

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION**

ORDER R5-2016-xxxx

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER

FOR
OIL FIELD DISCHARGES TO LAND

GENERAL ORDER NUMBER ONE

The California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board or Board), finds that:

SCOPE OF GENERAL ORDER COVERAGE

1. This General Order applies to owners and/or operators (hereinafter referred to as “Dischargers”) of existing oil and gas production facilities that:
 - a. primarily discharge produced wastewater from oil and gas extraction operations to pond(s), but that may also discharge produced wastewater to land for dust control, and for construction activities, and may discharge road mix within Facility boundaries to enhance containment berms and roads,
 - b. meet the maximum oil field discharge salinity limits for electrical conductivity, chloride, and boron contained in the *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised January 2015* (Basin Plan), and
 - c. began discharge of wastewater to pond(s) prior to **1 January 2015**.
2. This General Order also applies to Dischargers proposing new oil and gas production facilities or expansion or startup of existing facilities that will:
 - a. primarily discharge produced wastewater to new or expanded or startup ponds or result in a material change in the character, location, or volume of discharge, but that may also discharge produced wastewater to land for dust control, and for construction activities, and may discharge road mix within Facility boundaries to enhance containment berms and roads,
 - b. meet maximum oil field discharge salinity limits for electrical conductivity, chloride, and boron in the Basin Plan, and
 - c. begin discharge from **1 January 2015**.

Application of this General Order to new facilities or expansion of existing facilities is contingent upon the Discharger providing evidence of compliance with the requirements of the California Environmental Quality Act (CEQA) in the form of a certified Environmental Impact Report, Mitigated Negative Declaration, or Negative Declaration or CEQA exemption or other appropriate environmental documents.

3. The Board will notify Dischargers of coverage under the terms and conditions of this General Order in the form of a Notice of Applicability discussed in the application process below.
4. This General Order will provide coverage for discharge of oil field produced wastewater to ponds and to land for dust control and construction activities. This General Order does not provide coverage for oil field produced wastewater discharges for crop irrigation. This General Order also does not provide coverage for road mix applications to land where that is the only discharge to land. These separate discharges will be addressed under separate Central Valley Water Board order or waiver of waste discharge requirements (WDRs).
5. For the purposes of this General Order, "produced wastewater" is formation water pumped from an oil or gas well and discharged to land. Produced wastewater may also include water, precipitation, or rainfall runoff that contacts produced wastewater or residual oil field wastes in the production facility. See Attachment A for specific Definitions of many of the terms used in this General Order.
6. There are approximately 326 oil field production facilities with about 1,100 ponds within the Central Valley. Approximately 700 ponds are actively used. Not all of these facilities can meet the requirements of this General Order.

APPLICATION PROCESS

7. Dischargers seeking coverage under this General Order shall file a Notice of Intent (NOI) (equivalent to Report of Waste Discharge (RWD)) with the Central Valley Water Board. A NOI shall consist of the following:
 - a. A completed Form 200, which is available at:
http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.
 - b. Dischargers that are not operating under existing WDRs shall submit an application fee that shall also serve as the first annual fee. The fee shall be based on a threat to water quality (TTWQ) and Complexity (CPLX) rating of 3C

and applicable surcharges as described in Title 23, California Code of Regulations, section 2200.

- c. A technical report that describes the wastewater generation, treatment, storage, reuse and disposal activities. Submittal of the technical report containing complete information described in the attached *Information Needs Sheet* (Attachment B), which is hereby incorporated by reference as part of this General Order, will allow for an expedited review by Central Valley Water Board staff. Applicants are advised to inquire with Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

Upon review of the NOI, Central Valley Water Board staff will determine the appropriate TTWQ and CPLX rating and additional fees may be required.

8. If the information in the NOI demonstrates that coverage under this General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage by issuing a Notice of Applicability (NOA). The NOA will describe the appropriate monitoring and reporting requirements.
9. The Executive Officer may determine that the discharge would be better regulated by individual WDRs, a different general order, an enforcement order, or a National Pollutant Discharge Elimination System (NPDES) Permit in the case of discharges to waters of the United States. In these cases, the Executive Officer will notify the Discharger in writing of such a determination.

BACKGROUND INFORMATION

10. This General Order prescribes requirements for discharges of non-hazardous oil field produced wastewater to ponds and other low threat discharges to land in existing or new oil and gas production facilities located in the Central Valley Region.
11. Existing oil and gas production facility components can include production wells, networks of pipelines, gas separators and dehydrators, oil and water separation units of various configurations and types (e.g. ponds, tank batteries, WEMCOs), storage units, produced wastewater treatment systems, and disposal systems that can include evaporation and percolation ponds. In some operations, produced wastewater is disposed through underground injection wells permitted and regulated by California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR). In other operations produced wastewater is further treated and reused in steam and power generation or injected as steam or

water into the hydrocarbon reservoir to enhance oil recovery (also regulated by DOGGR). High quality produced wastewater may also be reused to supplement agricultural water supplies. Other uses of produced wastewater (of appropriate quality) may include, but are not limited to, oil field dust control and as a compaction aid for construction activities on oil fields, and others as approved by the Executive Officer.

12. The Central Valley Water Board in 2014 began a reevaluation of its oil field program, particularly with respect to discharges to land. The evaluation included research and inspection of all known discharges to ponds. In 2015, the Central Valley Water Board issued orders under Water Code Section 13267 requiring oil field operators to submit information on their discharges to land. In 2015, the Central Valley Water Board also issued orders under Water Code section 13304 to those discharging to ponds without valid waste discharge requirements. The information orders and cleanup and abatement orders required dischargers to submit information on the location, volume and quality of the discharge and to conduct hydrogeological site characterization to determine vertical and lateral extent of the impact of wastewater percolating to groundwater and to ascertain whether discharges threaten groundwater quality or threaten to cause pollution. This information was necessary to determine whether the discharge can be permitted by the Central Valley Water Board. This information may be suitable to support a NOI to comply with this General Order, another general order, or to support individual waste discharge requirements.
13. Discharges that would qualify for coverage under this General Order are generally, but not exclusively, east of Highway 99 in Tulare and Kern Counties. In the Kern County Sub-basin, the groundwater flow direction is generally westerly toward the center of the Central Valley. Fresh groundwater occurs at depths up to 3,000 feet below ground surface. The primary geologic formations that comprise the aquifer system are the Miocene age Olcese and Santa Margarita Formations and the Plio-Pleistocene age Tulare and Kern River Formations. According to the California Department of Water Resources Bulletin 118, the aquifer system is unconfined in the eastern portion of Kern County. The aquifer thickness along the eastern margin of Kern County ranges from about 175 to 3,000 feet with an average thickness of about 600 feet. Deeper aquifers may also contain groundwater that can support the beneficial uses designated by the Basin Plan.

BASIN PLAN AND BENEFICIAL USES

14. The Basin Plan designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board

including State Water Board Resolution 88-63 (Sources of Drinking Water Policy). Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan.

15. Pursuant to Chapter II of the Basin Plan, the beneficial uses of surface water may include:
 - a. municipal and domestic supply (MUN);
 - b. agricultural supply (AGR);
 - c. industrial process supply (PRO);
 - d. industrial service supply (IND);
 - e. hydro-power generation (POW);
 - f. water contact recreation (REC-1);
 - g. non-contact water recreation (REC-2);
 - h. warm freshwater habitat (WARM);
 - i. cold freshwater habitat (COLD);
 - j. migration of aquatic organisms (MIGR);
 - k. spawning reproduction and/or early development (SPWN);
 - l. wildlife habitat (WILD);
 - m. navigation (NAV);
 - n. rare, threatened, or endangered species (RARE);
 - o. groundwater recharge (GWR);
 - p. freshwater replenishment (FRSH);
 - q. aquaculture (AQUA); and
 - r. preservation of biological habitats of special significance (BIOL).

Where surface water bodies are not specifically listed, the Basin Plan designates beneficial uses based on the waters to which they are tributary.

16. The Basin Plan protects the beneficial uses of surface water by establishing numeric and narrative water quality objectives. As new information becomes available, Central Valley Water Board reviews the appropriateness of these objectives, and modifies them accordingly.
17. The beneficial uses of surface waters are protected in this General Order by, among other requirements, prohibitions on: (1) the direct or indirect discharge of wastes from oil and gas production facilities to surface waters, (2) the direct or indirect discharges of waste from production wells to surface water, and (3) the discharge of storm water that has come into contact with produced wastewater or residual oil or oil field wastes to surface waters.
18. The beneficial uses of groundwater designated within the Basin Plan include MUN, AGR, IND, PRO, REC-1, and WILD. Table II-2 of the Basin Plan lists the specific designated beneficial uses of groundwater within each Detailed Analysis Unit

(DAU) of the Basin. Due to their sizes, the listed uses may not exist throughout the DAUs. In addition, some discharges do not fall within the DAUs.

19. Pursuant to Water Code section 13263(a), this General Order must implement the Basin Plan including consideration of the beneficial uses of water, the water quality objectives reasonably required for protection of those beneficial uses, other waste discharges, and the need to prevent nuisance conditions. Water quality objectives are the limits or levels of water quality constituents or characteristics that are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area (Water Code, section 13050(h)). Water quality objectives apply to all waters within a surface water or groundwater resource for which beneficial uses have been designated.
20. Water quality objectives are listed separately for surface water and groundwater in Chapter III of the Basin Plan and are either numeric or narrative. The water quality objectives are implemented in this General Order consistent with the Basin Plan's Policy for Application of Water Quality Objectives, which specifies that the Central Valley Water Board "will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives." To derive numeric limits from narrative water quality objectives, the Board considers relevant numerical criteria and guidelines developed and/or published by other agencies and organizations.
21. Water quality objectives that apply to groundwater include, but are not limited to: (1) numeric objectives, including the bacteria objective and the chemical constituents objective (includes state maximum contaminant levels (MCLs) promulgated in California Code of Regulations (CCR), title 22, sections 64431, 64444, and 64449 and are applicable through the Basin Plan to municipal and domestic supply), and (2) narrative objectives including the chemical constituents, taste and odor, and toxicity objectives.
22. The State secondary drinking water MCLs in CCR, title 22, section 64449 in Table 64449-B, titled Secondary MCLs-"Consumer Acceptance Contaminant Level Ranges" for EC provide a recommended level of 900 $\mu\text{mho}/\text{cm}$ and upper level of 1,600 $\mu\text{mhos}/\text{cm}$ and for chloride provide a recommended concentration of 250 mg/L and upper concentrations of 500 mg/L. Groundwater within these ranges is considered acceptable for municipal supply.
23. The State primary drinking water MCLs in CCR, title 22, section 64444 in Table 64444-A, titled "Maximum Contaminant Levels for Organic Chemicals," provide limits of 1.0 $\mu\text{g}/\text{L}$ for benzene, 300 $\mu\text{g}/\text{L}$ for ethylbenzene, 150 $\mu\text{g}/\text{L}$ for toluene, 1750 $\mu\text{g}/\text{L}$ for xylenes, and 0.5 $\mu\text{g}/\text{L}$ for benzo(a)pyrene.

24. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as Water Quality for Agriculture by Ayers and Westcot and similar references, indicate that yield reductions in nearly all crops are not evident when irrigating with water having an EC less than 700 $\mu\text{mhos/cm}$. There is, however, an eight- to tenfold range in salt tolerance for agricultural crops. It is possible to achieve full yield potential for some crops with waters having EC up to 3,000 $\mu\text{mhos/cm}$ if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.
25. Chapter III of Tulare Basin Plan under Water Quality Objectives for groundwater for salinity, states:

All ground waters shall be maintained as close to natural concentrations of dissolved matter as is reasonable considering careful use and management of water resources. No proven means exist at present that will allow ongoing human activity in the Basin and maintain ground water salinity at current levels throughout the Basin. Accordingly, the water quality objectives for ground water salinity control the rate of increase.

The maximum average annual increase in salinity measured as electrical conductivity shall not exceed the values specified in [Basin Plan] Table III-4 for each Hydrographic Unit shown on [Basin Plan] Figure III-1.

26. The Basin Plan's implementation policy sets forth the following maximum salinity limits (effluent limits) for specific waste constituents for discharges of oil field wastewater to unlined ponds overlying groundwater with existing and future probable beneficial use:

Constituent	Limitation
Electrical Conductivity (EC) ($\mu\text{mhos/cm}$)	1,000
Chloride (mg/L)	200
Boron (mg/L)	1

27. For the White Wolf subarea (consisting of 64,000 acres within the valley floor, at the southern tip of the Tulare Lake Basin, about 20 miles south of Bakersfield, bounded on west by the San Emigdio Mountains, on the south and east by the Tehachapi Mountains, and on the north by the White Wolf Fault), the applicable constituent limits will be more or less restrictive depending on the class of underlying irrigation water as follows:

Constituent	Effluent Limits	
	Class I Irrigation Water	Class II or Poorer Irrigation Water
EC ($\mu\text{mhos/cm}$)	1000	2,000

Constituent	Effluent Limits	
	Class I Irrigation Water	Class II or Poorer Irrigation Water
Chloride (mg/L)	175	350
Boron (mg/L)	1	2
Percent Sodium (%)	60	75

In areas where groundwater would be Class I except for the concentration of a specific constituent, only that constituent will be allowed to exceed the specified limits for Class I water. In no case shall any constituent be greater than those limits specified for areas overlying Class II irrigation water.

28. The Basin Plan allows discharges of oil field wastewater that exceed the above maximum salinity limits to unlined ponds, stream channels, or surface waters if the Discharger successfully demonstrates to the Central Valley Water Board in a public hearing that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives. This General Order does not authorize discharges exceeding the limits in Findings 22 through 27.
29. This General Order prohibits the discharge oil field waste constituents to ground and/or groundwater that creates, or threatens to create, a condition of pollution in groundwater.

STATE ANTIDEGRADATION POLICY (RESOLUTION 68-16)

30. This General Order implements the requirements of State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (hereafter, the State Antidegradation Policy), which requires that disposal of waste into high quality waters of the state be regulated to achieve the highest water quality consistent with the maximum benefit to the people of the state. The quality of some waters is higher than established by adopted policies, and that higher quality water shall be maintained to the maximum extent possible consistent with the State Antidegradation Policy.
31. The State Antidegradation Policy prohibits the Central Valley Water Board from authorizing the degradation of high-quality groundwater unless it has been shown that:
 - a. The degradation is consistent with the maximum benefit to the people of the state,

- b. The degradation will not unreasonably affect present and anticipated future beneficial uses,
 - c. The degradation does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and
 - d. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.
32. The primary waste constituents of concerns (COCs) due to discharges of waste from oil field facilities with respect to surface waters and groundwater are elevated concentrations of general minerals (especially total dissolved solids, EC, and chloride), metals (e.g., arsenic), trace elements (e.g., boron, strontium, thallium, lithium, etc.), petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs, e.g., benzene, toluene, ethylbenzene, and xylenes [BTEX]), and radionuclides.
33. When issuing NOAs under this General Order, the Regional Water Board must assure that discharges to high quality waters implement BPTC as necessary to maintain the highest water quality consistent with maximum benefit to the people of the state. The NOI to obtain coverage under this General Order requires the Discharger to submit a technical report including a detailed Antidegradation Analysis that demonstrates control of COCs through the implementation of BPTC and that any degradation that will occur due to discharges authorized herein will not adversely affect the beneficial uses of groundwater. The technical report must also include a hydrogeological assessment that demonstrates that the proposed discharges of produced wastewater will not substantially affect water quality nor cause a violation of water quality objectives.
34. With respect to surface waters, this General Order prohibits the discharge of oil field related wastes to surface waters or surface water drainages.
35. To assess compliance with the State Antidegradation Policy, this General Order requires Dischargers to monitor discharges to Groundwater. The requirements to monitor first encountered groundwater are met when the Dischargers perform individual groundwater monitoring or participate in a regional groundwater monitoring program. The purpose of monitoring is to confirm that the discharges are effectively controlled by management practices and to evaluate compliance with this General Order.
36. Limited degradation of groundwater by some waste constituents associated with produced wastewater, after effective source control, treatment, and control

measures are implemented, is consistent with the maximum benefit to the people of the state. The economic prosperity of communities and associated industry derived from domestic petroleum production as well as the reduction in foreign petroleum imports are of maximum benefit to the people of the state and provide sufficient justification for allowing limited groundwater degradation that may occur pursuant to this General Order provided the terms of the applicable Basin Plan and other applicable State Water Board and Central Valley Water Board policies are consistently met.

37. This General Order places restrictions on the discharge of produced wastewater from petroleum production. The terms and conditions of this General Order are designed to minimize groundwater quality degradation and protect beneficial uses of waters of the state. Implementation of wastewater management practices, groundwater monitoring plans, and maintenance of waste containment features at produced wastewater disposal facilities will minimize groundwater quality degradation.

STATUTORY AND REGULATORY CONSIDERATIONS

38. Water Code section 13260(a) requires that any person discharging waste, or proposing to discharge waste, within the Central Valley Region, that could affect the quality of the waters of the state, shall file a report of that discharge, or a Notice of Intent for a general order, with the Central Valley Water Board.
39. The Central Valley Water Board generally regulates waste discharges by prescribing waste discharge requirements, which must implement the relevant water quality control plan. The Central Valley Water Board may prescribe general waste discharge requirements (i.e., this General Order) for a category of discharges if all the following criteria apply:
 - a. The discharges are produced by the same or similar operations.
 - b. The discharges involve the same or similar types of waste.
 - c. The discharges require the same or similar treatment standards.
 - d. The discharges are more appropriately regulated under general requirements than individual requirements.

40. Pursuant to Water Code sections 13241 and 13263, the Central Valley Water Board, in establishing the requirements contained herein, considered factors including, but not limited to, the following:
- a. Past, present, and probable future beneficial uses of water;
 - b. Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
 - c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
 - d. Economic considerations;
 - e. The need for developing housing within the region(s); and
 - f. The need to develop and use recycled water.
41. California Code of Regulations, Title 27 (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste, which includes designated waste, as defined by Water Code section 13173. However, Title 27 exempts certain activities from its provisions. Discharges regulated by this General Order are exempt from Title 27 pursuant to provisions that exempt wastewater under specific conditions. This exemption, found at Title 27, section 20090 is described below:

* * *

(b) Wastewater - Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:

- (1) the applicable RWQCB has issued WDRs, reclamation requirements, or waived such issuance;
- (2) the discharge is in compliance with the applicable water quality control plan; and
- (3) the wastewater does not need to be managed according to Chapter 11, Division 4.5, Title 22 of this code as a hazardous waste.

* * *

42. The discharges authorized herein are exempt from the requirements of Title 27 in accordance with Title 27, section 20090(b) because:
 - a. The Central Valley Water Board is issuing general WDRs,
 - b. The discharge is in compliance with the Basin Plan, and
 - c. The waste discharge does not need to be managed as hazardous waste.
43. New regulations in CCR, title 14, concerning well stimulation treatment went into effect on 1 July 2015.
44. CCR title 14, section 1761(a) defines well stimulation treatment as treatment of a well designed to enhance oil and gas production or recovery by increasing the permeability of the formation. Examples of well stimulation treatments include hydraulic fracturing, acid fracturing, and acid matrix stimulation. Well stimulation treatment does not include routine well cleanout work; routine well maintenance; routine treatment for the purpose of removal of formation damage due to drilling; bottom hole pressure surveys; routine activities that do not affect the integrity of the well or the formation; the removal of scale or precipitate from the perforations, casing, or tubing; a gravel pack treatment that does not exceed the formation fracture gradient; or a treatment that involves emplacing acid in a well and that uses a volume of fluid that is less than the Acid Volume Threshold for the operation and is below the formation fracture gradient.
45. CCR, title 14, section 1786(a)(4) states that operators shall not store well stimulation treatment fluids, including produced waters from a well that has undergone well stimulation treatment (i.e. hydraulic fracturing, acid fracturing, and acid matrix stimulation), in sumps or pits.
46. Pursuant to Senate Bill 4 (Pavley 2013), the California Natural Resources Agency commissioned the California Council on Science and Technology (CCST) to conduct an independent scientific assessment of well stimulation treatments, including hydraulic fracturing, in California. CCST's assessment concluded that produced water from stimulated wells may contain well stimulation chemicals or their reaction by-products and that reuse of produced water for irrigation of crops could be a mechanism for release of well stimulation chemicals to the environment.
46. This General Order does not authorize violation of any federal, state, or local law or regulation.

47. As stated in Water Code section 13263(g), the discharge of waste into waters of the state is a privilege, not a right, and this General Order does not create a vested right to continue the discharge of waste. Failure to prevent conditions that create or threaten to create pollution or nuisance or cause degradation will be sufficient reason to modify, revoke, or enforce this General Order, as well as prohibit further discharge.
48. In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. This General Order promotes that policy by requiring discharges, where appropriate, to ensure that groundwater meets maximum contaminant levels designed to protect human health and ensure that water is safe for domestic use.
49. This General Order is not a National Pollutant Discharge Elimination System Permit issued pursuant to the Federal Clean Water Act. Coverage under this General Order does not exempt a facility from the Clean Water Act. Any facility required to obtain such a permit must notify the Central Valley Water Board.
50. On 1 April 2014, the State Water Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) specifying waste discharge requirements for discharges of storm water associated with industrial activities. Order 2014-0057-DWQ became effective 1 July 2015 and requires all applicable industrial dischargers, including oil and gas facilities, to apply for coverage by the effective date. However, storm water at oil and gas production facilities may be captured and contained on-site or comingled with produced wastewater before being discharged to ponds or production containment areas (i.e., secondary containment) in accordance with this General Order. This General Order prohibits the discharge of wastes from leaving the pond area, secondary containment area, or entering waters of the United States. Therefore, Dischargers are not required to obtain coverage under Order 2014-0057-DWQ as long as storm water is contained in the Facility.
51. Water Code section 13267(b) states:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges or is suspected of having discharged or discharging, or proposes to discharge waste outside of its region that could affect the quality of water within its region shall furnish, under penalty of perjury, technical or monitoring

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

52. The technical reports required by this General Order and the attached Monitoring and Reporting Program R5-2016-XXXX are necessary to ensure compliance with these waste discharge requirements. The Discharger owns and/or operates the Facility that discharges the waste subject to this General Order.
53. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90 (June 1991)* and *Water Well Standards: State of California Bulletin 74-81 (December 1981)*. These standards, and any more stringent standards adopted by the State or county pursuant to Water Code section 13801, apply to all monitoring wells used to monitor the impacts of wastewater storage or disposal governed by this General Order.
54. The Findings of this General Order, attachments and details in the attached Information Sheet, and the administrative record of the Central Valley Water Board relevant to oil field facilities were considered in establishing the conditions of discharge.
55. In 2006, the Central Valley Water Board, the State Water Board, and regional stakeholders began a joint effort to address salinity and nitrate problems in the region and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program. The CV-SALTS effort might effect changes to the Basin Plan that would necessitate the re-opening of this General Order.
56. Where the Discharger's efforts to improve the quality of the land discharge cannot meet Basin Plan maximum salinity limits, the Discharger may submit an application for an exception from water quality objectives related to salinity pursuant to Chapter IV, Exception to Discharge Requirements Related to the Implementation of Water Quality Objectives for Salinity, paragraph 8 of the Basin Plan. The application must provide justification as to why the exception would be necessary, a description of salinity reduction measures that the Discharger has undertaken or is proposing, and an evaluation of whether water conservation has had an impact

on the salinity of the discharge. The Discharger must participate in the CV-SALTS Program to qualify for an exception.

CALIFORNIA ENVIRONMENTAL QUALITY ACT AND PUBLIC NOTICE

58. The Central Valley Water Board is the lead agency with respect to the issuance of this General Order under applicable provisions of the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.).
59. The benchmark for evaluating whether this General Order will have impacts on the environment is the “environmental baseline.” The environmental baseline normally consists of “a description of the physical environmental conditions in the vicinity of the project at the time...environmental analysis is commenced.” (CCR, title 14, section 15125(a).) The receipt of a permit application (report of waste discharge) is one event that can be used to mark the beginning of the environmental review process and therefore an appropriate date for the environmental baseline. (*Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278.)
60. In 2015, the Board issued Notices of Violation (NOVs) to operators discharging to ponds without WDRs. Operators who received NOVs were required to submit reports of waste discharge or resolve the NOVs through other means. The environmental baseline for facilities where the operators submitted RWDs as required is the date the RWD was received by the Central Valley Water Board.
61. This General Order is designed to enhance the protection of surface and groundwater resources, and its application to existing production facilities is exempt from the provisions of CEQA in accordance with the following categorical exemptions:
 - a. California Code of Regulations, title 14, section 15301, which exempts the “operation, repair, maintenance, [and] permitting ... of existing public or private structures, facilities, mechanical equipment, or topographical features” from environmental review. Eligibility under the General Order is limited, in part, to existing oil and gas production wastewater discharge facilities. The General Order may be assigned to expansion of these facilities or new facilities if compliance with the CEQA is demonstrated by the Discharger.
 - b. California Code of Regulations, title 14, section 15302, exempts the “replacement or reconstruction of existing structures and facilities where the new structure will be located on the same site as the structure replaced and will have substantially the same purpose and capacity as the structure replaced.” This General Order may require covered oil field facilities to replace or

reconstruct portions of their waste management systems to ensure compliance with the General Order's requirements.

- c. California Code of Regulations, title 14, section 15304 exempts "minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry and agricultural purposes." The General Order may require operators of covered oil and gas production wastewater discharge facilities to make improvements to their waste management systems that will result in only minor alterations to land, water, and/or vegetation.
62. Facilities defined as "new" or "expanding" pursuant to this General Order must submit proof of compliance with the provisions of CEQA in the form of a certified Environmental Impact Report, Mitigated Negative Declaration, or Negative Declaration or other appropriate environmental documents, together with an NOI and appropriate fee, to the Central Valley Water Board to qualify for coverage under this General Order.
 63. The Central Valley Water Board has notified interested agencies and persons of its intent to issue this General Order for discharges of wastes from existing oil field production facilities and has provided them with an opportunity for a public hearing and an opportunity to submit comments.
 64. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the proposal to regulate discharges of wastes from existing or new oil field facilities under this General Order.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267 and in order to meet the provisions contained in Division 7 of the California Water Code and regulations and policies adopted thereunder, all Dischargers specified by the Central Valley Water Board, their agents, successors, and assigns shall comply with the following:

A. PROHIBITIONS

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.
2. Discharge of wastes other than those described in the NOI submitted for coverage under this General Order and as described in the resulting NOA issued by the Executive Officer is prohibited.

3. Discharge of waste to land, other than produced wastewater from production wells to ponds, is prohibited unless authorized by the Executive Officer in accordance with the requirements of Provisions E. 4, 5, and 6.
4. The discharge of fluids used in “well stimulation treatment,” as defined by CCR, title 14, section 1761 (including hydraulic fracturing, acid fracturing, and acid matrix stimulation), to land is prohibited.
5. The discharge of produced wastewater from wells that have been stimulated as defined by CCR, title 14, section 1761 is prohibited.
6. Acceptance, treatment, or discharge of “hazardous waste,” as defined in CCR, title 22, section 66261.1 et seq., is prohibited.
7. Treatment system bypass of untreated or partially treated waste is prohibited, except as allowed by section E.2 of Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991 and part of this General Order.
8. Produced wastewater overflow from ponds is prohibited.
9. Discharges of produced wastewater to ponds that could adversely impact any municipal or domestic supply well are prohibited.
10. The collection, treatment, storage, discharge or disposal of wastes at the oil and gas production facility that results in the creation of a condition of pollution or nuisance is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The discharge flow shall not exceed the maximum design flow of the Produced Wastewater Production Facilities limiting unit as described by technical data for the Facility.
2. Discharges of produced wastewater to ponds and the produced wastewater in ponds outside the White Wolf Subarea shall not exceed the following maximum salinity limits for EC, chloride and boron as the following 12-month rolling averages:

Constituent	Limitation
Electrical Conductivity (EC) ($\mu\text{mhos/cm}$)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

3. Discharges of produced wastewater to ponds and the produced wastewater in ponds within the White Wolf Subarea shall not exceed the following maximum salinity limits for EC, chloride, boron, and percent sodium as the following 12-month rolling averages:

Constituent	Limitation
EC ($\mu\text{mhos/cm}$)	1,000
Chloride (mg/L)	175
Boron (mg/L)	1
Percent Sodium (%)	60

4. The discharge shall remain within the permitted waste treatment/containment/disposal structures at all times, or in case of emergency, within secondary containment structures.
5. All ponds shall be operated and maintained to prevent wastes from concentrating to hazardous levels.
6. Public contact with wastes shall be precluded through such means as fences or other acceptable alternatives in accordance with CCR, title 14, section 1770 (b)(1) through (b)(4).
7. Ponds shall be free of oil or effectively netted to preclude the entry of wildlife in accordance with CCR, title 14, section 1778 (d).
8. The Discharger shall operate all systems and equipment to optimize the water quality of the discharge to ponds.
9. All conveyance, treatment, storage, and disposal systems including ponds, tank batteries, and other components of oil and gas production facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
10. Objectionable odors shall not be perceivable beyond the limits of the property where the waste is generated, treated, and/or discharged at an intensity that creates or threatens to create nuisance conditions.
11. Pond berms shall be designed and maintained to prevent leakage caused by erosion, slope failure, or animal burrowing.
12. The Discharger shall operate and maintain all ponds sufficiently to protect the integrity of containment and berms and prevent overtopping and/or structural

- failure. Unless a California-registered civil engineer certifies (based on design, construction, and conditions of operation and maintenance) that less freeboard is adequate, the operating freeboard in any pond shall never be less than two feet (measured vertically from the lowest possible point of overflow). As a means of management and to discern compliance with this requirement, the Discharger shall install and maintain in each pond a permanent staff gauge or equivalent with calibration marks that clearly show the water level at design capacity and enable determination of available operational freeboard.
13. Produced wastewater treatment, storage, and disposal units shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter while ensuring continuous compliance with all requirements of this General Order. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
 14. On or about 1 October of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications B.9 and B.13.
 15. All ponds and containment structures shall be managed to prevent breeding of mosquitoes or other vectors. Specifically:
 - a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface;
 - b. Weeds shall be minimized through control of water depth, harvesting, or herbicides. All pesticide applications are to be done in compliance with labelling instructions and all applicable laws and regulations;
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and
 - d. The Discharger shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.
 16. Newly reconstructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) shall be designed and constructed under the supervision of a California registered civil engineer. A post-construction report by the California registered civil

- engineer that oversaw construction shall be submitted within **60 days** of completion of construction and shall certify that the berms and/or levees were constructed in accordance with design specifications and are suitable for the retention of wastewater.
17. The Discharger shall monitor solids accumulation in the wastewater treatment/storage/disposal units and ponds at least every five years beginning in 2016, and shall periodically remove solids as necessary to maintain adequate treatment storage and capacity. Specifically, if the estimated volume of solids in any units exceeds five percent of the permitted capacity, the Discharger shall complete solids cleanout within 12 months after the date of the estimate, or demonstrate that a reduced pond capacity is adequate.
 18. Dischargers who are subject to this General Order shall implement BPTC to protect water quality and to maintain compliance with applicable water quality objectives.
 19. All precipitation and surface drainage (i.e., "run on") from outside an oil and gas production facility, where it could come into contact with waste, shall be diverted away from the Facility or pond unless such drainage is fully contained.
 20. Produced wastewater application rates, on the production facility property where the produced wastewater is generated for dust control or construction activities, shall be applied at the minimum hydraulic loading rates necessary to perform the intended purpose and shall be consistent with an approved management plan in accordance with Provision E.5.
 21. Application of produced wastewater at the production facility property for dust control or construction activities shall be at reasonable rates to preclude creation of a nuisance and unreasonable degradation of groundwater or surface water. Applied wastewater shall not be allowed to pool onsite or runoff from the area intended for dust suppression.

C. GROUNDWATER LIMITATIONS

1. The discharge of produced wastewater shall not cause groundwater in the area potentially affected by discharges to contain waste constituents in concentrations greater than the following (with exception of the White Wolf Area):

Constituent	Units	Limitation
Electrical Conductivity	µmhos/cm	1,000
Chloride	mg/L	200
Boron	mg/L	1.0
Arsenic	µg/L	10

2. The discharge of produced wastewater shall not cause groundwater in the White Wolf Subarea potentially affected by discharges to contain waste constituents in concentrations greater than the following:

Constituent	Units	Class I Irrigation Water
EC	µmhos/cm	1,000
Chloride	mg/L	175
Boron	mg/L	1
Arsenic	µg/L	10

3. The discharge of produced wastewater shall not cause groundwater to contain constituents in concentrations that exceed water quality objectives or adversely affect the beneficial uses of the groundwater identified in the Basin Plan. If the groundwater naturally contains constituents that exceed the water quality objectives of the Basin Plan, the discharge of produced wastewater shall not cause the concentrations of those constituents to increase.

D. SOLIDS DISPOSAL SPECIFICATIONS

Solids as used in this document means the solid, semisolid, and liquid residues removed during treatment processes or accumulated in tanks, ponds, or other Facility components.

1. Solids shall be removed from screens, tanks, ponds, and other treatment units as needed to ensure optimal operation and adequate storage capacity.
2. Any handling and storage of solids shall be controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soil in a mass or concentration that could violate the groundwater limitations of this General Order.

3. Solids from the Facility shall be managed in accordance with a solids management plan approved by the Executive Officer in accordance with Provision E.6. Solids used as road mix within the oil lease area shall be non-hazardous (prior to mixing). Handling and application practices shall be designed to ensure that oil field wastes do not migrate once placed.
4. Any proposed change in solids use, storage, or disposal practices shall be reported in writing to the Executive Officer at least 90 days in advance of the change and shall be pre-approved by the Executive Officer.
5. Road mix containing tank bottoms and oily materials (also referred to as solids) shall be non-hazardous (prior to mixing) and shall not be applied on roads where seasonal storm water flows across the road and potentially washes or erodes the road mix into any seasonal surface drainage course.

E. PROVISIONS

1. The Discharger shall comply with the applicable sections of "*Standard Provisions and Reporting Requirements for Waste Discharge Requirements*," dated 1 March 1991. This attachment and its individual paragraphs are referred to as "Standard Provisions," and are hereby incorporated by reference as part of this General Order. NOAs issued will delineate applicable sections of the Standard Provisions.
2. The Discharger shall comply with Monitoring and Reporting Program R5-2016-XXXX (MRP), hereby incorporated by reference as part of this General Order, and any revisions thereto as ordered by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal dates specified in the MRP.
3. **Within 90 days of receipt of the NOA** for the Facility, the Discharger shall submit written certification that it has installed acceptable flow metering at a location or locations to ensure the accurate measurement of all discharge flows. The certification shall be accompanied by: (1) a description of the flow metering devices installed, (2) a diagram showing their locations at the Facility, and (3) evidence demonstrating that the devices were properly calibrated. An engineered alternative may be used if approved in writing by the Executive Officer.
4. Discharges of wastes from oil field activities other than produced wastewater from production wells to land may be authorized by the Executive Officer if the Discharger can demonstrate with appropriate data and analyses that the discharge does not pose a threat to the beneficial uses of the groundwater.

5. Dischargers wishing to use produced wastewater at the Facility for dust control or in construction activities shall provide a proposed management plan for such activities. The management plan shall include:
 - a. Data characterizing the quality of the produced wastewater that will be applied;
 - b. Proposed application/use methods, application rates, and proposed frequencies of application;
 - c. Proposed application areas shown on a scaled aerial photograph within the covered oil lease(s). The photograph shall show pertinent site features including, roads, ponds, production and treatment facilities, surface waters, and surface water drainages;
 - d. Proposed constituent loading rates;
 - e. A list of all management practices that will be implemented to ensure applied produced wastewater will remain where applied and not produce runoff; and
 - f. A demonstration that the discharges will be protective of water quality and will not adversely affect the beneficial uses of surface water or underlying groundwater.

The management plan must be submitted to the Executive Officer at least **90 days** prior to the anticipated discharges. Discharges shall not occur without Executive Officer written approval of the management plan.

6. Dischargers reusing solids for road mix, as described in Solids Disposal Specifications, shall submit a solids management plan for approval by the Executive Officer within **60 days** of receipt of the NOA for the Facility. Dischargers proposing to reuse solids for road mix shall submit a solids management plan for approval by the Executive Officer at least **180 days** prior to any solids reuse. The solids management plan shall include:
 - a. A complete characterization of the quality and quantity of the solids;
 - b. A demonstration that the solids are not hazardous as defined by CCR, title 22, section 66261.1 et seq.;
 - c. Proposed application areas shown on a scaled aerial photograph within the covered oil lease(s). The photograph shall show pertinent site features including, roads, ponds, production and treatment facilities, surface waters, and surface water drainages;
 - d. Proposed constituent loading rates;
 - e. A list of all management practices that will be implemented to ensure wastes will remain where processed and applied and not migrate from the location of application; and

- f. A demonstration that the discharges will be protective of water quality and will not adversely affect the beneficial uses of surface water or underlying groundwater.

New reuse shall not commence prior to obtaining the written approval of the solids management plan from the Executive Officer.

Solid wastes disposed off-site shall be transported to an appropriately permitted Facility. Solid waste volumes, disposal methods, disposal facilities, and analytical results from waste characterization shall be reported in accordance with the MRP.

7. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain workplans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.
8. The Discharger shall submit a complete NOI in accordance with the Water Code section 13260 at least 140 days prior to any material change or proposed change in the character, location, or volume of the discharge, including any expansion of the Facility or development of any treatment technology.
9. The Discharger shall comply with all conditions of this General Order, including timely submittal of technical and monitoring reports. On or before each report due date, the Discharger shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then the Discharger shall state the reasons for such noncompliance and provide an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in termination of coverage under this General Order.

10. The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this General Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Discharger when the operation is necessary to achieve compliance with the conditions of this General Order.
11. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this General Order.
12. At least 90 days prior to termination or expiration of any lease, contract, or agreement involving disposal or off-site use of effluent used to justify the capacity authorized herein and assure compliance with this General Order, the Discharger shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this General Order.
13. In the event of any change in control or ownership of the Facility, the Discharger must notify the succeeding owner or operator of the existence of this General Order and the NOA by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.
14. To assume coverage as a new Discharger under this General Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of coverage under the General Order. The request shall be made prior to the effective date of the new ownership or operator. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, and the name, address, and telephone number of the person(s) responsible for contact with the Central Valley Water Board. The request must also include a statement that the new owner or operator assumes full responsibility for compliance with this General Order and comply with the signatory paragraph of Standard Provisions section B.3. Failure to submit a complete request shall be considered an unauthorized discharge in violation of the Water Code. Upon approval of the transfer request, the Executive Officer will issue an NOA authorizing coverage under this General Order.
15. Dischargers with NOI coverage may/shall request termination of coverage under this General Order when either (a) operation of the Facility has been transferred to another entity, (b) the Facility has ceased operations, or (c) the

- Facility's operations have changed and are no longer subject to the General Order. Dischargers shall certify and submit a Notice of Termination (NOT) Letter to the Executive Officer approval. Until a valid NOT Letter is received and issuance of written Executive Officer approval letter, the Discharger remains responsible for compliance with this General Order and payment of accrued annual fees.
16. A copy of this General Order including the General Order, the Monitoring and Reporting Program, Information Sheet, and Attachments A and B, and Standard Provisions, shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.
 17. The Central Valley Water Board will review this General Order periodically and will revise requirements when necessary.
 18. Coverage under this General Order is effective upon notification by the Executive Officer (i.e., issuance of NOA) that this General Order applies to the Discharger.
 19. If more stringent applicable water quality standards are adopted in the Basin Plan, the Central Valley Water Board may revise and modify this General Order in accordance with such standards.
 20. This General Order may be reopened to address any changes in state plans, policies, or regulations that would affect the water quality requirements for the discharges and as authorized by state law. This includes regulatory changes that may be brought about by the CV-SALTS planning efforts.
 21. Dischargers may apply for an exception from water quality objectives related to salinity pursuant to Chapter IV, Exception to Discharge Requirements Related to the Implementation of Water Quality Objectives for Salinity, paragraph 8 of the Basin Plan. The application must be made in accordance with Finding No. 56 of this Order and the Discharger must participate in the CV-SALTS Program to qualify for an exception.
 22. The Central Valley Water Board or the Executive Officer may revoke coverage under this General Order at any time and require the Discharger to submit a NOI and obtain individual waste discharge requirements.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this General Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil

liability, or may take other enforcement actions. Failure to comply with this General Order may result in the assessment of Administrative Civil Liability by the Central Valley Water Board up to \$10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. In addition, where there is discharge, Central Valley Water Board can assess up to an additional \$10 per gallon multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law. Civil liability may be imposed by the superior court for up to \$25,000 for each day of violation and in addition where there is discharge, up to an additional \$25 per gallon multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and CCR, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this General Order, except that if the thirtieth day following the date of this General Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality
or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full true and correct copy of a General Order adopted by the California Regional Water Quality Control Board on ___

PAMELA C. CREEDON, Executive Officer

Attachments:

- A: Definitions
- B: Information Needs Sheet