

**REVISED MEMORANDUM OF AGREEMENT  
 BETWEEN THE  
 STATE WATER RESOURCES CONTROL BOARD  
 AND THE  
 DEPARTMENT OF CONSERVATION  
 DIVISION OF OIL, GAS AND GEOTHERMAL RESOURCES  
 REGARDING  
 UNDERGROUND INJECTION CONTROL, DISCHARGES TO LAND, AND OTHER PROGRAM ISSUES**

**I. PURPOSE**

This Memorandum of Agreement (“MOA”) between the State Water Resources Control Board (“Board” or “State Water Board”) and the Department of Conservation Division of Oil, Gas and Geothermal Resources (“Division”) (collectively, the “Parties”) is a revision of the 1988 Memorandum of Agreement (“1988 MOA”) signed by the Parties. The 1988 MOA provides that:

The agreement may be modified upon the initiative of either party for the purpose of ensuring consistency with State or Federal statutes or regulations, or for any other purpose mutually agreed upon. Any such modifications must be in writing and must be signed by the Director of the Department of Conservation, the State Oil and Gas Supervisor, and the Chairman of the SWRCB.

The revisions to the 1988 MOA serve to reflect developments in how the Parties coordinate in administering the state’s Underground Injection Control (“UIC”) program for Class II **fluidswells**, regulating discharges to land of produced water from oil and gas operations, responding to incidents such as spills, taking enforcement actions, and handling other related issues. The procedures described herein are intended to provide a coordinated approach resulting in a single permit satisfying the statutory obligations of both parties and to ensure that injection of **fluids in** Class II **fluidswells** and discharges of **Class II fluids produced water from oil and gas operations** to land do not cause degradation of waters of the State of California.

**II. SCOPE**

The following procedures have been formulated and adopted by the Division and Board to: (1) achieve coordination of activity; (2) simplify reporting of proposed waste discharges by oil and gas operators; and, (3) eliminate duplication of effort among the State agencies. As far as the Parties are concerned, the method of reporting proposed underground injection and discharges to land will be uniform throughout the State.

The following procedures will not generally be applicable to the injection **or discharge to land of wastes other than produced water and of** fluids **in wells other than Class II wells as** defined by the US Environmental Protection Agency (“US EPA”) **as Class II or discharges to land of wastes other than produced water from oil and gas operations**. Other discharges (e.g., refinery wastes) must be issued waste discharge requirements or waivers through the appropriate regional water board (Water Code, Division 7, Chapter 4). Such discharges will not be subject to regulation by the Division unless the subject disposal well is within the administrative limits of an oil field. In such case, the Division must also issue a permit for the

well construction. (Public Resources Code Sections 3008 and 3203.) The conditions of this permit should be in agreement with applicable waste discharge requirements.

### III. OVERVIEW OF STATUTORY AUTHORITY

#### A. Division

Chapter 1 (Oil and Gas Conservation) of Division 3 (Oil and Gas) of the Public Resources Code (commencing with section 3000) (“Chapter 1”) governs oil and gas activities in the State. Chapter 1 establishes the Division as the principal state agency charged with regulating the drilling, operation, maintenance, and abandonment of oil and gas wells ~~on land not held by the federal government~~. The State Oil and Gas Supervisor supervises these activities on behalf of the Division as well as the operation, maintenance, and removal or abandonment of tanks and facilities attendant to oil and gas production. Such supervision is “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.” (Pub. Resources Code, § 3106, subd. (a).)

In regulating oil and gas activities and related facilities to protect the public and environment, the Division’s regulatory powers include, but are not limited to: (1) issuing permits or approvals for oil and gas activities, such as the drilling or abandonment of wells; (2) investigating the environmental conditions and inspecting facilities associated with oil and gas activities and preparing related reports; (3) ordering and/or undertaking tests or remedial work; and (4) issuing enforcement orders for violations of applicable oil and gas law and permits or approvals.

In September 1982, the Division received primacy from US EPA pursuant to the provisions of Section 1425(a) of the federal Safe Drinking Water Act that gives the Division additional authority and responsibility to regulate Class II wells in the State. Class II wells are used to inject fluids into the subsurface that are related to oil and gas production. (See 40 C.F.R. § 144.6(b).)

#### B. State Water Board

The State Water Board and nine regional water boards (“Water Boards”) are the principal state agencies with primary responsibility to coordinate and control surface water and groundwater quality in the State. The legal authority of the State Water Board and regional water boards generally extends to regulating any activity or factor(s) that may affect the quality of the waters of the state and includes the prevention and correction of water pollution and nuisance. The Water Boards derive their authority primarily from, and must exercise their authority in accordance with, the State Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) and, where applicable, the federal Clean Water Act (33 U.S.C. § 1251 et seq.) and its implementing regulations. The Solid Waste Disposal Regulatory Reform Act of 1993 (Pub. Resources Code, § 43100 et seq.) provides additional authority for the State Water Board and the regional water boards to regulate the disposal of solid waste for the purpose of protecting the waters of the state.

The regulatory powers of the Water Boards related to water quality include, but are not limited to: (1) designating the beneficial uses of groundwater and surface waters and establishing water quality objectives to protect the uses; (2) investigating water quality issues, for example, by requiring water quality monitoring and reporting; (3) adopting water quality control plans, regulations, and policies; (4) issuing

waste discharge requirements (“WDRs”) that regulate discharges of “waste”<sup>1</sup> that may affect the quality of the “waters of the state”<sup>2</sup>; (5) conditionally waiving the requirement to file a report of waste discharge (“ROWD”) and obtaining WDRs for certain discharges, such as low-threat discharges; (6) prohibiting types of waste discharges and/or waste discharges in certain locations; (7) issuing enforcement orders; and (8) receiving information from, and providing information to, governmental agencies and the public regarding water quality issues.

#### IV. RESPONSIBILITIES AND REQUIREMENTS REGARDING UNDERGROUND INJECTION CONTROL

The Division and State Water Board shall have the following responsibilities and requirements regarding UIC and UIC-related activities:

##### A. Aquifer Exemptions

1. Upon completing a proposal to exempt an aquifer or to expand an existing aquifer exemption under the federal Safe Drinking Water Act (hereafter “aquifer exemption”), the Division shall forward a copy of the data submitted in support of the aquifer exemption request to the State Water Board. The Division shall notify the State Water Board and appropriate regional water board of, and provide, any additional information that the Division receives during the request review process. The Water Boards shall notify the Division of, and provide, any additional information that the Water Boards receive during the request review process.
2. During the review of the aquifer exemption request, the Division, the State Water Board, and the appropriate regional water board shall consult with one another, and may require the requestor to submit additional information to demonstrate that the proposed aquifer exemption and the injection into the aquifer(s) or portion of the aquifer(s) at issue meets the requirements of § 146.4 of Title 40 of the Code of Federal Regulations (CFR) and California Public Resources Code (PRC) § 3131.<sup>3</sup>
3. Prior to submitting a proposed aquifer exemption for public comment and hearing, the Division and State Water Board, in collaboration with the appropriate regional water board, must preliminarily determine that the proposed aquifer exemption and proposed injection into the aquifer(s) or portion of the aquifer(s) at issue meet the criteria of 40 CFR § 146.4 and PRC § 3131. If, after (1) a 30-day comment period, (2) a joint public hearing by the Division and State Water Board, and (3) considering public comments, the State Water Board, in collaboration with the appropriate regional water board, concurs with a determination by the

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<sup>1</sup> “Waste” includes “sewage and any other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for the purposes of, disposal.” (Wat. Code, § 13050, subd. (d).)

<sup>2</sup> “Waters of the state” means any surface water or groundwater, including saline waters, within the boundaries of the state.” (Wat. Code, § 13050, subd. (e).)

<sup>3</sup> If the state or federal regulatory criteria for evaluating an aquifer exemption (i.e., PRC § 3131 and 40 CFR § 146.4) proposal are modified, those modified criteria will apply in this section and any other section in which aquifer exemption regulatory criteria are referenced.

Division that the criteria of 40 CFR § 146.4 and PRC § 3131 are satisfied, the Division may submit the request to the US EPA for final determination.

4. In connection with any concurrence described in the preceding section (Section IV.A.3), the State Water Board, in collaboration with the appropriate regional water board, and the Division shall consult with one another regarding conditions to be considered for incorporation into any new or revised UIC project approved by the Division for injection into aquifer(s) exempted pursuant to this memorandum in order to address any water quality concerns. Conditions to be considered may include, but are not limited to, requiring groundwater monitoring to ensure injected fluids do not migrate out of the approved injection zone, requiring hydraulic controls, incorporating a buffer zone between the injection zone and the aquifer exemption boundary, and collecting water samples to determine baseline quality.
5. In connection with any concurrence described in Section IV.A.3, the State Water Board, in collaboration with the appropriate regional water board, shall consult with the Division regarding any proposed limitation(s) to be incorporated into any new or revised UIC project approved by the Division for injection into aquifer(s) exempted pursuant to this memorandum in order to address water quality concerns. A limitation is a condition the State Water Board or regional water board deems necessary to incorporate into all new and revised UIC projects into exempted aquifer(s) in order to address water quality concerns (e.g., limiting injection volumes or rates, restricting the quality of the injectate, and restricting the type of injection into an aquifer). If the State Water Board and the Division agree upon the limitation(s) proposed by the State Water Board, and the State Water Board issues a letter of concurrence identifying the limitation(s), the Division will incorporate the limitation(s) into all new and revised UIC project approval letters involving projects in the aquifer(s) at issue.

**6. The Division and the Water Boards will develop a system for tracking progress on the review of aquifer exemption proposals. The system shall be accessible to and duly maintained by the Division, the State Water Board, and the regional water boards.**

~~6.7.~~ To the extent that the Division, State Water Board, or a regional water board considers that the status of an existing aquifer exemption should be reviewed for consistency with the requirements of 40 CFR § 146.4 and PRC § 3131, such Party may consult with the other regarding potential modification or rescission of the exemption and/or modification or rescission of injection projects in the exempted area(s) at issue.

**B. UIC Projects**

1. Upon (1) completing the review of an application for a new UIC project or an application to modify an existing UIC project or (2) engaging in a review of an existing project as part of a comprehensive periodic project review process, the Division shall forward a copy of the information associated with the project, as specified in the appendix (or some portion of the information as agreed upon), to the State Water Board and appropriate regional water board. The Division shall notify the State Water Board and appropriate regional water board of, and provide, any additional information described in the appendix that the Division subsequently receives during the application / project review process. The State Water Board or regional water board may also request from the Division additional information relevant to protecting

or monitoring water quality. The Division may invite State Water Board and regional water board staff to attend meetings with operators regarding projects under review.

2. In conjunction with a review of an existing project or review of an application for a new or modified project, the State Water Board and regional water board may consult with the Division regarding the evaluation of potential impacts on water quality. Upon receiving the UIC project information specified in the appendix, the State Water Board or the regional water board shall notify the Division as to whether ~~they~~the Water Boards intend to comment on the application or existing project under review. The notification of intent to comment shall include an estimate of the amount of time the ~~State Water Board and regional water board~~Boards will need to provide comments or questions on the UIC project. The project review process is described in greater detail below and in the appendix.
  - a. The ~~State Water Board and regional water board~~Boards shall consult with the Division regarding potential provisions to incorporate into project approvals to protect water quality. The ~~State Water Board or regional water board~~Boards may submit comments that recommend that the Division add provisions to a UIC project under review to address the ~~State Water Board's or regional water board's~~Boards' concerns pertaining to the protection or monitoring of water quality. Provisions may include, among others, limitations and conditions identified by the State Water Board in a concurrence issued for an aquifer exemption proposal for the aquifer(s) at issue in the project under review. Provisions may also include conditions to be incorporated into the project in order to protect water that is, or may reasonably be, used for any beneficial use. See Section IV.A.4 for examples of such conditions. The ~~State Water Board and regional water board~~Boards may submit comments recommending the Division either disapprove a proposed project or rescind an approval for a UIC project.
  - b. The Division shall consult with the State Water Board and regional water board regarding any limitation(s) identified in an aquifer exemption letter of concurrence issued by the State Water Board if a new or revised UIC project is proposed into the aquifer(s) at issue in the concurrence letter. Upon confirmation by the Division that the injection zone(s) at issue in the UIC project are subject to the limitation(s) identified in the concurrence letter, the Division will incorporate the limitation(s) into the project approval letter unless there is agreement between the Division and Water Boards that such limitation(s) should not apply.
  - c. The Division shall consider all comments from the State Water Board and regional water board, including those related to project conditions and limitations, prior to issuing a project approval letter. The Division may consult with the State Water Board and regional water board regarding comments on a project under review.
  - d. If a project approval letter incorporates limitations or conditions proposed by the Water Boards to protect water that is, or may reasonably be, used for any beneficial use, those provisions will be noted as "Water Quality Requirements" and will specify the mechanism for monitoring and enforcing operators' compliance with the requirements.
  - e. The Division shall provide a copy of the unsigned final draft project approval letter to the State Water Board and regional water board at least five business days prior to issuing a final project approval letter to an operator. If the State Water Board or regional water

board identify any concerns with the unsigned final draft project approval letter before it is signed and issued, the Division will not issue the letter and will consult with the Water Boards regarding those concerns.

- f. If the ~~State Water Board and regional water board~~**Boards** find that the terms of the draft project approval letter adequately address any concerns raised and adequately protect water that is, or may reasonably be, used for any beneficial use, the State Water Board or regional water board will provide written communication to the Division indicating that the Water Boards have no objections to the issuance of the project approval letter. If the State Water Board or regional water board find that the terms of the draft project approval letter do not adequately address the concerns raised or adequately protect water that is, or may reasonably be, used for any beneficial use, the State Water Board or regional water board may request further consultation with the Division, or may provide written communication to the Division indicating that the Water Boards object to the project approval letter.
  - g. The Division will provide the State Water Board and regional water board with a copy of the signed, final project approval letter.
3. The Water Boards shall have primary responsibility for evaluating and approving water quality monitoring plans and administering approved monitoring plans associated with UIC projects. A requirement to conduct water quality monitoring may be included in a project approval letter issued by the Division or pursuant to an order issued by a regional water board under section 13267 of the Water Code.
  4. The Division and the ~~State Water Board~~**Boards** will ~~work together to~~ develop a **centralized** system for tracking progress on the review of UIC project applications and UIC project reviews. The system shall be accessible to and duly maintained by the Division, the State Water Board, and the regional water boards.

**V. RESPONSIBILITIES AND REQUIREMENTS REGARDING DISCHARGES OF ~~CLASS II FLUIDS~~PRODUCED WATER TO LAND**

**A. Waste Discharge Requirements and Waivers**

1. Upon receiving a Report of Waste Discharge (an application for a permit to discharge waste or ROWD) that involves ~~Class II fluids (e.g., the discharge of~~ produced water from oil and gas operations), to land, the regional water board shall notify the Division of the receipt of the ROWD and shall forward a copy of the ROWD (or some portion thereof as agreed upon) to the Division upon its request.
2. The regional water board shall notify the Division of any additional information that the regional water board subsequently receives during the review of the ROWD. The Division may request from the regional water board additional information related to the ROWD. The regional water board may invite Division staff to attend meetings with operators regarding a ROWD under review.

3. In conjunction with a review of a ROWD, the Division may consult with and provide comments to the regional water board. The regional water board shall consider all comments from the Division prior to circulating any draft Waste Discharge Requirements or waiver of WDRs to the public.
4. The regional water board shall provide to the Division any draft WDRs or waiver of WDRs that are circulated to the public for review. The Division may recommend that the regional water board add provisions to any draft WDRs or waiver of WDRs. The regional water board shall consider all comments from the Division. If the Division finds that the terms of the draft WDRs or waiver of WDRs do not adequately address the Division's comments, the Division may request further consultation with the regional water board, or may provide written communication to the Water Board indicating that the Division objects to the draft WDRs or waiver of WDRs.
5. The regional water board will furnish a copy of the final WDRs or waiver of WDRs to the Division.

## **VI. INCIDENT RESPONSE AND ENFORCEMENT COORDINATION**

### **A. Incident Response**

1. The State Water Board and regional water boards shall be primarily responsible for overseeing water quality monitoring and the investigation and cleanup of leaks, spills, and other unauthorized discharges to waters of the state in the context of all oil and gas production activities and surface storage and disposal of related fluids. In some cases, the State Water Board and the local regional water board may defer to another local, state, or federal agency that takes primary responsibility for investigation and cleanup of the leak, spill, or other unauthorized discharge as described above. The Division shall assist as appropriate, including as this MOA, other agreements between the Parties, or applicable law may require.
2. The Division shall immediately inform the State Water Board and the appropriate regional water board when it becomes aware of any potential or actual water quality violations or any surface or sub-surface discharge of fluids associated with oil and gas production activities or surface storage or disposal of related fluids that has potential or actual impacts on surface or groundwater quality. Such discharges include, but are not limited to, any discharge to waters of the State or waters of the U.S., discharges to land that pose a potential or actual threat to surface or groundwater quality, and sub-surface discharges that pose a potential or actual threat to groundwater quality (resulting from, for example, well failure or a failure of zonal isolation). The Division shall also inform the State Water Board and appropriate regional water board when the Division initiates an investigation related to any such surface or sub-surface discharge. If an investigation results in the issuance of a report, the Division shall make any such report available to the State Water Board and the appropriate regional water board upon request. Any portion of a report that might disclose protected information (e.g., trade secrets or other confidential information) shall be made available to the State Water Board and/or regional water board for its use in regulating operations associated with oil and gas production activities consistent with applicable law. The State Water Board and/or regional water board

shall not disclose the protected information to the public or other governmental agencies except as authorized or required by law and consistent with this MOA.

3. The Water Boards shall immediately inform the Division when they become aware of any potential or actual water quality violations or any surface or sub-surface discharge of fluids associated with oil and gas production activities or surface storage or disposal of related fluids that has potential or actual impacts on surface or groundwater quality. If the State Water Board or a regional water board issues an order related to any such surface or sub-surface discharge, the Water Boards shall make the order and any resulting reports available to the Division upon request. Any portion of a report that might disclose protected information (e.g., trade secrets or other confidential information) shall be made available to the Division for its use in regulating operations associated with oil and gas production activities consistent with applicable law. The Division shall not disclose the protected information to the public or other governmental agencies except as authorized or required by law and consistent with this MOA.
4. The Division and the Water Boards will cross-train each other's staff, as the Parties deem appropriate, to enhance investigations designed to ensure compliance with UIC projects and permits and applicable law.

#### **B. Enforcement Coordination**

1. If the Division, State Water Board, or regional water board determines that there is a violation of water quality-based statutory or regulatory requirement, the agency **may** shall take any actions under its authority that the agency deems appropriate to ensure that compliance is achieved.
2. The Division and Water Boards will coordinate incident response, investigations, and enforcement actions and hearings to the extent appropriate. Where feasible, prior to ordering or otherwise requiring that remedial or preventative action be taken to address water quality issues, including, but not limited to, pollution and nuisance, the Water Boards may consult with the Division regarding the actions to be required. Where feasible, prior to ordering or otherwise requiring that remedial or preventative action be taken that may affect water that is, or may reasonably be, used for any beneficial use, the Division may consult with the State Water Board and the appropriate regional Board.
3. Nothing in this MOA shall be construed as precluding the Parties from taking independent enforcement actions or from responding timely to an emergency, such as an ongoing or imminent threat to public health, safety, or the environment.

### **VII. ADDITIONAL PROVISIONS AND AGREEMENTS**

#### **A. Information Sharing**

1. For the purpose of regulating UIC and UIC-related activities, the Division and Water Boards may share or exchange information in a manner that is consistent with the Public Records Act (Gov. Code, § 6250 et seq.) and any other applicable law. The information that may be shared or exchanged includes, but is not limited to, information that is subject to confidential well status



pursuant to Public Resources Code section 3234 and information that is subject to protection as a trade secret.

2. Any information shared or exchanged between or among Parties that the transmitting Party deems protected from public disclosure shall include a written advisory to that effect (e.g., include "Confidential" in the subject line of the transmitting electronic mail). As used in this MOA, "Confidential Communication" refers to such information transmitted with the written advisory.
3. Only persons authorized in writing by the Director of the Department of Conservation, the Executive Director of the State Water Board or the Executive Officer of a regional water board (as applicable) shall be permitted to obtain Confidential Communications.
4. Except by written agreement, or as required by court order, neither the Division nor the Water Boards shall release, disclose, discuss, or otherwise make available to the public any Confidential Communication or any other information which the Public Records Act or any other applicable law protects from public disclosure.
5. A Party that receives a request from a non-Party to release, disclose, discuss, or otherwise obtain access to any Confidential Communication (whether by way of subpoena, discovery request, request under the California Public Records Act, or other federal or state law) shall notify the transmitting Party that deemed the information protected of the request before the date on which a response to such a request is due, with the goal of providing the notice at least five calendar days before the response deadline. Unless the transmitting Party consents to disclosure or release of the Confidential Communication, the Party that received the disclosure request shall assert all relevant privileges and other objections to the disclosure to the extent authorized by law and subject to any court orders.

**B. Resolution of Technical Questions and Policy Issues**

1. Management of the programs described in this MOA involves the evaluation of numerous complex technical questions. In the event of a disagreement between Division and Water Boards staff, staff will refer the matter to their respective supervisors for cooperative resolution. If no agreement is reached, the matter will be sequentially escalated to corresponding levels of agency management for resolution.
2. All technical reports, work plans, and other documents prepared by regulated entities (e.g., Class II well operators), consultants or other third parties, the Division, or Water Boards that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be signed and stamped by a registered professional **asto the extent** required by California Business and Professions Code sections 6735, 7835, and 7835.1. In the event of a disagreement about whether or how these requirements apply, advice shall be solicited from the Board of Professional Engineers, Land Surveyors, and Geologists as appropriate, and the approach outlined in Paragraph 1 above will be employed.

**C. Other Responsibilities and Requirements**

1. The Division and Water Boards shall have any other responsibilities and requirements as set forth in the Safe Drinking Water Act and other statutes, regulations, and orders.
2. Any responsibility or requirement set forth in this MOA that is inconsistent with any regulation of the Division or Water Boards shall be inoperative and not take effect unless and until the regulation is repealed or revised in a manner that provides consistency with this MOA.

**D. Reservation of Authority**

1. Nothing in this MOA shall be construed as delegating, limiting, or expanding the authority of the Division or Water Boards in carrying out their respective legal responsibilities for the management, regulation, coordination, and control of UIC activities, UIC-related activities, and discharges of UIC-related fluids to land.
2. Nor shall anything in this MOA be construed as affecting the discretion of the Division or Water Boards in carrying out their respective legal responsibilities for the management, regulation, coordination, and control of UIC, UIC-related activities, and discharges of UIC-related fluids to land.
3. This MOA is not a regulation nor does it create binding obligations for either Party.

**E. No Third-Party Beneficiaries**

1. This MOA is not intended for the benefit of any person or entity other than the Parties. Third-parties cannot enforce any provision of this MOA.

**F. Execution, Term, and Modification**

1. This MOA represents the entire agreement of the Parties and merges and supersedes any prior written or oral representations, discussions, understandings, or agreements by, between, or among the Parties relating to the subject matter of this MOA, including the 1988 Memorandum of Agreement Between the State Water Resources Control Board and the Department of Conservation Division of Oil and Gas, but excluding the 2014 Memorandum of Agreement Among the Department of Conservation Division of Oil, Gas, and Geothermal Resources and State Water Resources Control Board and Regional Water Quality Control Boards Regarding Well Stimulation Treatments and Well Stimulation Treatment-Related Activities.
2. The Parties may execute this MOA in counterparts. Each executed counterpart shall have the same force and effect as an original instrument. Taken together, the executed counterparts shall constitute one and the same agreement.
3. This MOA shall become effective upon the date of final signature of the Parties.
4. This MOA shall continue in effect until modified by the mutual consent of the Parties or until terminated by a Party upon a 30-day advance written notice to the other Party.
5. The appendix to this MOA may be modified at any time by mutual agreement of the State Oil and Gas Supervisor and Executive Director of the State Water Board.

**G. Construction**

1. Any determination that a provision of this MOA is invalid does not invalidate any other provision of this MOA or the MOA in its entirety.

**H. Representation on Authority**

1. Each Party represents and warrants that it has the right, power, and authority to execute this MOA. Each Party represents and warrants that it has given any and all notices, and obtained any and all consents, powers, and authorities necessary to permit it, and the persons executing this MOA for it, to enter into this MOA.

VIII. SIGNED AND DATED

\_\_\_\_\_  
DAVID BUNN  
Director  
CALIFORNIA DEPARTMENT OF CONSERVATION

\_\_\_\_\_  
Date

\_\_\_\_\_  
KENNETH A. HARRIS JR.  
State Oil and Gas Supervisor  
DIVISION OF OIL, GAS, AND GEOTHERMAL  
RESOURCES

\_\_\_\_\_  
Date

\_\_\_\_\_  
EILEEN SOBECK  
Executive Director  
STATE WATER RESOURCES CONTROL BOARD

\_\_\_\_\_  
Date

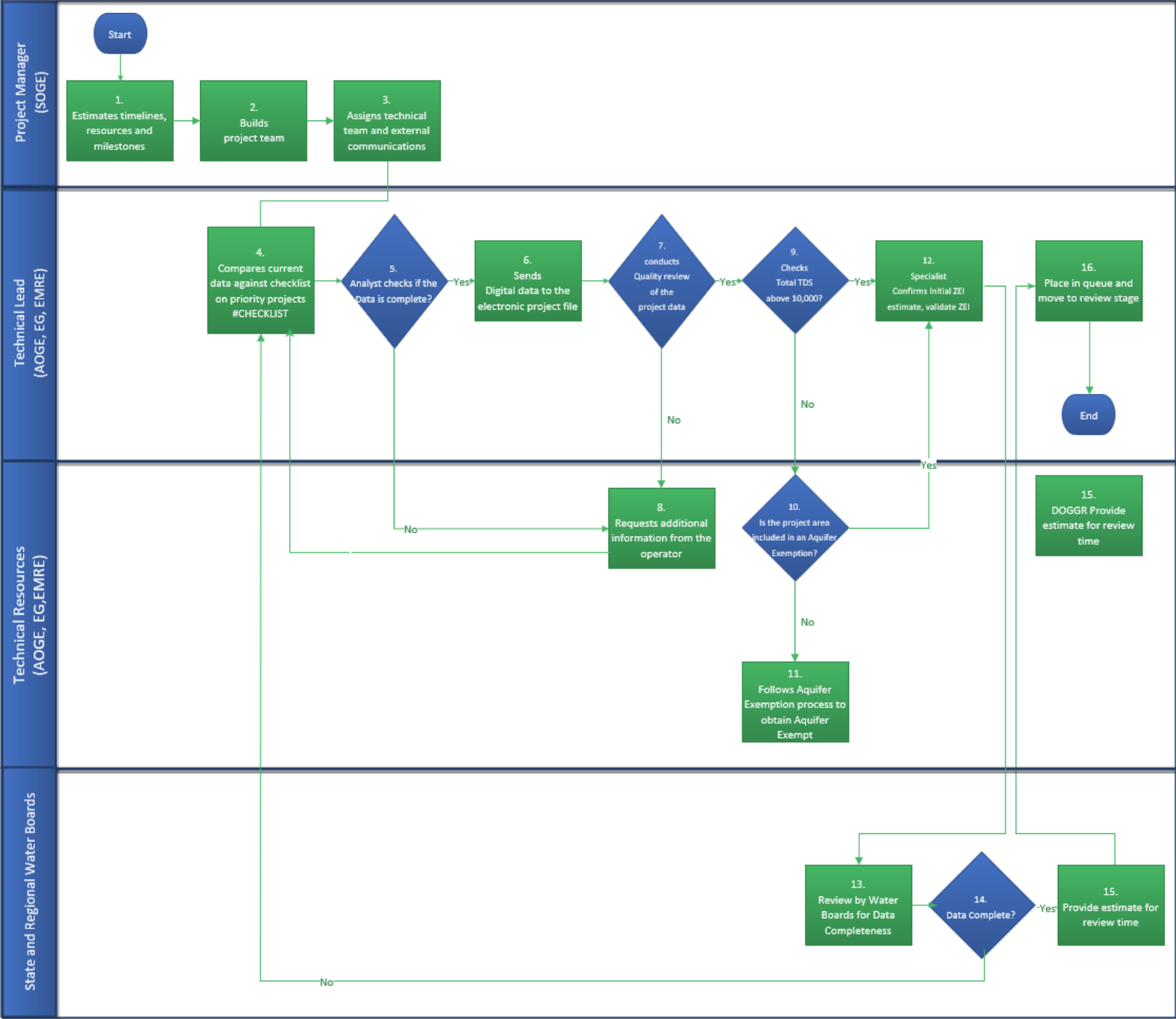
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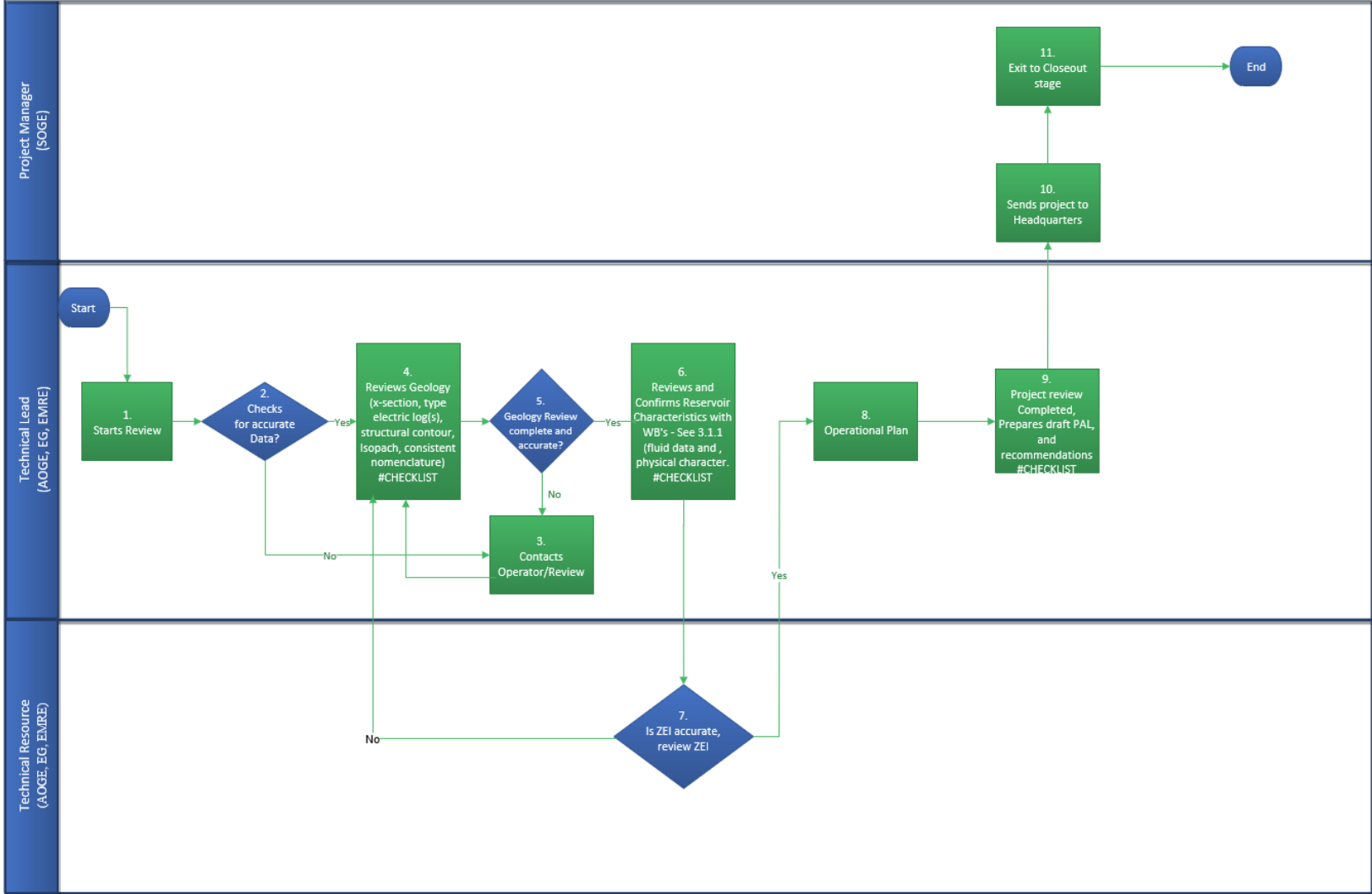
**Revised Memorandum of Agreement Between the State Water Resources Control Board and the Department of Conservation Division of Oil, Gas and Geothermal Resources Regarding Underground Injection Control, Discharges to Land, and Other Program Issues**

## **Appendix**

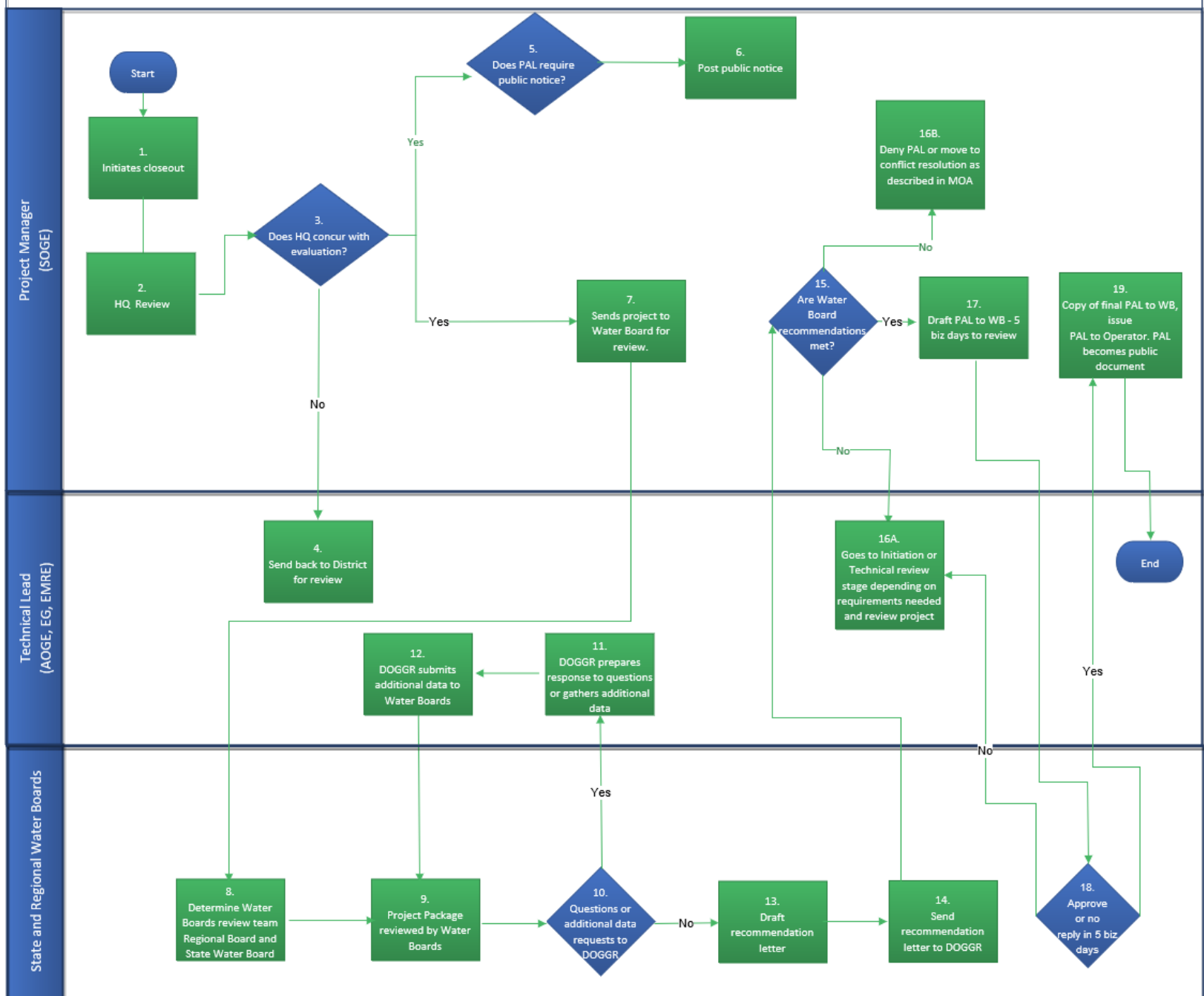
- Attachment 1 – UIC Project Review Process (“Flowchart”)
- Attachment 2 – UIC Project Data Requirements (“Checklist”)

# **Attachment 1**









## **Attachment 2**

# DRAFT

## UNDERGROUND INJECTION CONTROL (UIC) PROJECT DATA REQUIREMENTS

### Checklist and Approval Memo

**Project Category** (Project by Project, Periodic Review, New Project, Modified Project):

**Project Type** (Disposal, Water Flood, Cyclic Steam, Steam Flood)

**Number of Wells:**

**Operator:**

**Project No.:**

**Field Name:**

**Zone:**

**Reviewing Engineer:**

**Date Project Submitted:**

**All data shall be submitted in a Division approved electronic format.**

Electronic submission of all subsurface mappable data (structure, isopachous, and Area of Review (AOR)) shall be submitted as a PDF and/or the corresponding geospatial shapefile(s) and grids that can be plotted using GIS, to show the AOR or Project Area determined. The polygons should clearly show the expected path of injectate, for life of the project.

#### Project Data Requirements

The table below is a non-exclusive checklist of essential data needed for DOGGR and the Water Boards' evaluation of a UIC project under DOGGR's requirements and the Water Boards' requirements.

		Complete	Location in the Data Package
Statement of primary purpose of the project.		<input type="checkbox"/>	
Formation fluid quality determination & Area of Review (AOR)	FA(1) For ACTIVE water disposal projects, determine current injectate front and pressure front to verify the AOR. <sup>1a</sup>	<input type="checkbox"/>	
	FA(2) For compliance with SDWA, if injection zone is less than 10,000 total dissolved solids (TDS) (underground source of drinking water or USDW) and project area is within an exempt aquifer then, determine the AOR for predicted project life. <sup>1a</sup>	<input type="checkbox"/>	
	FA(3) For compliance with SDWA, if injection zone is less than 10,000 TDS (USDW) and project area is NOT entirely within an exempt aquifer then, submit a shut-in plan for wells outside exempt aquifer and/or submit an aquifer exemption expansion application. <sup>1b</sup>	<input type="checkbox"/>	
	FA(4) If injection zone is greater than 10,000 TDS (non-USDW) then, determine AOR for predicted project life. <sup>1a</sup>	<input type="checkbox"/>	
	FA(5) Submit calculation method with constants used for determining AOR. <sup>4,1a,1b</sup>	<input type="checkbox"/>	
Geologic Study	All maps, diagrams and exhibits required should be clearly labeled as to scale and purpose and shall clearly identify wells, boundaries, zones, contacts, and other relevant data that extend beyond the project area to ensure adequate review of the AOR.		
	GS(1) Geologic overview of the formation including discussion on vertical (top & bottom seals) and lateral confinement.	<input type="checkbox"/>	
	GS(2) Structural contour map drawn on a geologic marker at or near the top of each injection zone in the project area as defined by the AOR. The map should show the wellbore paths of all existing and proposed wells in the map area with legible labels. <sup>2</sup>	<input type="checkbox"/>	
	GS(3) Isopach map of each injection zone or subzone in the project area as defined by the AOR. The map should show the wellbore paths of all existing and proposed wells in the map area with legible labels. <sup>2</sup>	<input type="checkbox"/>	
	GS(4) At least two geologic cross sections in the AOR through at least three wells, including one injection well in the project area. <sup>2</sup>	<input type="checkbox"/>	

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	GS(5)	Representative electric log (type log) to a depth below the deepest producing zone identifying all geologic units, formations, freshwater aquifers, USDW(s), and oil and gas zones submitted as a PDF. <sup>2,3</sup>	<input type="checkbox"/>	
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Engineering Study	ES(1)	Reservoir characteristics of each injection zone, such as porosity, permeability, average thickness, areal extent, fracture gradient, original and present temperature and pressure, and original and residual oil, gas, and water saturations.	<input type="checkbox"/>	
	ES(2)	Reservoir fluid data for each injection zone, such as oil gravity and viscosity, liquid quality, and specific gravity of gas. Formation fluid TDS determination should be from actual samples when available or log derivations may be accepted with submission of LAS logs and all constants used for verification.	<input type="checkbox"/>	
	ES(3)	Wellbore construction data for all wells that penetrate the injection zone and Division permitted water-source wells (that will be used in conjunction with the project) within the project area as defined by the AOR. Include all casing strings/liners with perforated intervals, cement plugs, actual or calculated cement fill behind casing, casing damage/holes (squeezed & unsqueezed), and geologic markers including, but not limited to: injection zone depth(s) freshwater depth(s), and USDW(s). Wellbore construction data shall be submitted in a digital format as designated by the State Oil & Gas Supervisor. <sup>4</sup>	<input type="checkbox"/>	
	ES(4)	Plugging and/or abandonment program to remediate problem wells that penetrate the injection zone.	<input type="checkbox"/>	
	ES(5)	A planned well-drilling program including a flood-pattern map showing all injection, production, plugged and abandoned wells, unit boundaries, and Division permitted water-source wells that will be used in conjunction with the project.	<input type="checkbox"/>	

Injection Plan	Electronic submission of the injection plan shall be submitted as a PDF and/or the corresponding geospatial shapefile(s) and grids that can be plotted using GIS, to show the Area of Review (AOR) determined.			
	IP(1)	A map showing injection facilities. <sup>5</sup>	<input type="checkbox"/>	
	IP(2)	Maximum anticipated surface injection pressure (pump pressure) and daily rate of injection, by well.	<input type="checkbox"/>	
	IP(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.	<input type="checkbox"/>	
	IP(4)	Method of injection.	<input type="checkbox"/>	
	IP(5)	List of proposed cathodic protection measures for plant, lines, and wells, if such measures are warranted.	<input type="checkbox"/>	
	IP(6)	Treatment of fluid injected. <sup>6</sup>	<input type="checkbox"/>	
	IP(7)	Project duration	<input type="checkbox"/>	
	IP(8)	<del>Source and analysis</del> Sources and analyses of the injection fluid to ensure injectate will not affect the quality of water that is, or may reasonably be, used for any beneficial use. <u>7a, 7b</u>	<input type="checkbox"/>	

Miscellaneous Requirements	MR(1)	Copies of letters of notification sent to offset operators.	<input type="checkbox"/>	
	MR(2)	All water supply wells that are within the area of review and identified in public records or otherwise known to the operator. <sup>8</sup>	<input type="checkbox"/>	
	MR(3)	Other data as required for large, unusual, or hazardous projects, for unusual or complex structures, or for critical wells. (Examples of such data are: isochore maps, water-oil ratio maps, isobar maps, equipment diagrams, and safety programs.)	<input type="checkbox"/>	
	MR(4)	All recent fluid levels from idle wells located within the AOR. <sup>9</sup>	<input type="checkbox"/>	
	MR(5)	A cover page including a statement that a licensed professional, whose signature and stamp appears at the bottom of the page, is responsible for all data, interpretations, and calculations, if any, subject to the requirements of Business and Professions Code sections 6735, 7835, and 7835.1. If the operator determines that the submission does not include data, interpretations, or calculations subject to the requirements of Business and Professions Code sections 6735, 7835, and 7835.1, the cover page must so indicate, and must provide the name(s) and signature(s) of the individual(s) responsible for preparing the submission.	<input type="checkbox"/>	

To help expedite the Water Board's review and to memorialize DOGGR's analysis in a reference document, please identify the location of the data identified below.

~~1. Evaluation of the AOR, Project Area, and supporting calculations and assumptions. Statement of the anticipated project duration, anticipated daily rate of injection (by well), and anticipated cumulative net volume of fluid to be injected.~~

1a. For ALL project reviews, provide an estimate of the anticipated distance and direction of migration of any Class II fluids to be injected during the remaining life of the project. The application must include a statement and supporting rationale demonstrating that injected Class II fluids have not (for ongoing projects) and will not (for any project) migrate beyond the boundaries of the exempt aquifer or into a USDW. Any evaluation of past, or anticipated future, migration of injected fluids involving geologic or engineering interpretation must be conducted by, or under the direct supervision of, a state-registered professional geologist or professional engineer and signed and stamped by a registered professional ~~as required by~~ to the extent required by California Business and Professions Code sections 6735, 7835, and 7835.1.

~~1b. Evaluation of the AOR, Project Area, and supporting calculations and assumptions. Statement of the anticipated project duration, anticipated daily rate of injection (by well), and anticipated cumulative net volume of fluid to be injected.~~

~~1b. Immediately notify the operator of any changes to the existing project status or new/modified project review schedule resulting from these findings (potentially including termination of existing project, temporary suspension of the current project review activities, etc.).~~

2. Supporting maps, cross sections, well logs, calculations, and references to find more detailed information. The maps should show the AOR and Project Area, existing exemption boundaries, faults (with displacement information), lines of cross-section, a scale, north arrow and identify the name of formation or unit mapped. Also, structural contour and isopach maps of upper and lower "confining" units." Representative permeability and porosity values, if available, of the "confining" units should be labeled on these maps. The cross sections should also show AOR(s), the proposed injection zone, confining units, the formation or units penetrated by injection with associated API numbers, water supply wells, locations of the base of fresh water (BFW) and USDW, and deviated wells within the line of section (i.e. wells near the cross-section trace).

3. The type log should also include the well's API number, the BFW, all formation names, key e-log markers, labeled geophysical curves and a vertical scale. The type log should also show the base of USDW. The method and data used to determine the base of USDW should be included in the application.

4. Identification of location and depth of all wells and bore holes. Each well and bore hole diagram should depict the entire history (e.g. sidetracks, redrills, and other mechanical changes).

5. The map should show the location of any pretreatment facilities, location of proposed injection wells and any other injection wells plumbed to the facility.

6. Information to include type of treatment and plan for the disposal of reject water.

7a. Data on water quality of injection zone collected from wells located within the AOR and injectate. The source of the injectate fluids should be identified including zone/formation and approximate volume percentages. Sampling protocol for existing projects (project by project) should be provided. Any proposed water sampling and analysis proposed for new or modified projects should follow the updated Notice to Operators (NTO, 2018). ~~Footnote 8 – Any water quality data that will be used to justify the injection of fluids (e.g., showing that TDS concentrations within the propose injection zone are greater than 10,000 milligrams per liter) must be accompanied by a written statement or report, prepared by a state-registered professional geologist or professional engineer, indicating the degree to which the water quality data is representative of the injectate fluid or native formation waters and providing justification for that conclusion.~~

7b. Any water quality data that will be used to justify the injection of fluids (e.g., showing that TDS concentrations within the propose injection zone are greater than 10,000 milligrams per liter) must be accompanied by a written statement or report, prepared by a state-registered professional geologist or professional engineer, indicating the degree to which the water quality data is representative of the injectate fluid or native formation waters and providing justification for that conclusion.

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8. Water well survey. Water supply well locations within the project area should be presented on a map and displayed in a spreadsheet. The water supply well survey should utilize the following data sources (at a minimum): DWR well completion reports and GeoTracker Groundwater Ambient Monitoring and Assessment (GAMA) information system. The following information should be included in the spreadsheet: location information, type (municipal, domestic, irrigation, industrial, stock), status (active, idle, abandoned, destroyed), owner, well completion depth and zone name, ~~top screen, and bottom screen~~ and depths for all screened intervals. On a case-by-case basis, an expanded well survey may be necessary based upon potential risk to beneficial use water outside the limits of the AOR.
  
9. These data are necessary in order to calculate hydraulic gradients and groundwater flow directions.