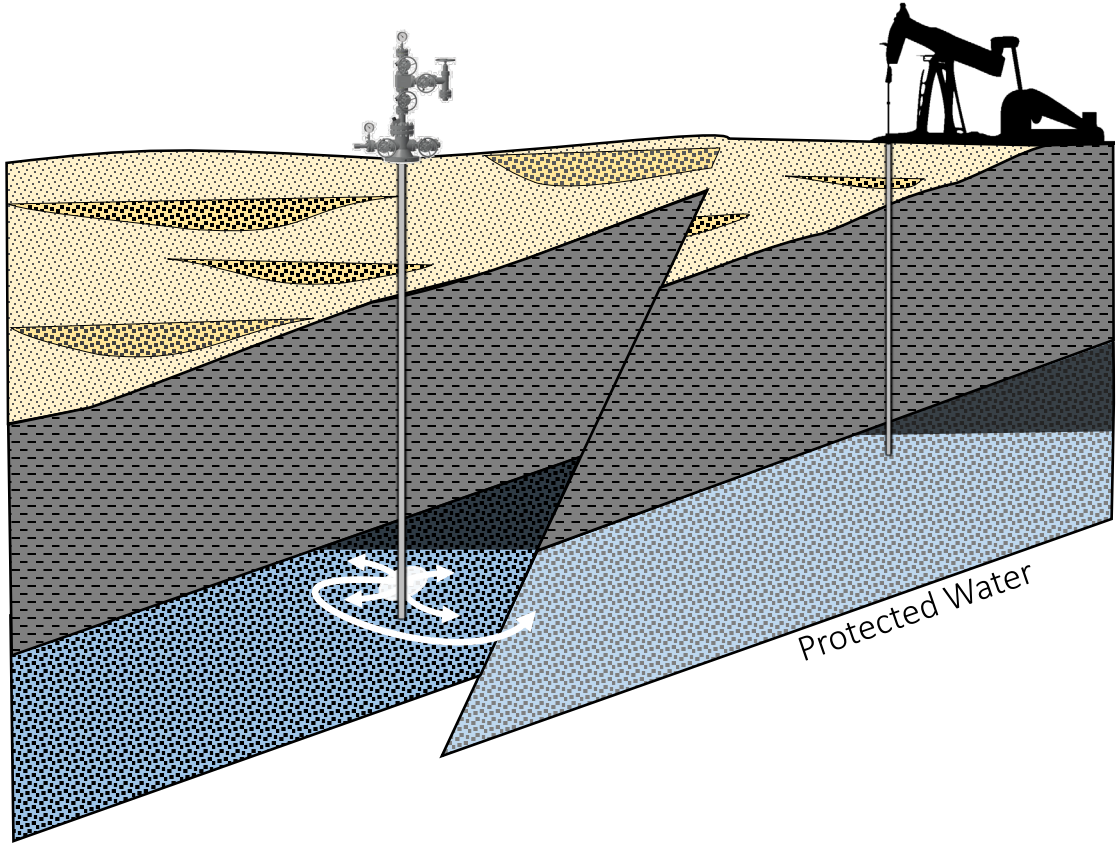


OTHER WAYS TO SHOW CONTAINMENT

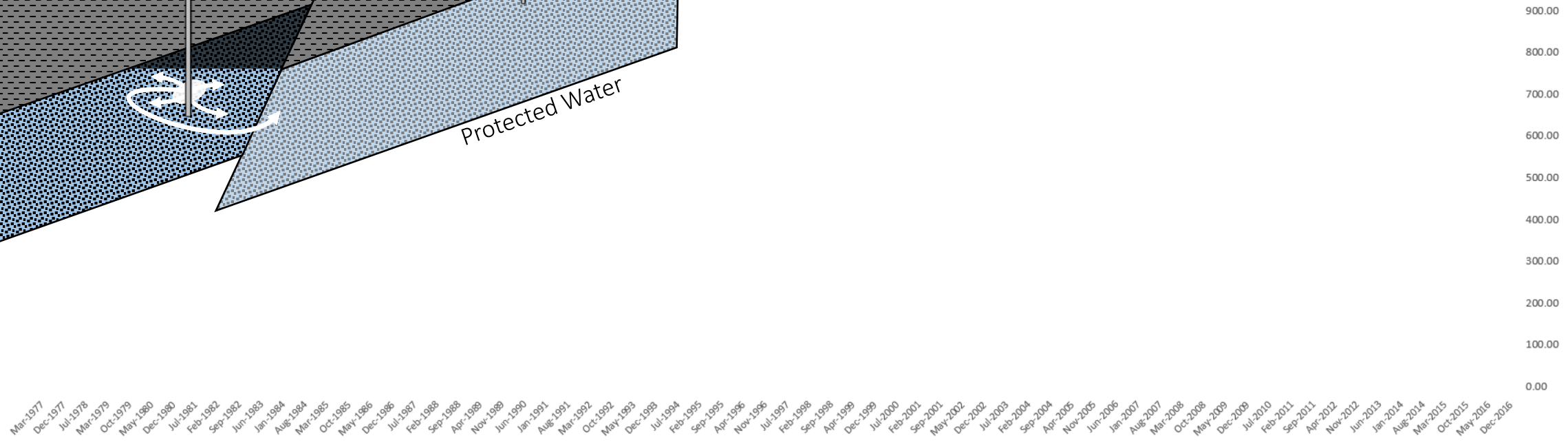
- Differing Water Chemistries
- Core Samples
  Porosity, Permeability, Fluid Saturations, Hydraulic Conductivity
- Temperature Observation
- Production Responses to injection
  Water injection versus water production

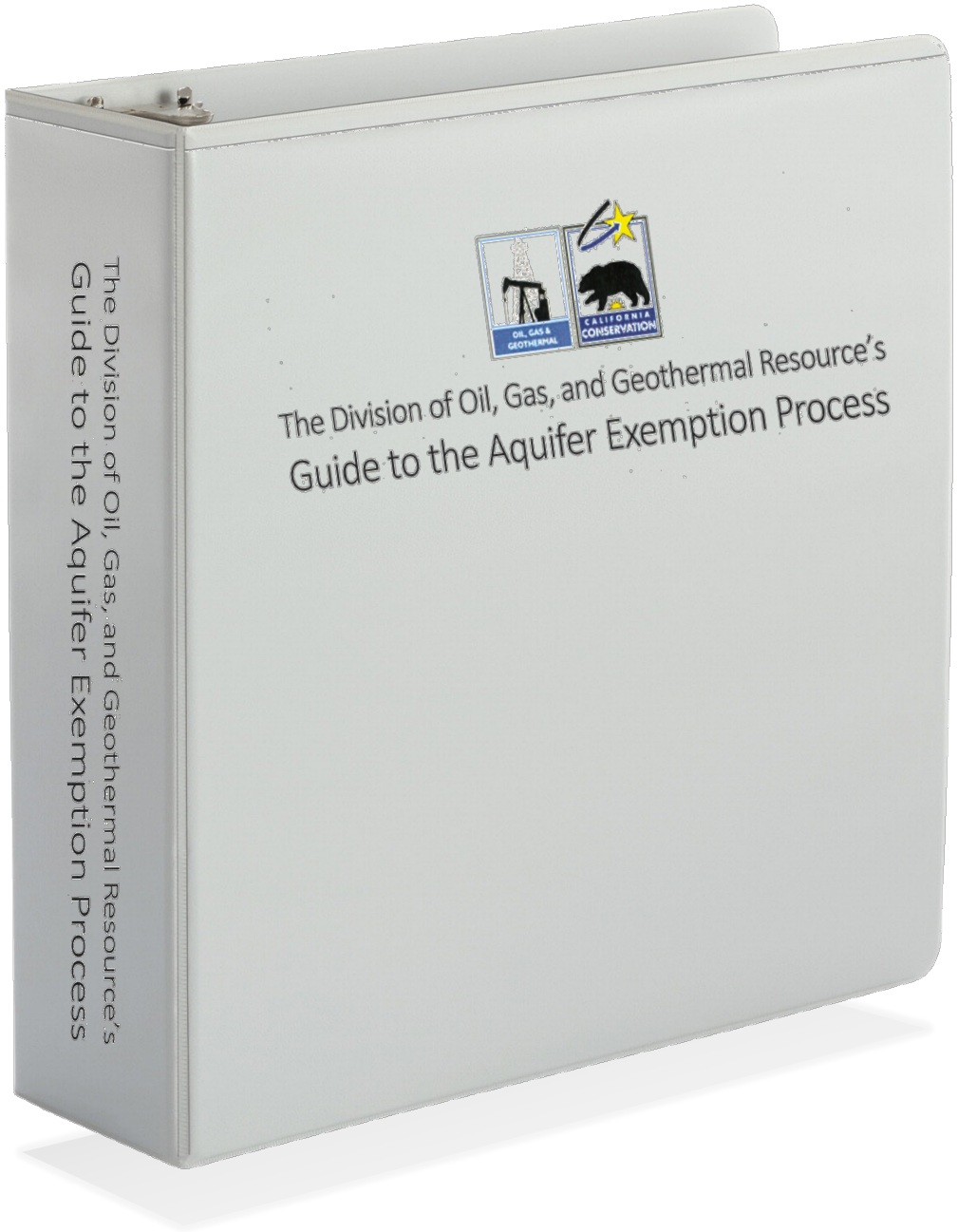


Click to view video



Water Injection and Production Vs. Time




The Division of Oil, Gas, and Geothermal Resource's
Guide to the Aquifer Exemption Process
OIL, GAS & GEOTHERMAL
CALIFORNIA CONSERVATION
The Division of Oil, Gas, and Geothermal Resource's
Guide to the Aquifer Exemption Process

HOW TO GUIDE

DOGGR Aquifer Exemption Checklist

No two aquifer exemptions are alike as each one presents a unique set of issues. The following checklists should provide clarity to the exemption application review process. Each of the EPA's and State Water Board's written requirements have been listed below exactly as they are published as well as adapted completeness checks provided by each agency. The DOGGR makes every attempt to verify that both the EPA and State Water Board Requirements are met, while encouraging the wise development of oil and gas resources.

EPA Requirements- Code of Federal Regulations 146.4

a) It does not currently serve as a source of drinking water; and

b) It cannot now and will not serve as a source of drinking water because:

1. 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. or
2. It is situated at a depth or location which makes recovery of water for drinking water purposes economically or technologically impractical; or
3. It is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption; or
4. It is located over a Class III well mining area subject to subsidence or catastrophic collapse; or

c) The total dissolved solids content of the ground water is more than 3,000 mg/l and less than 10,000 TDS mg/l and it is not reasonably expected to supply a public water system.

Water Board Requirements- Public Resources Code 3131(a)

1. Criteria set forth in Section 146.4 of Title 40 of the Code of Federal Regulations.
2. The injection of fluids will not affect the quality of water that is, or may reasonably be, used for any beneficial use.
3. The injected fluid will remain in the aquifer or portion of the aquifer that would be exempted.

1

Field:	Date Reviewed:	Reviewer

EPA Aquifer Exemption Request
Completeness Check

Project:

Key to tables: Each row in the tables below describes a piece of information that EPA will evaluate to determine whether the aquifer exemption request meets the criteria at 40 CFR 146.4. EPA evaluated the completeness of the information submitted and recorded its findings as follows:

- "*Submitted and complete*" means that the aquifer exemption request included information on which to evaluate the specific aspect of the criteria (and the relevant information in the request is summarized in the table).
- "*Incomplete*" means that the applicant submitted some information, but it is incomplete or of insufficient detail to support a determination. EPA requests specific clarification or additional information in these rows of the table.
- "*Not provided*" means that EPA found nothing in the request that addressed the element.

Tables are provided for each of the potential criteria applicable to Class I or Class II aquifer exemptions. However, only one of the 40 CFR 146.4(b)(2), 40 CFR 146.4(b)(3), or 40 CFR 146.4(c) criteria must be addressed for a Class I/II well aquifer exemption, in addition to 40 CFR 146.4(a) for the request to be complete.

General Project and Aquifer Information

General Information	Complete	Incomplete	N/A	Description
Owner/operator name				
Well/project name				
API number(s)				
Well Class (and subtype)				
Purpose of injection				

2

Field:	Date Reviewed:	Reviewer

General Information	Complete	Incomplete	N/A	Description
Where is the proposed aquifer exemption located?				
Township, Section, Range, Quarter.				
Latitude and longitude information.				
County and City				
Information about distance to nearest Town and/or County.				
Name of the aquifer or portion of the aquifer to be exempted.				
Areal extent of the area proposed for exemption.				
Depth and thickness of the aquifer.				
Information on the TDS content of the aquifer, including the TDS at the top and bottom of the exempted zone, and the locations and depths of all fluid samples taken.				
Water disposal wells into sub-3,000 TDS?				**Yes/No** (Circle or Highlight)
Water disposal wells into 3,000-10,000 TDS aquifers?				**Yes/No** (Circle or Highlight)
40 CFR 146.4(a) criteria				
How the proposed exempted area was determined (i.e., does it account for all past and future injection?).				
Lithology				
Permeability and porosity.				
Direction of groundwater flow.				

3

Field:	Date Reviewed:	Reviewer

General Information	Complete	Incomplete	N/A	Description
Upper and lower confining zone(s) and description of vertical confinement from USDWs.				
Information on drinking water wells that draw from the aquifer proposed for exemption, for which the aquifer might be a current source of drinking water.				
Maps of the area, geology, and hydrogeology.				
Table of inventoried water wells with owner information, purpose, depth, name of aquifer, well completion, age, and data source (including all wells tapping any aquifer in the area).				
Map showing down-gradient and hydraulically connected water wells (including all wells that draw from the aquifer proposed for exemption or any hydraulically connected aquifers).				
How ground water direction and speed were determined				
SWPAS and designated sole source aquifers.				
Size of the area evaluated and rationale for determining the size area				
How the lifetime of the well was determined.				

4

Field:	Date Reviewed:	Reviewer

Please note that a full demonstration of one of these following criteria must be met, and the information for the remaining two criteria would not be required.

General Information	Complete	Incomplete	N/A	Description
Checklist item -40 CFR 146.4(b)(1)				
Description about how the current/future productive area was determined. Was the method of determination scientifically valid?				
Description and mapped extent of the current/future productive area.				
Table of inventoried oil wells outside the current exempt boundary or those that justify modification of the current productive area. Details include the well names, API numbers, producing formation(s), completion depths, and completion dates.				
Checklist item -40 CFR 146.4(b)(2)				
Availability of less costly and more readily available alternative supplies.				
Adequacy of alternatives to meet present and future needs.				
Costs for treatment and/or development associated with use of the aquifer.				

5

Field:	Date Reviewed:	Reviewer

General Information	Complete	Incomplete	N/A	Description
An economic evaluation that considers: distance to PWS; water sources; availability, quantity and quality of alternative water supply sources; future water supply needs in the area; depth of the aquifer; and water quality.				
Checklist item -40 CFR 146.4(b)(3)				
Concentration, type, and source of contaminants.				
If contamination is a result of a release, whether contamination source has been abated.				
Extent of the contaminated area				
Probability that the contaminant plume will pass through the proposed exempted area.				
Ability of treatment to remove contaminants from ground water.				
Current and alternative water supplies in the area.				
Costs to develop current and future water supplies (e.g., construction, transportation, treatment costs).				
Projections of future use of the aquifer.				
Checklist item -40 CFR 146.4(c)				

6

Field:	Date Reviewed:	Reviewer

General Information	Complete	Incomplete	N/A	Description
Basis for determination that the TDS is between 3,000 and 10,000 mg/l (for				

Aquifer Exemption Proposal Completeness Checklist
State Water Resources Control Board

No.	Parameters
10	Discussion on Basis f

CHECKLIST

STEP BY STEP INSTUCTIONS

STEPS TO DELIVER AN AQUIFER EXEMPTION TO THE US EPA

This process outlines the steps of the Fruitvale, Kern River, Tejon, Mount Poso, and Round Mountain Aquifer Exemptions as experienced by Jeff Kimber and Matthew Van Grinsven.

1. Receive Application from the Operator.
2. Ensure that both the Federal (40 CFR 146.4) and State (PRC 3131(a)) exemption criteria is satisfied.
   a. Begin by verifying that the aquifer is not used as a current source of drinking water.
      i. This is necessary to satisfy 40 CFR 146.4 (a).
      ii. If any water wells are completed in the same aquifer additional scrutiny is required.
   b. Verify the boundaries of the aquifer exemption extension. All sides need justification. What limits fluid flow beneath, above and laterally? Has a logical and scientific approach been taken to define the expanded exemption boundaries? Political boundaries should not demarcate an exemption boundary (i.e. section lines, oil field administrative boundaries, property lines etc.).
      i. This is necessary to satisfy PRC 3131 (a)(3).
      ii. This also can help the argument for 40 CFR 146.4 (a).
   c. Verify the aquifers water quality and evaluate whether the aquifer may be used for drinking water quality.
      i. This is necessary to satisfy 40 CFR 146.4 (b or c).
   d. Verify that injection will not affect the water which may be used for beneficial use.
      i. This is necessary to satisfy PRC 3131 (b).
   e. Complete the Joint Checklist.
      i. This ensures the application is complete and can speed up the review by the Water Boards and US EPA.
      ii. Link to checklist: G:\Dog4Data\AE_Data\Example AE Folder\EPA and Water Board Joint AE Checklist.pdf
   f. Ensure that all evidence to prove all the above is included with the application.
      i. If there is not a satisfactory amount of information to prove any of the above, express these concerns to the operator, and discuss potential solutions. If no solution can be identified, **the application must be denied.**
3. Create presentation to summarize the AE application and reflect how the aquifer of interest satisfies the Federal and State Exemption Criteria.
   a. This presentation will ultimately be given to your DOGGR district, DOGGR Headquarters, the State and Regional Water Boards, the US EPA and the public. You may elect to present to the operators who have submitted the application to ensure that it accurately reflects their operations.
4. Send the Package to HQ.
   a. Address the package to Al Walker, c/o Rachel Tadlock.

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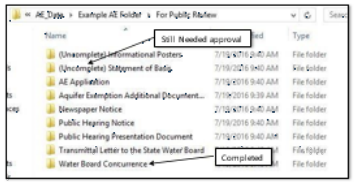
   b. Clerical staff, Penny Santana, Amy Crawford, and Lisa Blevins, can help with overnighting the package.
   c. If possible send the package 1 business day before the presentation so HQ will be able to begin review immediately following your presentation
5. Present AE to the Water Board (WB) and Headquarters (HQ).
   a. Ensure the AE is stamped by a licensed Geologist.
6. Prepare the transmittal letter to transfer the AE to the State Water Board.
   a. This letter is sent via email to HQ. HQ will print and deliver with the document to the WB.
   b. Here is a link to Kern River's Transmittal Letter for Reference: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Transmittal Letter to the State Water Board\KRAE Transmittal Letter.pdf
7. While the WB is reviewing, create a folder tree for all AE documents that will need to be posted.
   a. If a document is uncomplete amend the folder name "(uncomplete)" so HQ will be able to follow along.
   b. Here is a link to Fruitvale's Folder for reference: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review



8. Write the Statement of Basis (SOB).
   a. Follow the style of previous Statement of Basis'.
      i. Closely match the most recent SOB. It has been modeled after earlier SOBs (At the time of writing this document—7/14/16—Fruitvale is most current).
   b. This document summarizes the reasons for exemption in laymen's terms.
   c. Here is a link to Fruitvale's SOB in Microsoft Word: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\(Uncomplete) Statement of Basis\Statement of Basis.docx
9. Write the Newspaper Notice.
   a. Dates may change for the Public hearing, end of public comment period, and date that the document is made public. Highlight all dates on the early draft to ensure that these dates get updated before the Newspaper Notice is finalized.
   b. Here is a link to Fruitvale's Newspaper Notice in Microsoft Word: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Newspaper

2

Notice\Fruitvale AE_Newspaper Public Notice.docx

10. Write the Public Hearing Notice (Graham St. Michel actually wrote this for Fruitvale).
    a. Dates may change for the Public hearing, end of public comment period, and date that the document is made public. Highlight all dates on the early draft to ensure that these dates get updated before the Public Hearing Notice is finalized.
    b. Here is a link to Fruitvale's Public Hearing Notice in Microsoft Word Format: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Public Hearing Notice\Fruitvale AE Public Hearing Notice.docx
11. Create a poster for the Public Hearing.
    a. Often this is just modified from a couple of figures from the AE document.
    b. This can be made in Microsoft PowerPoint.
    c. Here is Fruitvale's poster as an example: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\(Uncomplete) Informational Posters\Fruitvale Aquifer Exemption Map.pdf
12. Prepare text for Public Presentation.
    a. This text is the script for which you will read at the public hearing.
    b. Once complete, send to your supervisor and Bil Bartling.
12. Send the Presentation text, SOB, Newspaper Notice, Public Hearing Notice, and poster to HQ (Jerry Salcedo, Simeon Ohrysikiw).
    a. Also give HQ the link to the Folder Tree.
13. After HQ reviews the above documents, send to Legal/PAO (Tim Findley and Don Drysdale (optional)) for their Review.
14. Finalize presentation to be given to the public during the Public Hearing.
    a. Here is Fruitvale's Presentation as an Example: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Public Hearing Presentation Document\Public Hearing Presentation Document.pdf
    b. The Water Boards will submit questions to clarify various aspects of the document. Respond to these on Division Letterhead. Typically the questions are reproduced and the Division's response is highlighted in red and follows the WB question.
    c. Here is a link to Fruitvale's interagency correspondence: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\State Agencies Correspondence

WAIT FOR WB CONCURRENCE (Regularly check in with the WB to ensure a timely turn-around)

15. After HQ and Legal review the SOB, Newspaper Notice, Public Hearing Notice, presentation and script and send to WB for their review.
    a. Send after the WB provides their concurrence letter, not before.
    b. John Borkovich informed us that Eric Morita is the point of contact for all AEs. (cc Eric Gilman and John Borkovich).
16. After the WB provides concurrence, put all interagency correspondence together in a presentable format for public review.
    a. Link to Fruitvale's correspondence for reference: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Aquifer Exemption Additional Documentation-State

3

Agencies Correspondence

17. After the WB has reviewed all documents and agreed to their content, work with Clara Shaffer to Book the room at the Sheraton and hire a CHP officer for the Public Hearing.
18. Send all documents, which the WB agreed on, to legal for final revision.
    a. Update all dates throughout (the Public hearing, end of public comment period, and date that the document is made public) Un-highlight these dates.
    b. After Legal approves, save all files in PDF format.
19. Work with ETSD to schedule a WebEx meeting with the US EPA.
    a. Schedule this meeting to just prior to or on the same day the Application goes public.
    b. This meeting gives the EPA advanced notice of application to come and allows them to notify us if any gaps in the application need to be addressed before they complete their formal review.
    c. Send the EPA a copy of the AE Application (This does not represent a formal submission to the EPA). Mail a physical copy to Michele Dermer in San Francisco and send a digital link to Michele Dermer (EPA San Francisco Office), Shari Ring (Cadmus) and Lisa McWhirter (EPA Washington D.C. Office).
20. Write the Webpage text to introduce the application on the Division website.
    a. Leave this document as a word document so Bruce McMaster can
    b. Link to Fruitvale's webpage text for reference: G:\Dog4Data\AE_Data\Example AE Folder\For Public Review\Fruitvale Web Page Text.docx
21. Contact Bruce McMaster regarding publishing the AE Documents to the Division website.
    a. Save the documents to G:\DOGGR\Groups\For DOGGR Web\AE
    b. Prepare a short statement to introduce the AE on for the Website (See Round Mountain, Arroyo Grande, or Fruitvale).
22. Notify Tim Shular that the Application and associated documents are complete and ready to be made public. Attach the final Public hearing notice to the email.
23. After all parties (Legal, WB, and HQ) have no further comments on the SOB, Newspaper Notice, and Public Hearing Notice, contact the local newspaper (Bakersfield Californian) to get the notice published.
    a. The Newspaper will respond with a "proof" of the publication. Respond to their email with to give them approval to print.

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24. Notify Bruce McMaster the time to publish the document on the website per Don Drysdale.

BEGIN PUBLIC COMMENT PERIOD

PRESENT TO THE PUBLIC

END PUBLIC COMMENT PERIOD

RESPOND TO PUBLIC COMMENTS

25. Tim Shular (OGER) will send you the original and un-summarized public comments. Keep these in a safe folder as the EPA will need to see them in their raw form.
27. Tim Shular will compile all the public comments into a summary and forward the document to DOGGR's Legal Department (Tim Findley and/or Justin Turner).
28. DOGGR's Legal Department will answer all of the non-technical comments. They will send you the technical comments.
    a. Respond to the technical comments and track all changes.
    b. In some cases, you can address the concerns raised by the US EPA within your responses to the public comments.
    c. Send your completed responses back to Legal.
29. Legal will review your answers and make the necessary changes.
30. When legal is finished with their review, forward the finalized comment summary to the State Water Board's Legal Department (Eric Gilman). Be sure to copy John Borkovich and Eric Morita.
31. Wait for the Water Board Complete their review of the comment summary.
32. When the water completes their review, send the document to DOGGR Legal (Tim Findley and/or Justin Turner) to make sure they agree with the Water Board's edits.
33. Wait for the Water Board's final concurrence Letter

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SUPPLEMENTAL 15 DAY COMMENT PERIOD (if necessary)

In the case that public comments bring forth data that may elicit a secondary comment period, formally share the issue with the State Water Board, their legal (Eric Gilman), and DOGGR's legal department (Tim Findley and/or Justin Turner). Let the State's lawyers decide if a supplemental comment period is needed. If so, organize the data and changes to the AE into an addendum addressed to the State Water Board (the following steps mimic the original AE submission to the WB).

   a. The water board will send DOGGR questions
   b. Formally address their questions in a memo with the department letterhead. Keep all correspondence in a State Agency Correspondence folder.
   c. Wait for the WB to concur on the addendum.
   d. When you receive WB concurrence on the addendum, make the addendum public by following steps 9, 12, 13, 15, 24, 25, 28-35 of this document.

SEND THE PACKAGE TO THE US EPA

After receiving the WB's final concurrence letter and the final draft of the Comment summary, the aquifer exemption application must be formally sent to the EPA for review.

26. Request a new hardcopy of the Application from the operator. Make sure there's a digital copy (likely on a flash drive) with it.
    a. GIS Shape Files must be included in the digital application. Send 2 versions of the files: Exclusively the expansion area and the area previously exempted (if applicable). Together these two shapes should show the total exemption area if the exemption is approved and these two files should not overlap in area. Include a kmz or similar file that can be uploaded to Google Earth, so the file can be opened by more than just those with access to ArcGIS or related program.
27. Write a 3D legal description for the EPA's database. This consists of latitudes and longitudes for the vertices that make up the shape of the area to be exempted. Each of these points should also have a depth associated with it to define the top of the exemption zone. See example: G:\Dog4Data\AE_Data\Example AE Folder\For EPA ROD
28. Write a transmittal letter to the US EPA and send it to DOGGR's and Water Board's legal department.
    a. See example: G:\Dog4Data\AE_Data\Example AE Folder\TO EPA website documents
    b. Send the transmittal letter to Rachael Tadlock to have it signed by Ken Harris.
29. Write an update to the DOGGR website text.
    a. See example: G:\Dog4Data\AE_Data\Example AE Folder\TO EPA website documents
30. Put the transmittal letter, the WB final concurrence letter, the public comment summary, and a new website text in a folder to be put on the webpage.
    a. See examples: G:\Dog4Data\AE_Data\Example AE Folder\TO EPA website documents
31. One day in advance, send the webpage documents to Bruce MacMaster and Adam Watts to have them published on the webpage. Tell them the order and where to put the links on the page.
32. Make a cloud based folder containing all associated AE documents (via Dropbox or Box) to transmit the documents to the EPA digitally.
33. The Flash Drive in the printed application needs to be identical to the files in the cloud based

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