EXHIBIT 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0034

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 oil and gas production facilities (herein after referred to as Facilities or Facility) that:

   a. primarily discharge produced wastewater from oil and gas extraction operations to land, including but not limited to produced wastewater disposal ponds, 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 **26 November 2014.**

   This General Order classifies such Facilities as "existing."

2. 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.

3. 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 and dust control 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).

4. It is the intent of the Central Valley Water Board that Facilities regulated by outdated WDRs can also apply for coverage under this General Order.

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 Facility. See Attachment A for specific Definitions of many of the terms used in this General Order.

6. There are approximately 326 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) with the Central Valley Water Board within 30 days of the adoption date of this General Order. 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. The NOI for the Facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average produced wastewater discharge flow to ponds that occurred in the ten years immediately prior to 26 November 2014. Any increase in flow beyond this number constitutes an expansion requiring a CEQA evaluation. The use of the actual maximum monthly average produced wastewater discharge flow in the last ten years to define the existing operations accounts for fluctuations in oil and gas production and associated wastewater flows due to changes in economic conditions.

9. 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). Coverage under this General Order will commence upon issuance of the NOA. The NOA will describe the appropriate monitoring and reporting requirements.

10. 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

11. 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 Facilities located in the Central Valley Region.

12. Existing 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. 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 most 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.

13. 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 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.

14. Discharges that would qualify for coverage under this General Order are generally, but not exclusively, east of Highway 99 in Tulare and Kern Counties. This area is in the Tule Subbasin, and the eastern portion of the Kern County Subbasin, of the San Joaquin Valley Groundwater Basin. According to the California Department of Water Resources Bulletin 118, the aquifer systems in these subbasins are unconfined and groundwater generally flows westerly toward the center of the Central Valley.

    The sediments that comprise the Tule subbasin's aquifer are continental deposits of Tertiary and Quaternary age (Pliocene to Holocene) derived from the Sierra Nevada. These deposits include flood-basin deposits, younger alluvium, older alluvium, and undifferentiated continental deposits. The primary geologic formations that comprise the aquifer system in the eastern portion of the Kern County Sub-basin are the Miocene age Olcese and Santa Margarita Formations and the Plio-Pleistocene age Kern River Formation.

    Groundwater in these subbasins occurs at depths up to 3,000 feet below ground surface. The aquifer thickness 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

15. 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 Resources Control Board (State Water Board).

16. 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.

17. The beneficial uses of groundwater described in 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. Further, the Basin Plan incorporates State Water Board Resolution 88-63, known as the State "Sources of Drinking Water Policy." Pursuant to this policy, all groundwater is designated as MUN (the use may be existing or potential) unless specifically exempted by the Central Valley Water Board and approved for exemption by the State Water Board. In addition, unless otherwise designated by the Central Valley Water Board, all groundwater in the Region is considered suitable or potentially suitable, at a minimum, for agricultural supply (AGR), industrial supply (IND), and industrial process supply (PRO).

18. 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.

19. 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.

20. Water quality objectives that apply to groundwater include, but are not limited to: (1) numeric objectives such as the chemical constituents objective (includes state drinking water primary and secondary maximum contaminant levels (MCLs) promulgated in California Code of Regulations (CCR), title 22, sections 64431, 64444, and 64449 applicable through the Basin Plan to municipal and domestic supply), and (2) narrative objectives including the chemical constituents, taste and odor, and toxicity objectives.

21. California Code of Regulations, title 22, section 64449, *Table 64449-B Secondary Maximum Contaminant Levels-"Consumer Acceptance Contaminant Level Ranges"* contains recommended total dissolved solids (TDS), specific conductance (or EC), and chloride levels for drinking water of 500 mg/L, 900 µmho/cm, and 250 mg/L, respectively. The upper recommended TDS, EC, and chloride levels are 1000 mg/L, 1,600 µmhos/cm, and 500 mg/L, respectively. Groundwater with concentrations of TDS, EC, and chloride concentrations below the upper recommended levels is considered acceptable for municipal supply with respect to those constituents.

22. California Code of Regulations, title 22, section 64444, *Table 64444-A "Maximum Contaminant Levels for Organic Chemicals,"* indicates the primary MCLs for benzene, ethylbenzene, toluene, xylenes, benzo(a)pyrene, are 1.0 µg/L, 300 µg/L,150 µg/L, 1750 µg/L, and 0.5 µg/L, respectively. Groundwater containing these constituents below the MCLs is considered acceptable for municipal supply.

23. 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 µmhos/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 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

24. 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.

25. 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) (µmhos/cm)	1,000
Chloride (mg/L)	200
Boron (mg/L)	1

26. 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:

	Effluent Limits	
Constituent	Class I Irrigation Water	Class II or Poorer Irrigation Water
EC (µmhos/cm)	1000	2,000

	Effluent Limits	
Constituent	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.

27. 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 23 through 25.

28. 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)

29. 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.

30. 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.

31. The primary waste constituents of concern (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.

32. When issuing a NOA under this General Order, the Regional Water Board must ensure 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. When submitting a NOI to obtain coverage under this General Order, the Discharger is required 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.

33. This General Order prohibits the discharge of oil field related wastes to surface waters or surface water drainages.

34. To assess compliance with the State Antidegradation Policy, this General Order requires Dischargers to monitor discharges to groundwater or demonstrate that the discharge cannot affect the quality of the underlying groundwater. The demonstration must be based on an analysis of appropriate hydrogeologic information. Absent such a demonstration, the requirements to monitor first encountered groundwater are met when the Dischargers perform individual groundwater monitoring or participate in a regional groundwater monitoring program as part of a group of Dischargers with several small facilities in similar hydrogeological areas. The purpose of monitoring is to demonstrate compliance with Resolution 68-16 and the requirements of this General Order.

35. This General Order provides small and medium operators (i.e., those that discharge 250 or fewer barrels per day and those that discharge 250 up to and including 1,000 barrels per day of produced wastewater to land, respectively) time schedules to comply with the groundwater monitoring requirements in the Monitoring and Reporting Program R5-2017-0034 (MRP). Given this General Order requires dischargers to meet Basin Plan limits, it is unlikely that the discharges will degrade groundwater during the time extension.

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 with the Central Valley Water Board. An NOI meets this requirement.

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) states:

> Operators shall adhere to the following requirements for the storage and handling of well stimulation treatment fluids, additives, and produced waters from a well that has had a well stimulation treatment: … (4) Fluids shall be stored in containers and shall not be stored 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.

47. This General Order contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger to fund, study, and implement appropriate compliance options.

48. This General Order does not authorize violation of any federal, state, or local law or regulation.

49. 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.

50. 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. Consistent with this policy, this General Order has requirements that prohibit discharges from causing a condition of pollution in waters that are suitable for the beneficial uses of municipal and domestic water supply.

51. 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.

52. 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 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.

53. This General Order clarifies that discharges of wastewater to secondary containment units are to be due to emergency events that are beyond the control of the Facility operator and that the discharges to the secondary containment are short term, limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment units and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Board. Discharges of storm water containing pollutants to waters of state and waters of the United States would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

54. 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.

55. The technical reports required by this General Order and the attached MRP 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.

56. The MRP requires extensive monitoring of the Facility, the wastewater, and the groundwater. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

57. 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.

58. 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.

59. 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.

60. 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

61. 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.).

62. 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." The CEQA Guidelines also contemplate that physical conditions at other points in time may constitute the appropriate baseline. (CCR, title 14, section 15125(a), Cherry Valley

Pass Acres and Neighbors v. City of Beaumont (2010) 190 Cal. App. 4th 316, 336.)

63. 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 because it commences the development of an individual permit. Therefore, the date an application is received is appropriate for the environmental baseline. (Fat v. County of Sacramento (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

64. In November 2014, the Board recognized the need to develop a general order to regulate produced wastewater discharges to ponds. Beginning in January 2015, the Board issued Notices of Violation (NOVs) to operators discharging to ponds without WDRs.

65. A rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production and associated wastewater discharge flows have fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline shall be based on the existing operations, which is the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.

66. This General Order is designed to enhance the protection of surface and groundwater resources, and its application to existing 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, to existing Facilities and their existing operations as described in their NOIs. Any increase in flow beyond the existing operations constitutes an expansion requiring a CEQA evaluation.

    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 Facilities to make improvements to their waste management systems that will result in only minor alterations to land, water, and/or vegetation.

67. 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 Facilities and has provided them with an opportunity for a public hearing and an opportunity to submit comments.

68. 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 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 containing well stimulation treatment fluids is prohibited except as provided by Provision E.7.

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 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 actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also shall not exceed the maximum design flow of the Facility’s limiting unit as described by the technical data in the NOI.

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) (µmhos/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 (µmhos/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 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 the year the NOA is issued, 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 high quality water and to maintain compliance with applicable water quality objectives.

19. All precipitation and surface drainage (i.e., “run on”) from outside the 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 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 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. 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 the 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. If the Discharger accepts produced wastewater from wells that have been stimulated, it shall comply with Prohibition A.5 in accordance with the following compliance schedule:

Task[1]	Task Description	Due date[2]
1.	a. Submit a Work Plan to conduct studies necessary to demonstrate that the discharges of produced wastewater from wells that have been stimulated do not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. The Work Plan shall include, but is not limited to, a proposed monitoring program for wells that have been stimulated or are planned for stimulation, specific milestones to accomplish the proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer. **Or** b. Submit a Work Plan for an alternate disposal method for wastewater discharges from wells with a history of, or are planned to receive a "well stimulation treatment." The Work Plan shall include, but is not limited to, permitting and construction schedules for disposal wells, specific milestones to accomplish the proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer.	**3 Months from Date of NOA**
2.	The Discharger shall implement the Work Plan after the Work Plan has been approved by the Executive Officer and shall also provide progress reports toward compliance with this task every six months. By the end of the 36th month from the date the NOA is issued, the Discharger shall submit a technical report for review and approval by the Executive Officer. The technical report shall demonstrate compliance with Prohibition A.5. Upon written approval letter by the Executive Officer, this provision shall be satisfied.	**36 Months from Date of NOA[1]**

Task[1]	Task Description	Due date[2]
	The Executive Officer may at its discretion modify this time schedule based on evidence that meeting the compliance date is infeasible through no fault of the Discharger, or when evidence shows that compliance by an earlier date is feasible.	
3.	If the Discharger does not achieve compliance with Prohibition A.5 by the compliance date in Task 2, the Discharger must cease discharge(s) and submit a written certification that the discharges from the Facility have ceased.	**36 Months from Date of NOA**

1. Where local geology and discharge quality is similar, Dischargers may work together as a group to submit required work plans, technical reports, and studies. The work plans, technical reports, and studies shall explicitly identify the areas and Dischargers covered by the group effort.
2. All the compliance due dates start from the issuance date of the NOA by the Executive Officer. For example if NOA was issued on 1 July 2017, the final task (Task 2 technical report) due date is on 1 July 2020.

8. 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.

9. Pursuant to section 13264 of the Water Code, the Discharger shall submit a complete revised NOI or a complete Report of Waste Discharge (RWD) for an individual permit 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.

10. 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.

11. 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.

12. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this General Order.

13. 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.

14. 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.

15. 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.

16. 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.

17. A copy of this General Order including the MRP, Information Sheet, and Attachments A and B, and Standard Provisions, shall be kept at the Facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

18. The Central Valley Water Board will review this General Order periodically and will revise requirements when necessary.

19. 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.

20. 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.

21. 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.

22. 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 60 of this General Order and the Discharger must participate in the CV-SALTS Program to qualify for an exception.
23. 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 RWD 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 6 April 2017.

Original signed by

PAMELA C. CREEDON, Executive Officer

Attachments:

A: Definitions
B: Information Needs Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0034
FOR
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER ONE

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location(s) shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

This MRP includes Monitoring, Record-Keeping, and Reporting requirements. Monitoring requirements include monitoring of discharges, of produced wastewater, solid waste, application of recycled materials (wastewater and solids), and groundwater to in order to determine if the Discharger is complying with the requirements of Waste Discharge Requirements General Order No. R5-2017-0034 (Order). All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with ***Standard Provisions and Reporting Requirements for Waste Discharge Requirements***, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as a pH meter) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the State Water Board's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after a statistically significant number of sampling events, the Discharger may request this MRP be revised by the Executive Officer to reduce monitoring frequency or minimize the list of constituents. The proposal must include adequate technical justification for reduction in monitoring frequency.

Monitoring requirements include the periodic visual inspection of the facility to ensure continued compliance with the Order. The MRP also requires submittal of information regarding the use of all chemicals used during well drilling, installation, operation, and maintenance activities associated with each well generating waste materials (liquids and solids) that are discharged to land and regulated under this Order.

This MRP requires the Discharger to keep and maintain records for five years from the date the monitoring activities occurred and to prepare and submit reports containing the results of monitoring

specified below. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Central Valley Water Board.

FACILITY MONITORING

Permanent markers in ponds shall be in place with calibrations indicating the water level at design capacity and available operational freeboard (two feet minimum required). The freeboard shall be monitored **monthly** on all ponds to the nearest tenth of a foot.

Annually, prior to the anticipated rainy season, but **no later than 30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for: drainage control systems; slope failure; groundwater monitoring wells, or any change in site conditions that could impair the integrity of the waste management unit or precipitation and drainage control structures; and shall assess preparedness for winter conditions including, but not limited to, erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be **completed by 31 October**. Annual facility inspection reporting shall be **submitted by 30 November**.

The Discharger shall inspect all precipitation diversion and drainage facilities for damage **within 7 days** following major storm events (e.g., a storm that causes continual runoff for at least one hour) capable of causing flooding, damage, or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be commenced **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Reporting Requirements of this MRP.

The Discharger shall monitor and record on-site rainfall data using an automated rainfall gauge, or subject to Executive Officer approval other acceptable gauge/monitoring arrangement, or a weather monitoring station within three miles of the facility. Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for waste management unit design and conveyance and drainage design. Daily data and on-site observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the quarterly monitoring reports, as required by this MRP.

CHEMICAL AND ADDITIVE MONITORING

The Discharger shall provide the following for all chemicals and additives[1] used at all leases and facilities that discharge produced wastewater to land:

Requirement	Frequency
A list of all chemicals and additives used including chemical formulas and specific chemical names.	Quarterly
The volume of each chemical and additive used in gallons.	Quarterly
A list of the leases and facilities where the chemicals and additives are being used.	Quarterly
Material safety data sheets for each chemical and/or additive.	Annually

[1] Chemicals that are a part of trade secrets shall be kept confidential at the Central Valley Water Board. Documents containing trade secrets shall be properly marked on the cover, by the Discharger, prior to submitting the document to the Central Valley Water Board. Individuals that have received permission by the Discharger shall be granted access to view the files at the office.

PRODUCED WASTEWATER MONITORING

Produced wastewater (also referred to as effluent) samples shall be representative of the volume and nature of the discharges. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of five years.

A complete list of substances that are tested for and reported on by the testing laboratory shall be provided to the Central Valley Water Board. All peaks must be reported. In addition, both the method detection limit (MDL) and the practical quantification limit (PQL) shall be reported. Detection limits shall be equal to or more precise than USEPA methodologies. Analysis with an MDL greater than the most stringent drinking water standard that results in non-detection needs to be reanalyzed with the MDL set lower than the drinking water standard or at the lowest level achievable by the laboratory. All quality assurance/quality control (QA/QC) samples must be run on the same dates when samples were actually analyzed. Proper chain of custody procedures must be followed, and a copy of the completed chain of custody form shall be submitted with the report. All analyses must be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge.

DISCHARGE 001

Produced wastewater samples shall be collected downstream from the treatment system and prior to discharge to land (roads, ponds, etc.) (Discharge 001). Produced wastewater monitoring for Discharge 001 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Flow	mgd	Metered[1]	Continuous
Table I – Effluent Monitoring	Varies	Grab	Varies

[1] In accordance to Order Provision E.3, instead of metering an engineered alternative may be used if approved in writing by the Executive Officer.

DISCHARGE 002

If ponds are used, produced wastewater samples shall be collected in the pond at the distal end of the system (Discharge 002), or if ponds are operated in parallel, in the pond that has contained produced wastewater for the longest period of time (i.e., longest retention time)(Discharge 002). Produced wastewater monitoring for Discharge 002 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Table I – Effluent Monitoring	Varies	Grab	Varies

SOLID WASTE MONITORING

Solid waste generated at the Facility from production related activities, such as tank or pond maintenance, shall be characterized for disposal. Non-hazardous solid wastes may be disposed on-site, as road or berm construction material, for instance, if such disposal does not pose a threat to water quality.

Hazardous waste (as defined in California Code of Regulations (CCR), title 22, section 66261.1) and designated waste (as defined in California Water Code (CWC) section 13173) shall be properly disposed at a Facility permitted to accept the waste.

Solid waste volumes, disposal methods, disposal facilities, and analytical results from waste characterization shall be reported in the subsequent quarterly and annual monitoring reports.

GROUNDWATER WELL SURVEY

The Discharger shall conduct a well survey to identify all water supply wells within one-mile of the ponds that receive produced wastewater or other authorized discharges. The Discharger shall sample the identified domestic water supply wells and analyze the samples for the waste constituents listed in Table II of this MRP. If access to private property is requested and denied, a demonstration of that denial is required.

GROUNDWATER MONITORING

The Discharger shall operate and maintain a groundwater monitoring system that may include groundwater wells available around and downgradient of the Facility and within a reasonable distance from the produced wastewater disposal ponds. At a minimum the monitoring system needs to include three groundwater wells, with at least two wells located downgradient from the ponds' location that monitor first-encountered groundwater to identify any release at the earliest possible time. **If the Discharger demonstrates that the wastes discharged to the ponds cannot affect the quality of underlying groundwater, the Executive Officer may rescind by signed letter all or part of the requirements to complete the groundwater investigation and groundwater monitoring portions of this Order.**

After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor groundwater wells for the following:

Constituent/Parameter	Units	Sample Type	Frequency
Depth to groundwater	Feet[1]	Measured	Quarterly
Groundwater elevation	Feet[1]	Calculated	Quarterly
Table II – Groundwater Monitoring	Varies	Grab	Quarterly

[1] Recorded to one hundredth of a foot

Within 30 days of notification that permission to locate or sample a well(s) is not granted or is revoked, the Discharger shall submit for review and approval by Central Valley Water staff a report that either: (1) demonstrates that a reduction in the number of monitoring well(s) will not impair the ability to clearly and accurately assess potential groundwater impacts, or (2) proposes the installation of a new monitoring well(s) to offset the well(s) that is no longer able to be sampled.

Groundwater Monitoring System

If an appropriate groundwater monitoring system is not in place prior to adoption of the Order, the discharger shall comply with the following monitoring well compliance time schedule:

Task	Task Description	Due Date		
		Small Operator[1]	Medium Operator[2]	Large Operator[3]
1	Submit a Monitoring Well Installation and Sampling Plan (MWISP) for review and approval by the Executive Officer	12 Months after NOA is issued	6 Months after NOA is issued	90 Days after NOA is issued
2	Complete installation of the groundwater monitoring system	In accordance with approved time schedule in MWISP		
3	Submit a Monitoring Well Installation Completion Report (MWICR)	90 Days after groundwater monitoring system is completed		

[1] A Small Operator discharges 250 or fewer barrels of wastewater per day to land.

[2] A Medium Operator discharges from 250 up to and including 1,000 barrels of wastewater per day to land.

[3] A Large Operator discharges more than 1,000 barrels of wastewater per day to land.

At a minimum, the MWISP must contain all of the information listed below.

1. General Information:
   a. Topographic map showing any existing nearby (about 2,000 feet) domestic, irrigation, and municipal supply wells and monitoring wells known to the Discharger, utilities, surface water bodies, drainage courses and their tributaries/destinations, and other major physical and man-made features, as appropriate.

b. Site plan showing proposed well locations, other existing wells, unused and/or abandoned wells, major physical site structures, any waste handling facilities, irrigated cropland and pasture, and on-site surface water features.
c. Rationale for the number of proposed monitoring wells, their locations and depths, and identification of anticipated depth to groundwater.
d. Local permitting information (as required for drilling, well seals, boring/well abandonment).
e. Drilling details, including methods and types of equipment for drilling and logging activities. Equipment decontamination procedures (as appropriate) should be described.
f. Health and Safety Plan.

2. Proposed Drilling Details:
   a. Drilling techniques.
   b. Well logging method.
   c. Proposed Monitoring Well Design - all proposed well construction information must be displayed on a construction diagram or schematic to accurately identify the following:
   d. Well depth.
   e. Borehole depth and diameter.
   f. Well construction materials.
   g. Casing material and diameter – include conductor casing, if appropriate.
   h. Location and length of perforation interval, size of perforations, and rationale.
   i. Location and thickness of filter pack, type and size of filter pack material, and rationale.
   j. Location and thickness of bentonite seal.
   k. Location, thickness, and type of annular seal.
   l. Surface seal depth and material.
   m. Type of well cap(s).
   n. Type of well surface completion.
   o. Well protection devices (such as below-grade water tight-vaults, locking steel monument, bollards, etc.).

3. Proposed Monitoring Well Development:
   a. Schedule for development (not less than 48 hours or more than 10 days after well completion).
   b. Method of development.
   c. Method of determining when development is complete.
   d. Parameters to be monitored during development.
   e. Method for storage and disposal of development water.

4. Proposed Surveying:
   a. How horizontal and vertical position of each monitoring well will be determined.
   b. The accuracy of horizontal and vertical measurements to be obtained.
   c. The California licensed professional (licensed land surveyor or civil engineer) to perform the survey.

5. Proposed Groundwater Monitoring:
   a. Schedule (at least 48 hours after well development).

b. Depth to groundwater measuring equipment (e.g., electric sounder or chalked tape capable of ±0.01-foot measurements).
c. Well purging method, equipment, and amount of purge water.
d. Sample collection (e.g., bottles and preservation methods), handling procedures, and holding times.
e. Quality assurance/quality control (QA/QC) procedures (as appropriate).
f. Analytical procedures.
g. Equipment decontamination procedures (as appropriate).

6. Proposed Schedule:
   a. Fieldwork.
   b. Laboratory analyses.
   c. Report submittal.

At a minimum, the MWICR shall summarize the field activities as described below.

1. General Information:
   a. Brief overview of field activities including well installation summary (such as number, depths), and description and resolution of difficulties encountered during field program.
   b. Topographic map showing any existing nearby domestic, irrigation, and municipal supply wells and monitoring wells, utilities, surface water bodies, drainage courses and their tributaries/destinations, and other major physical and man-made features.
   c. Site plan showing monitoring well locations, other existing wells, unused and/or abandoned wells, major physical site structures, any waste handling facilities, and on-site surface water features.
   d. Period of field activities and milestone events (e.g., distinguish between dates of well installation, development, and sampling).

2. Monitoring Well Construction:
   a. Number and depths of monitoring wells installed.
   b. Monitoring well identification (i.e., numbers).
   c. Date(s) of drilling and well installation.
   d. Description of monitoring well locations including field-implemented changes (from proposed locations) due to physical obstacles or safety hazards.
   e. Description of drilling and construction, including equipment, methods, and difficulties encountered (such as hole collapse, lost circulation, need for fishing).
   f. Name of drilling company, driller, and logger (site geologist to be identified).
   g. As-builts for each monitoring well with the following details:
      i. Well identification.
      ii. Total borehole and well depth.
      iii. Date of installation.
      iv. Boring diameter.
      v. Casing material and diameter (include conductor casing, if appropriate).
      vi. Location and thickness of slotted casing, perforation size.

vii. Location, thickness, type, and size of filter pack.
viii. Location and thickness of bentonite seal.
ix. Location, thickness, and type of annular seal.
x. Depth of surface seal.
xi. Type of well cap.
xii. Type of surface completion.
xiii. Depth to water (note any rises in water level from initial measurement) and date of measurement.
xiv. Well protection device (such as below-grade water tight vaults, stovepipe, bollards, etc).

h. All depth to groundwater measurements during field program.
i. Field notes from drilling and installation activities (e.g., all subcontractor dailies, as appropriate).
j. Construction summary table of pertinent information such as date of installation, well depth, casing diameter, screen interval, bentonite seal interval, and well elevation.

3. Monitoring Well Development:
   a. Date(s) and time of development.
   b. Name of developer.
   c. Method of development.
   d. Methods used to identify completion of development.
   e. Development log: volume of water purged and measurements of temperature, pH and electrical conductivity during and after development.
   f. Disposition of development water.
   g. Field notes (such a bailing to dryness, recovery time, number of development cycles).

4. Monitoring Well Survey:
   a. Identify coordinate system or reference points used.
   b. Description of measuring points (i.e. ground surface, top of casing, etc.).
   c. Horizontal and vertical coordinates of well casing with cap removed.
   d. Name, license number, and signature of California licensed professional who conducted survey.
   e. Surveyor's field notes.
   f. Tabulated survey data.

REPORTING REQUIREMENTS

All monitoring results shall be reported in Quarterly Monitoring Reports which are due by the first day of the second month after the calendar quarter as follows:

First Quarter Monitoring Report (January – March):	1 May
Second Quarter Monitoring Report (April – June):	1 August
Third Quarter Monitoring Report (July – September):	1 November
Fourth Quarter Monitoring Report (October – December):	1 February
Facility Inspection Report (Completed by 30 October):	30 November

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory. Reports shall be submitted whether or not there is a discharge.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

Discharger's name
Facility/Lease Name
Waste Discharge Requirements R5-2017-0034
Monitoring and Reporting Program R5-2017-0034
GeoTracker Site Global ID: XXXXXXXXXXXX

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible for all historical and current data. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the MDL and the Reporting limit (RL) or PQL. If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL), but above the MDL, shall be reported and flagged as estimated.

If the Discharger monitors any constituent at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the quarterly monitoring reports. Such increased frequency shall be indicated on the quarterly monitoring reports.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

The Discharger shall submit electronic copies of all work plans, reports, analytical results, and groundwater elevation data over the Internet to the State Water Board Geographic Environmental Information Management System database (GeoTracker)
at http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml
A frequently asked question document for GeoTracker can be found
at http://www.waterboards.ca.gov/ust/electronic_submittal/docs/faq.pdf
Electronic submittals shall comply with GeoTracker standards and procedures, as specified on the State Water Board's web site. Uploads to GeoTracker shall be completed on or prior to the due date.

In addition, a copy of each document shall be sent via electronic mail to CentralValleyFresno@waterboards.ca.gov. Include a copy of the transmittal letter. Laboratory reports submitted in compliance with this MRP shall be accompanied by an Excel file that includes the analytical data found in the laboratory report. Excel files shall be either generated by the laboratory or compiled by the Discharger. At a minimum, the Excel file shall include the constituent name, sample location, sample name, sample date, analysis date, analytical method, result, unit, MDL, RL, and dilution factor.

A. All Quarterly Monitoring Reports shall include the following:

Facility reporting:

1. Monthly freeboard results as specified on MRP page 2.
2. The results of Facility inspections conducted during the quarter as specified on MRP page 2.
3. Rainfall data as specified on MRP page 2.

Chemical and Additive reporting:

1. The data required as specified on MRP page 2 and 3.

Produced Wastewater reporting:

1. Tabular summary of current and historical results of effluent discharges as specified on page 3 and 4.
2. For each month of the quarter, calculation monthly effluent flow and the historical monthly effluent flow for the last 12-months.
3. For each quarter, include a current and historical table for each effluent sample point for EC, boron, chloride, and sodium.

Solid Waste reporting:

1. The results of solid Waste monitoring specified on MRP page 4, including the nature, volume, and weight in dry tons of solid waste produced during the quarter.
2. Analytical results characterizing the solid waste, and particularly, whether the waste is hazardous as defined in CCR, title 22, section 66261.1).
3. The method of disposal and disposal locations of the solid wastes.
4. If wastes are hauled to a disposal facility, evidence that the disposal facility is properly permitted.

Groundwater reporting:

1. The results of groundwater monitoring specified on page 4 and 5.
2. For each monitoring well, a table showing constituent concentrations for current and historical concentrations.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or effluent disposal area(s). The map shall also include the locations of monitoring wells and wastewater storage and discharge areas.

B. **Fourth Quarter Monitoring Reports**, in addition to the above, by 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

Production Facility information:

1. The names and general responsibilities of all persons employed to operate the produced wastewater treatment systems.
2. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
3. If field meters are used, then a statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.4).
4. A summary of all spills/releases, if any, that occurred during the year at the production facility, tasks undertaken in response to the spills, and the results of the tasks undertaken.
5. A summary of the chemical and additive data collected under the Chemical and Additive Monitoring section, the required MSDS sheets, chemical formulas and specific chemical names, and a discussion of whether any of the chemicals or additives were found in effluent discharges.
6. A flow chart (i.e. diagram that clearly illustrates all processes that produced wastewater undergoes from well extraction to discharge to land) and map of the following:
    - Facility within the oil field,
    - Facility/Lease boundaries
    - Production and wastewater distribution network with all stock tanks, and transfer pipes, and discharge points to the ponds or land.
7. Annual report in tabular form for all the effluent and groundwater monitoring data and domestic water supply well data, if applicable.
8. Annual assessment of groundwater monitoring program's adequacy to assess compliance with the Order, including whether the data provided are representative of conditions upgradient and downgradient of the Facility.
9. Annual assessment of groundwater monitoring to delineate lateral and vertical extend of impacts on groundwater quality.

Requesting Administrative Review by the State Water Board. Any person aggrieved by an action of the Central Valley Water Board that is subject to review as set forth in Water Code section 13320(a), may petition the State Water Board to review the action. Any petition must be made in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition within thirty (30) days of the date the action was taken, except that if the thirtieth day following the date the action was taken falls on a Saturday, Sunday, or state holiday, then the State Water Board must receive the petition by 5:00 p.m. on the next business day. Copies of the laws and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml or will be provided upon request.

Modifications. Any modification to this Monitoring and Reporting Program shall be in writing and approved by the Assistant Executive Officer, including any extensions. Any written extension request by the Discharger shall include justification for the delay.

The Discharger shall implement the above monitoring program on the first day of the Executive Officer issuance of the NOA for coverage under the Order.

Ordered by: _____

PAMELA C. CREEDON, Executive Officer

_____

(Date)

Table I – Effluent Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method[9]	Reporting Frequency
Field Parameters				
Temperature	°F[1]	Quarterly	Meter	Quarterly
Electrical Conductivity	µmhos/cm[2]	Quarterly	Meter	Quarterly
pH	pH units	Quarterly	Meter	Quarterly
Monitoring Parameters				
Total Dissolved Solids (TDS)	mg/L[3]	Quarterly	160.1	Quarterly
Total Suspended Solids (TSS)	mg/L	Quarterly	160.2	Quarterly
Total Organic Carbon (TOC)	mg/L	Quarterly	415.3	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly	2510B	Quarterly
Boron, dissolved	mg/L	Quarterly	6010B	Quarterly
Standard Minerals				
Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Sulfate, dissolved	mg/L	Quarterly	300.0	Quarterly
Nitrate-N, dissolved	mg/L	Quarterly	300.0	Quarterly
Calcium, dissolved	mg/L	Quarterly	6010B	Quarterly
Magnesium, dissolved	mg/L	Quarterly	6010B	Quarterly
Sodium, dissolved	mg/L	Quarterly	6010B	Quarterly
Potassium	mg/L	Quarterly	6010B	Quarterly
Chloride	mg/L	Quarterly	300.0	Quarterly
PAHs[4]	µg/L[5]	Quarterly	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	Quarterly	418.1	Quarterly
Volatile Organic Compounds				
Full Scan	µg/L	Quarterly	8260B	Quarterly
Oil and Grease	mg/L	Quarterly	1664A	Quarterly
Stable Isotopes				
Oxygen (^{18}O)	pCi/L[6]	Quarterly	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	Quarterly	900.0	Quarterly
Radionuclides				
Radium-226	pCi/L	Quarterly	SM[7] 7500-Ra	Quarterly
Radium-228	pCi/L	Quarterly	SM 7500-Ra	Quarterly

Table I – Effluent Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method[9]	Reporting Frequency
Gross Alpha particle (excluding radon and uranium)	pCi/L	Quarterly	SM 7110	Quarterly
Uranium	pCi/L	Quarterly	200.8	Quarterly
Constituents of Concern				
Lithium	mg/L	Quarterly	200.7	Quarterly
Strontium	mg/L	Quarterly	200.7	Quarterly
Iron	mg/L	Quarterly	200.8	Quarterly
Manganese	mg/L	Quarterly	200.8	Quarterly
Antimony	mg/L	Quarterly	200.8	Quarterly
Arsenic	mg/L	Quarterly	200.8	Quarterly
Barium	mg/L	Quarterly	200.8	Quarterly
Beryllium	mg/L	Quarterly	200.8	Quarterly
Cadmium	mg/L	Quarterly	200.8	Quarterly
Chromium (total)	mg/L	Quarterly	200.8	Quarterly
Chromium (hexavalent)	mg/L	Quarterly	7196A	Quarterly
Cobalt	mg/L	Quarterly	200.8	Quarterly
Copper	mg/L	Quarterly	200.8	Quarterly
Lead	mg/L	Quarterly	200.8	Quarterly
Mercury	mg/L	Quarterly	7470A	Quarterly
Molybdenum	mg/L	Quarterly	200.8	Quarterly
Nickel	mg/L	Quarterly	200.8	Quarterly
Selenium	mg/L	Quarterly	200.8	Quarterly
Silver	mg/L	Quarterly	200.8	Quarterly
Thallium	mg/L	Quarterly	200.8	Quarterly
Vanadium	mg/L	Quarterly	200.8	Quarterly
Zinc	mg/L	Quarterly	200.8	Quarterly
Oil Production and Process Chemicals and Additives[8]	µg/L	Quarterly	As Appropriate[9]	Quarterly

[1] Degrees Fahrenheit
[2] Micromhos per centimeter
[3] Milligrams per liter
[4] Polycyclic aromatic hydrocarbons
[5] Micrograms per liter
[6] Picocuries per liter
[7] Standard Methods
[8] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[9] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Assistant Executive Officer

Table II – Groundwater Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method	Reporting Frequency
Groundwater Elevation	feet & hundredths, MSL[1]	Quarterly		Quarterly
Field Parameters				
Temperature	°F[2]	Quarterly	Meter	Quarterly
Electrical Conductivity	µmhos/cm[3]	Quarterly	Meter	Quarterly
pH	pH units	Quarterly	Meter	Quarterly
Monitoring Parameters				
Total Dissolved Solids (TDS)	mg/L[4]	Quarterly	160.1	Quarterly
Total Organic Carbon (TOC)	mg/L	Quarterly	415.3	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly	2510B	Quarterly
Boron, dissolved	mg/L	Quarterly	6010B	Quarterly
Standard Minerals				
Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Sulfate, dissolved	mg/L	Quarterly	300.0	Quarterly
Nitrate-N, dissolved	mg/L	Quarterly	300.0	Quarterly
Calcium, dissolved	mg/L	Quarterly	6010B	Quarterly
Magnesium, dissolved	mg/L	Quarterly	6010B	Quarterly
Sodium, dissolved	mg/L	Quarterly	6010B	Quarterly
Potassium	mg/L	Quarterly	6010B	Quarterly
Chloride	mg/L	Quarterly	300.0	Quarterly
PAHs[5]	µg/L[6]	Quarterly	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	Quarterly	418.1	Quarterly
Volatile Organic Compounds				
Full Scan	µg/L	Quarterly	8260B	Quarterly
Oil and Grease	mg/L	Quarterly	1664A	Quarterly
Stable Isotopes				
Oxygen (^{18}O)	pCi/L[7]	Quarterly	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	Quarterly	900.0	Quarterly
Radionuclides				

Table II – Groundwater Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method	Reporting Frequency
Radium-226	pCi/L	Quarterly	SM[8] 7500-Ra	Quarterly
Radium-228	pCi/L	Quarterly	SM 7500-Ra	Quarterly
Gross Alpha particle (excluding radon and uranium)	pCi/L	Quarterly	SM 7110	Quarterly
Constituents of Concern				
Lithium	mg/L	Quarterly	200.7	Quarterly
Strontium	mg/L	Quarterly	200.7	Quarterly
Iron	mg/L	Quarterly	200.8	Quarterly
Manganese	mg/L	Quarterly	200.8	Quarterly
Antimony	mg/L	Quarterly	200.8	Quarterly
Arsenic	mg/L	Quarterly	200.8	Quarterly
Barium	mg/L	Quarterly	200.8	Quarterly
Beryllium	mg/L	Quarterly	200.8	Quarterly
Cadmium	mg/L	Quarterly	200.8	Quarterly
Chromium (total)	mg/L	Quarterly	200.8	Quarterly
Chromium (hexavalent)	mg/L	Quarterly	7196A	Quarterly
Cobalt	mg/L	Quarterly	200.8	Quarterly
Copper	mg/L	Quarterly	200.8	Quarterly
Lead	mg/L	Quarterly	200.8	Quarterly
Mercury	mg/L	Quarterly	7470A	Quarterly
Molybdenum	mg/L	Quarterly	200.8	Quarterly
Nickel	mg/L	Quarterly	200.8	Quarterly
Selenium	mg/L	Quarterly	200.8	Quarterly
Silver	mg/L	Quarterly	200.8	Quarterly
Thallium	mg/L	Quarterly	200.8	Quarterly
Vanadium	mg/L	Quarterly	200.8	Quarterly
Zinc	mg/L	Quarterly	200.8	Quarterly
Oil Production and Process Chemicals and Additives[9]	µg/L	Quarterly	As Appropriate[10]	Quarterly

[1] Mean Sea Level
[2] Degrees Fahrenheit
[3] Micromhos per centimeter
[4] Milligrams per liter
[5] Polycyclic aromatic hydrocarbons
[6] Micrograms per liter
[7] Picocuries per liter
[8] Standard Methods
[9] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[10] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0034
INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER ONE

ELIGIBILITY

Eligibility for coverage under Waste Discharge Requirements General Order No. R5-2017-0034 (General Order) will apply to owners and/or operators (hereinafter referred to as "Dischargers") of existing oil and gas production facilities that:

1. primarily discharge produced wastewater from oil and gas extraction operations to land, including but not limited to ponds, 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;

2. 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

3. began discharge of produced wastewater prior to **26 November 2014.**

BACKGROUND

California ranks third in the U.S. in oil production. Based on 2014 data, approximately 74 percent of California's production occurs within the Central Valley. In most oil fields in California, the oil is comingled with formation water, which means that large quantities of water are extracted with the oil. Within the Central Valley, approximately 16 barrels of water are produced on average with each barrel of oil. Oil and gas production facilities separate the water from the oil. This separated water is called produced wastewater.

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. tank batteries, induced gas or air flotation tanks commonly referred to as WEMCOs), storage units, produced wastewater treatment systems, and disposal systems that can include evaporation and percolation ponds. In some operations, produced wastewater is disposed of through Class II underground injection wells permitted and regulated by California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR). In some 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. This type of reuse is also regulated by DOGGR. High quality produced wastewater may be reused to supplement agricultural water supplies. Other uses of produced wastewater of appropriate

quality include oil field dust control and to aid in compaction on oil field construction projects. Sludge and solids removed from tanks are commonly mixed with soil and used as asphalt for roads within the oil fields. This General Order includes specific requirements to regulate these discharges and ensure they do not cause pollution or nuisance conditions.

Beginning in May 2014, the Central Valley Water Board began an effort to re-evaluate its Oil Field Program with respect to discharges to ponds. Central Valley Water Board staff identified and inspected oil field production facilities with ponds. Staff found that there are approximately 326 facilities with 1100 ponds that receive produced wastewater. Approximately 241 facilities are discharging to ponds without waste discharge requirements. Approximately 85 facilities are discharging to ponds under WDRs that are twenty years old or older.

In response to the re-evaluation, Central Valley Water Board staff has issued various information and enforcement orders requiring those discharging without WDRs and those discharging under old WDRs to characterize their discharge practices and to provide information to support ongoing discharges, if feasible.

RATIONALE FOR ISSUING A GENERAL ORDER AND OTHER CONSIDERATIONS

Water Code section 13263(i) describes the criteria that the Central Valley Water Board uses to determine whether a group of facilities should be regulated under a general order (as opposed to individual orders). These criteria include:

1. The discharges are produced by the same or similar types of operations,

2. The discharges involve the same or similar types of wastes,

3. The discharges require the same or similar treatment standards, and

4. The discharges are more appropriately regulated under general WDRs rather than individual WDRs.

The discharges that can be covered under this General Order meet the above listed requirements of 13263(i).

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.

Pursuant to Water Code sections 13241 and 13263, the Central Valley Water Board, in establishing the requirements contained in this General Order, 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.

This General Order provides small operators (i.e., those that discharge 250 or fewer barrels per day of produced wastewater to land) and medium operators (i.e. those that discharge 250 up to and including 1,000 bbls per day of produced wastewater to land) extended time schedules to comply with the groundwater monitoring requirements described in the Monitoring and Reporting Program R5-2017-0034 (MRP). Implementing groundwater monitoring is a complicated and expensive endeavor. Dischargers of 1000 bbls per day or less have reported that additional time beyond 90 days is necessary to gather sufficient resources to prepare an appropriate Monitoring Well Installation and Sampling Plan (MWISP) to comply with the Groundwater Monitoring Requirements of MRP R5-2017-0034. The MRP provides small Dischargers an extra 275 days and medium Dischargers an extra 90 days to develop the MWISP. The extra time only extends for a short period the submittal date for the MWISP. It does not alleviate the need to comply with the Groundwater Monitoring Requirements of the General Order and MRP. Most of these facilities have been discharging for decades in the same or similar manner. Given this General Order requires dischargers to meet Basin Plan limits; it is unlikely that the small and medium discharges of 1000 bbl or less per day will significantly degrade groundwater during the time extension.

APPLICATION PROCESS

Dischargers seeking coverage under the General Order are required to file a Notice of Intent (NOI) within 30 days of the adoption of the General Order. This process is different from application process for an individual permit where the Report of Waste Discharge is filed (RWD).

A NOI includes the following:

1. A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. An application fee. Discharger's not operating under waste discharge requirements (WDRs) must submit an application fee that serves as the first annual fee. The fee is 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. A technical report. The technical report shall describe the wastewater generation, treatment, storage, reuse and disposal activities. The technical report must be prepared by a California registered civil engineer or engineering geologist. Attachment C to the General Order, Information Needs Sheet, describes the information to be included in the technical report. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

The NOI for an oil and gas production facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average produced wastewater discharge flow to ponds that occurred in the ten years immediately to 26 November 2014.

After review of the NOI by Central Valley Water Board staff, the appropriate TTWQ and CPLX rating of the discharge will be determined and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing a Notice of Applicability (NOA). Coverage under the General Order will commence upon issuance of the NOA. The NOA will describe appropriate monitoring and reporting requirements.

APPLICABLE REGULATIONS, PLANS, AND POLICIES

Water Quality Control Plans

The Basin Plan designates the beneficial uses of groundwater and surface waters within the Basin and specifies water quality objectives to protect those uses, and includes implementation plans for achieving water quality objectives. The Basin Plan also incorporates, by reference, plans and policies of the State Water Board.

Beneficial Uses of Surface Water and Groundwater

The beneficial uses of surface water, as identified in the Basin Plan, may include: municipal and domestic supply (MUN); agricultural supply (AGR); industrial process supply (IND); industrial service supply (PRO); hydro-power generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning reproduction and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); rare, threatened, or endangered species (RARE); groundwater recharge (GRW); freshwater replenishment (FRSH); aquaculture (AQUA); and preservation of biological habitats of special significance (BIOL). Basin Plan Table II-1 (Page II-4) lists the surface water bodies of the Tulare Lake Basin and the designated beneficial uses of each of those specific surface water bodies. Where surface water bodies are not listed, the Basin Plan designates beneficial uses based on the waters to which they are tributary.

The Basin Plan identifies the beneficial uses of groundwater as MUN, AGR, IND, PRO, REC-1, and WILD. Basin Plan Table II-2 (Page II-5) lists the designated beneficial uses of groundwater for specific Detailed Analysis Units within the basin. Unless specifically de-designated, all groundwaters of the Basin have the designated beneficial uses of MUN, AGR, IND, and PRO.

Water Quality Objectives

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 the 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 order to 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.

The primary constituents of concern (COCs) from discharges of waste from oil field facilities with respect to surface waters and groundwater are elevated concentrations of general minerals (especially electrical conductivity (EC), total dissolved solids, chloride, and boron), metals (i.e., arsenic), trace elements (i.e., boron, strontium, thallium, lithium, etc.), petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs, i.e., benzene, toluene, ethylbenzene, and xylenes [BTEX]), and radionuclides.

The Basin Plan requires waters designated as MUN to meet the State drinking water maximum contaminant levels (MCLs) specified in Title 22 for primary and secondary standards. Some applicable constituents and their MCLs are listed in Tables 1 through 6 below. These tables are limited to the constituents that have been detected in produced wastewater above either the primary or the secondary MCLs on at least one occasion:

Table – 1

Title 22, Table 64431-A
Maximum Contaminant Levels Inorganic Chemicals

Chemical	Maximum Contaminant Level
Aluminum (µg/L)	1000
Antimony (µg/L)	6.0
Arsenic (µg/L)	10.0
Barium (µg/L)	1000
Beryllium (µg/L)	4.0
Cadmium (µg/L)	5.0
Chromium (µg/L)	50
Fluoride (µg/L)	2000
Mercury (µg/L)	2.0
Nickel (µg/L)	100
Nitrate (as NO3) (mg/L)	45

Table – 1 (cont'd)	
Title 22, Table 64431-A Maximum Contaminant Levels Inorganic Chemicals	
Chemical	**Maximum Contaminant Level**
Nitrate + Nitrite (sum as nitrogen) (mg/L)	10
Selenium (µg/L)	50
Thallium (µg/L)	2.0

Table – 2	
Title 22, Tables 64442 Maximum Contaminant Levels Radionuclides	
Chemical	**Maximum Contaminant Levels (pCi/L)**
Radium-226 and Radium-228 (combined)	5
Gross Alpha particle activity (excluding radon and uranium)	15
Uranium	20

Table – 3	
Title 22, Table 64444-A Maximum Contaminant Levels Organic Chemicals	
Chemical	**Maximum Contaminant Levels (µg/L)**
(a) Volatile Organic Chemicals	
Benzene	1.0
Ethylbenzene	300
Tetrachloroethylene (PCE)	5.0
Toluene	150
Xylenes (m,p)	1750
(b) Non-Volatile synthetic Organic Chemicals	
Benzo(a)pyrene	0.2

Table – 4	
Title 22 - Table 64449-A Secondary Maximum Contaminant Levels Consumer Acceptance Contaminant Levels	
Chemical	**Level**
Iron (mg/L)	0.3
Manganese (mg/L)	0.05
Silver (mg/L)	0.1
Zinc (mg/L)	5.0

Table – 5			
Title 22, Table 64449-B Maximum Contaminant Levels Consumer Acceptance Contaminant Level Ranges			
	Maximum Contaminant Level Ranges		
Constituent, Units	**Recommended**	**Upper**	**Short Term**
Total Dissolved Solids, mg/L	500	1,000	1,500
Or			
Specific Conductance, µS/cm	900	1,600	2,200
Chloride, mg/L.	250	500	600
Sulfate, mg/L	250	500	600

The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria.

Basin Plan Effluent Limits

On page IV-15, the Basin Plan states that the maximum salinity limits for wastewaters in unlined sumps overlying groundwater with existing and future probable beneficial uses are as follows:

Constituent	Maximum Limit
EC (µmhos/cm)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

In 1982, the Central Valley Water Board amended the Basin Plan to allow discharges of oil field wastewater to exceed the above limits to facilitate use for irrigation and other beneficial uses where the exception would not cause an exceedance of a water quality objective. The Basin Plan, therefore, provides some flexibility to allow oil field wastewater exceeding Basin Plan salinity limits to be used for agricultural use in water short areas, provided the discharger first

successfully demonstrates to the Central Valley Water Board that the increases will not cause exceedances of water quality objectives.

The Basin Plan states that discharges of oil field wastewater that exceed the above maximum salinity limits may be permitted to unlined sumps, 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.

The Basin Plan also includes separate limits for the White Wolf Subarea based on the class of irrigation water underlying the discharge. These limits are as follows.

Constituent/Irrigation Water Class	Class I	Class II
EC (µmhos/cm)	1000	2000
Chloride (mg/L)	175	350
Boron (mg/L)	1	2
Sodium (%)	60	75

In areas where groundwater would be Class I except for the concentration of a specific constituent, only that constituent can 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.

The White Wolf Subarea is defined as 64,000 acres within the valley floor, at the southern tip of the Tulare Lake Basin, about 20 miles south of Bakersfield. The subarea is bounded on the west by the San Emigdio Mountains, on the south and east by the Tehachapi Mountains, and on the north by the White Wolf Fault (Basin Plan page IV-15).

The Basin Plan criteria for mineral quality of irrigation water are described in following table.

Constituent	Class I	Class II	Class III
TDS (mg/l)	<700	700 - 2,000	>2,000
EC (µmhos/cm)	<1,000	1,000 - 3,000	>3,000
Chlorides (mg/l)	<175	175 – 350	>350
Sodium (percent base constituents)	<60	60 – 75	>75
Boron (mg/l)	<0.5	0.5 – 2	>2

The Basin Plan states all groundwaters shall be maintained as close to natural concentrations of dissolved matter as is reasonable considering careful use and management of water resources. It acknowledges that the Tulare Lake Basin is closed and 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 Basin Plan states the maximum average annual increase in salinity measured as electrical conductivity shall not exceed the values specified in Table III-4 for each hydrographic unit shown on Figure III-1 (Basin Plan Pages III-8 and 9).

Table – 6	
Table III-4 TULARE LAKE BASIN	
GROUND WATER QUALITY OBJECTIVES FOR SALINITY	
Hydrographic Unit	Maximum Average Annual Increase in Electrical Conductivity (µmhos/cm)
Westside (North and South)	1
Kings River	4
Tulare Lake and Kaweah River	3
Tule River and Poso	6
Kern River	5

These incremental increases objectives apply to the entire Hydrographic Unit, and not to point source discharges.

Oil Field Discharges and Proposed Discharge Limits

As mentioned above, the primary COCs associated with discharges of waste from oil field facilities include, but are not limited to, EC, total dissolved solids, chloride, some metals (i.e., arsenic), trace elements (i.e., boron, strontium, thallium, lithium, etc.), petroleum hydrocarbons, PAHs, VOCs, and radionuclides. With respect to EC, total dissolved solids, chloride and boron, and consistent with the Basin Plan, this General Order requires discharges to land to comply with the Basin Plan limits described above.

Oil field produced wastewater can contain metals exceeding MCLs, and particularly arsenic at concentrations exceeding the MCL of 10 µg/L. Whether those metals pose a threat to groundwater quality and designated beneficial uses depends on many factors including, but not limited to, discharge concentrations, discharge volumes, depth to groundwater, soil types and hydrogeology underlying the discharge location, and natural groundwater quality. Generally, most metals associated with oil field produced water discharges are relatively immobile in the alkaline soils associated with most Central Valley soils and are expected to attenuate as they percolate with produced water through the soil profile.

Specifically with respect to arsenic, studies conducted within the Central Valley indicate that arsenic migration to groundwater that would cause exceedances of water quality objectives is unlikely. Kennedy Jenks Consultants completed an arsenic soil-adsorption removal study using soil samples collected from the Famoso Basins in the Famoso area in 2011. The results were included in a technical report titled, *Cawelo Water District Famoso Basins Antidegradation Analysis*. The results indicate that arsenic, in concentrations of up to 120 ug/L, associated with the discharges will attenuate in the underlying soils and not adversely impact underlying groundwater. Similarly, other studies show that soil can remove significant amounts of arsenic.

Given the above information, this General Order does not include effluent limits for metals associated with discharges to land at this time.

Oil naturally contains numerous organic compounds including BTEX and PAHs. It is the goal of the industry to separate these compounds from the produced wastewater in which they are entrained. Some organic chemicals may be added to oil wells, to separation processes, or to treatment systems to enhance recovery efficiencies and final produced wastewater quality.

Generally, heavier organic compounds associated with oil production do not move readily through the soil and do not pose a significant threat to groundwater. It has also been well-documented in the literature, including a study published by the Lawrence Livermore National Laboratory in 1995 and several reports generated by the State Water Resources Control Board, that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater. The biodegradation of petroleum, in particular, distinguishes petroleum products from other hazardous substances commonly found at commercial and industrial sites.

The limited existing data for produced wastewater discharges that can be directly compared with groundwater monitoring results support the notion that organics associated with petroleum production will not migrate to underlying groundwater in concentrations that exceed water quality objectives.

For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for organic chemicals at this time.

Some geologic formations contain naturally occurring radionuclides. Radium-226 and radium-228, gross alpha-particle activity, and uranium have been detected in produced water in concentrations exceeding the primary MCLs. These detections have been limited to specific oil fields. Much like metals discussed above, these constituents do not generally move readily through soils, and their threat to groundwater quality will vary based on site specific hydrogeology. For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for radionuclides at this time.

This General Order includes a prohibition that narratively limits discharge waste constituent concentrations to those described in the Discharger's NOI and demonstrated through an appropriate Antidegradation Analysis to be protective of the beneficial uses of groundwater. In this way, the General Order limits the discharge concentrations of specific constituents to those shown to be protective of underlying groundwater and its associated beneficial uses.

As water quality data for produced wastewater and groundwater become available, the Central Valley Water Board staff will be evaluating the data for COCs and will update this General Order to include additional discharge limits if necessary to be protective of the future beneficial uses of the groundwater.

Title 27 of the California Code of Regulations

Title 27, California Code of Regulations, section 20005 et seq. (hereafter Title 27) contains regulatory requirements for the treatment, storage, processing, and disposal of solid waste as defined by Water Code section 13173. 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 in section 20090 of Title 27 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.

* * *

Therefore, the discharge authorized in this General Order is exempt from the requirements of Title 27 because: 1) The Central Valley Water Board is issuing general WDRs; 2) The discharge is in compliance with the Basin Plan, and; 3) The treated waste discharged to the pond(s) does not need to be managed as hazardous waste.

***Resolution 68-16* (State Anti-degradation Policy)**

State Water Board Resolution No. 68-16 (*Policy with Respect to Maintaining High Quality Waters of the State*) (Anti-degradation Policy) generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:

1. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;

2. The degradation will not unreasonably affect present and anticipated future beneficial uses;

3. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and

4. The degradation is consistent with the maximum benefit to the people of the state.

Under this General Order, discharges will not result in groundwater degradation that exceeds water quality objectives. Produced wastewater discharge quality with respect to EC, chloride and boron will be limited to the effluent limits authorized in the Basin Plan. Produced wastewater discharges may degrade underlying groundwater up to the Basin Plan maximum salinity limits, but will be prohibited from adversely impacting beneficial uses of groundwater or exceeding water quality objectives. The burden of establishing that water quality degradation is in conformance with Resolution 68-16, rests with the project proponent or Discharger.

This General Order prohibits the discharge of oil field related wastes to surface waters or surface water drainages.

To assess compliance with the State Antidegradation Policy, this General Order requires Dischargers to monitor discharges to groundwater or demonstrate that the discharge cannot affect the quality of the underlying groundwater. The demonstration must be based on an analysis of appropriate hydrogeologic information. Absent such a demonstration, the requirements to monitor first encountered groundwater are met when the Dischargers perform individual groundwater monitoring or participate in a regional groundwater monitoring program as part of a group of Dischargers with several small facilities in similar hydrogeological areas. The purpose of monitoring is to demonstrate compliance with Resolution 68-16 and the requirements of this General Order.

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 to 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.

According to a report titled, “The Economic Contribution of the Oil and Gas Industry in Kern County,” dated November 2015 and prepared by Kern Economic Development Foundation (KEDF), California’s oil industry is mostly concentrated in the Central Valley. Kern County has been major oil producer since the 1890’s when oil was first discovered on the west side of the county. The oil and gas industry in Kern County plays an important role in the economies of the county and the state and provides a significant portion of the country’s domestic oil and gas production. According to the KEDF report, Kern County is the leading oil-producing county in the nation, yielding 145 million barrels of oil and 132 billion cubic feet of natural gas annually. These amounts represent 71% of California’s oil production, 66% of the State’s total gas production, and 10% of the total United States oil production.

The KEDF report also states that the oil and gas industry is the number-one industry in Kern County in terms of gross domestic product and tax contributions. The benefit of the oil and gas industry; however, is by no means limited to Kern County. The industry generates significant regional economic activity. Extraction, production, refining, and petroleum product manufacturing result in high tradable products that are consumed domestically and are also exported. These efforts produce high revenues, create high-paying jobs that require moderate-to-high skill (i.e., jobs in technical and engineering occupations), and contribute significant tax revenue to all levels of government. Oil and gas cluster employment accounts for 1 in 7 jobs in the county.

The oil and gas industry provides many similar benefits in Fresno, Kings, and Tulare Counties as well.

Considering the economic significance of the Central Valley oil field industry as well as the important role Central Valley oil field facilities play in providing domestic oil production and reduction in foreign oil imports, the Central Valley Water Board finds that maintaining the Central Valley oil industry and particularly in Kern County is to the benefit of the people of the state. Thus, allowing regulated oil field facilities to degrade high quality waters up to the Basin Plan's maximum effluent salinity limits is consistent with maximum benefit to people of the State as long as that degradation does not result in detrimental impacts to beneficial uses over the long term.

Verifying that the State Anti-degradation Policy is satisfied

The primary method used to determine if water quality objectives and the requirements of the *State Anti-degradation Policy* are being met is effluent and groundwater quality monitoring. Unless the Discharger can demonstrate that its discharge meets all water quality objectives and cannot affect underlying groundwater, the General Order requires monitoring of natural background water quality and the water quality downgradient of the production facility area, particularly ponds.

The MRP requires oil field operators to sample existing municipal or domestic water supply wells within one-mile radius of ponds that receive produced wastewater or other authorized discharges, and monitor first-encountered groundwater at their production facility. The purpose of requiring monitoring of water supply wells includes identifying the quality and trends of water being used near or within the oil field. The purpose of requiring monitoring of first-encountered groundwater is to evaluate current discharge practices in order to determine whether such practices are protective of groundwater quality at the most vulnerable point. Groundwater monitoring is necessary to: determine background groundwater quality; determine existing groundwater conditions near ponds and production facility areas; determine whether improved management practices need to be implemented; and confirm that discharge practices are not causing degradation that could adversely affect groundwater beneficial uses.

This General Order requires the Discharger to report any noncompliance that endangers human health or the environment or any significant noncompliance with the Prohibitions contained in the General Order within 24 hours of becoming aware of its occurrence. The General Order and its application process requires the Discharger to submit annual monitoring reports in a tabular form for all the effluent and groundwater monitoring data and domestic water supply well data, if applicable. Additionally, an annual assessment of groundwater monitoring, if applicable, is required to delineate the lateral and vertical extent of adverse impacts on groundwater quality. The assessment must include an evaluation of the groundwater monitoring program's adequacy to assess compliance with the General Order, including whether the data provided are representative of conditions upgradient and downgradient of the production facility.

The Central Valley Water Board recognizes that monitoring the effectiveness of the oil field facilities' BPTC and their effect on groundwater is needed to verify that water quality is adequately protected and the intent of the Anti-degradation Policy is met.

The individual groundwater monitoring provisions and requirements are designed to measure water quality data over time in first-encountered groundwater. It is recognized that in many cases, a single set of groundwater monitoring data, or even monitoring data over a period of months or years, may not be sufficient to determine the effectiveness of existing wastewater discharge practices. Evaluating groundwater results over an extended period of time, in conjunction with gathering data regarding existing surface practices, is necessary to determine whether water quality is being protected or is being unreasonably impacted.

California Environmental Quality Act

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 CEQA Guidelines also contemplate that physical conditions at other points in time may also constitute the appropriate baseline.(*Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal. App. 4th 316, 336.)

The receipt of a permit application (report of waste discharge) is an event that can be used to mark the beginning of the environmental review process because it commences the development of an individual permit. Therefore, the date a permit application is received is appropriate for the environmental baseline. (*Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

The Central Valley Water Board began developing this General Order in 2015 with the issuance of Notices of Violation and other orders requiring owners/operators without WDRs to submit RWDs. However, a rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production has fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline is based on the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.
The adoption of this General Order, which prescribes regulatory requirements for existing facilities in order to ensure the protection of groundwater resources, is exempt from the requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.) based on the following three categorical exemptions:

1. California Code of Regulations, title 14, section 15301 exempts the "operation, repair, maintenance, [and] permitting … of existing public or private structures, facilities, mechanical equipment, or topographical features" from environmental review. The General Order is exempt from environmental review because it is permitting existing facilities. Only oil field facilities that were operating prior to 26 November 2014 and their existing operations as described in the NOI are eligible to enroll in the General Order. The General Order does not authorize any increase in flow beyond the existing operations, which is considered the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years immediately prior to 26 November 2014.

2. 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…"

3. 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…"

Central Valley Salinity Alternatives for Long-Term Sustainability

The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has the goal of developing sustainable solutions to the increasing salt and nitrate concentrations that threaten achievement of water quality objectives in Central Valley surface waters and groundwaters. The General Order requires actions that will reduce salt and COCs loading and improve management practices to be protective of good groundwater quality. The Central Valley Water Board intends to coordinate all such actions with the CV-SALTS initiative. CV-SALTS may identify additional actions that need to be taken by existing wastewater production facilities and others to address COCs. The General Order may also be amended in the future to implement any policies or requirements established by the Central Valley Water Board as a result of the CV-SALTS process.

REQUIREMENTS OF THE OIL FIELD GENERAL ORDER

The following describes Prohibitions, Discharge Specifications, Groundwater Limitations, Solids Disposal Specifications, and Provisions are intended to protect the quality of surface water and groundwater.

Prohibitions

Dischargers wishing to obtain coverage under this General Order must submit a NOI to comply with the requirements of the General Order. The NOI must contain a detailed description of all discharges that will be regulated under the General Order. The General Order also requires Dischargers to submit a detailed technical report including an Antidegradation Analysis describing how the proposed discharge will meet BPTC requirements and demonstrating how discharges at the proposed volumes and concentrations will ensure maintenance of beneficial uses of underlying groundwater. The General Order prohibits discharges, other than those described in the NOI and approved in a NOA.

Discharges of waste other than produced wastewater from production wells to pond(s) are prohibited unless the Executive Officer approves the discharge in accordance with an appropriate management plan outlined in the Provisions section of the General Order.

Storm water that comes into contact with residual oil, produced wastewater, or oil field wastes may contain pollutants. This General Order prohibits the discharge of any wastes to surface

waters or surface water drainages. It also prohibits discharges of storm water that has come into contact with oil field wastes.

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. The General Order also contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger time to marshal funding, develop and complete appropriate studies, and to implement appropriate compliance options.

The General Order strictly prohibits the discharge of hazardous and designated wastes.

Operation or discharge of produced wastewater to ponds that could impact nearby water supply wells is prohibited in the General Order unless the Discharger can demonstrate that there will be no impact to the municipal or domestic water supply well.

To ensure that all wastes are properly treated and contained, the General Order prohibits the bypass of treatment and the discharges related to overflow of ponds.

The General Order prohibits the collection, treatment, discharge or disposal of wastes that could result in the creation of nuisance or pollution conditions.

Discharge Specifications

The discharge flow for coverage under the General Order must not exceed actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also must not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI.

Ponds are required to be free of oil or be netted to preclude the entry of wildlife (CCR, title 14, section 1778 (d)).

The General Order sets maximum effluent salinity limits for discharges of wastewater to ponds and for produced wastewater within ponds (outside of the White Wolf Subarea) for EC of 1000 micro-mhos per centimeter (µmhos/cm), chloride concentration of 200 mg/L and boron concentration of 1 mg/L as the following 12-month rolling averages. For White Wolf Subarea the discharge of wastewater to ponds and within ponds shall not exceed the EC of 1000 µmhos/cm, chloride concentration of 175 mg/L, boron concentration of 1 mg/L, and percent sodium of 60 as the following 12-month rolling averages.

The General Order restricts the public contact with wastes to such means as fences or other acceptable alternatives (CCR, title 14, section 1770 (b) through (b)(4)).

The General Order requires all the conveyance, treatment, storage, and disposal systems including pond, tank battery, and other components of oil and gas production wastewater discharge facility, to be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. By 1 October of each year the available capacity in ponds is required to be sufficient to capture seasonal precipitation and production facility wastewater design flow.

This General Order clarifies that discharges to secondary containment units are to be due to an emergency events that are beyond the control of facility operators and that the discharges to the secondary containment are short term, limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment unit ponds and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Board. The General Order also proscribes discharges of storm water containing pollutants from secondary containment to waters of the state (both surface and groundwaters) and waters of the United States. Discharges of storm water containing pollutants to such waters would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

The Discharger is required to operate and maintain all ponds with two feet of freeboard using a staff gauge unless a California registered civil engineer certifies that the operation of ponds less than two feet is adequate and will not impact the integrity of the ponds.

The General Order requires the ponds and containment structures be managed and operated to prevent breeding of vectors. Specifically ponds must be managed to minimize the accumulation of dead algae, vegetation, and debris on the pond surface; minimize growth of weeds and vegetation; and control pond erosion to limit vector breeding sites.

The General Order also allows the Discharger to use the produced wastewater generated from the production facility wells for dust control and construction activities as long as it is consistent with an approved management plan. The application rates are limited to those that are reasonable rates to preclude creation of a nuisance conditions and unreasonable degradation of groundwater. Applied wastewater shall not be allowed to pond onsite or runoff from the site.

Groundwater Water Limitations

The General Order proscribes the discharge of produced wastewater from causing the groundwater to contain constituents in concentrations greater than the Basin Plan maximum salinity limits, which include EC level of 1000 µmhos/cm, chloride concentration of 200 mg/L and boron concentration of 1 mg/L.

Discharges of produced wastewater in the White Wolf Subarea shall not cause chloride concentrations to exceed 175 mg/L.

The discharges of produced wastewater shall not cause underlying groundwater to contain any constituents in concentrations that adversely affect beneficial uses of the groundwater.

Solids Disposal Specifications

The General Order defines oil field solids as the solid, semisolid, and liquid residues removed from treatment processes or accumulated in tanks, ponds, or other facility components. The General Order requires any handling and storage of solids to be controlled in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soil in a mass or concentration that will violate the groundwater limitations of the General Order.

The General Order requires solids removed from the facility to be managed and disposed of in a manner consistent with solids management plan approved by the Executive Officer. The removal of solids for reuse plans as road mix is restricted to within the lease area.

The General Order also requires solids to be tested prior to use as a road mix and demonstrated to be non-hazardous. Any proposed changes in solids use or disposal practices are required to be reported in writing to the Executive Officer at least 90 days in advance of the change and be pre-approved by the Executive Officer.

Provisions

The General Order requires compliance with the applicable sections of "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991 (Standard Provisions) and compliance with MRP. During application process, the NOAs issued will delineate the Standard Provisions that are applicable.

The General Order also requires the Discharger to install an acceptable flow metering or flow monitoring. An engineering alternative to flow metering may be used if approved in writing by the Executive Officer.

The General Order authorizes discharge of waste from oil field activities other than produced wastewater from production wells if the discharger can demonstrate through water quality data that the discharge of wastewater is similar, compatible, or better than the produced wastewater quality, and in addition, the discharge does not pose a threat to beneficial uses of the groundwater. The General Order also requires prior approval of these oil field related discharges to ponds by the Executive Officer.

The General Order allows the application of produced wastewater at the production facility for dust control or construction activities if it is consistent with an Executive Officer approved management plan. The management plan must contain: 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) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; d) proposed constituent loading rates; e) a list of all management practices to be implemented to ensure produced wastewater does not migrate from proposed application areas; 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.

The General Order requires the dischargers to submit a solids management plan for approval of the Executive Officer at least 180 days prior to any solids reuse. For dischargers already reusing solids for road mix, the General Order requires submittal of a solids management plan for approval by the Executive Officer within 60 days of receipt of the NOA for the Facility. The solids management plan is to include a complete characterization of the quality and quantity of the solids. For reuse of solids as road mix within the lease area, the solids management plan must contain: 1) a demonstration that the solids are not hazardous as defined by CCR Title 22, et seq., 2) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; 3) proposed constituent loading rates; 4) a list of all management practices that will be implemented to ensure wastes will remain where processed and applied and will not migrate from the site; and 5) 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.

For off-site disposal of solids, the solids management plan must contain: 1) the name of the recipient of the waste, 2) the location of the waste disposal site, and 3) the Central Valley Water Board Order Number for the disposal site.

Evaluation of the Effectiveness of Discharge Practices

The General Order requires monitoring of all activities that result in discharges to land specifically the Monitoring and Reporting Program R5-2017-0034 requires:

- Extensive produced wastewater discharge monitoring
- Pond and facility monitoring
- Groundwater monitoring
- Solids monitoring
- Hydrogeological evaluation of the discharge facility, if applicable
- Annual reporting
- Noncompliance reporting
- Spill and release reporting

This monitoring will be reviewed and evaluated to determine compliance with the General Order. Discharges that do not comply with the requirements of the General Order will be subject to enforcement under the provisions of the California Water Code. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT A

DEFINITION OF TERMS
FOR
ORDER R5-2017-0034

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER ONE

1. **Degradation** - Any measurable adverse change in water quality.

2. **Existing Operations** - The actual maximum monthly average produced wastewater discharged to land (e.g., pond) that occurred between 26 November 2004 to 26 November 2014 and does not exceed maximum design flow of the Facility approved during NOI process.

3. **Expansion** - Any activity that results in an increase in the volume of wastes or mass of wastes discharged to land (Also, see Attachment D, Standard Provisions A.3 and A.4).

   "Expansion" does not include installation or modification of the Facility or equipment to achieve compliance with the requirements of this General Order so long as the modification or installation is sized to accommodate only the existing Facility flows.

4. **Field or Oil Field** - CCR title 14, section 1741(d) defines Field as "the same general surface area which is underlaid or reasonably appears to be underlaid by one or more pools."

   Also, CCR title 14, section 1760(f) defines Field as "the general surface area that is underlain or reasonably appears to be underlain by an underground accumulation of crude oil or natural gas, or both. The surface area is delineated by the administrative boundaries shown on maps maintained by the [State Oil and Gas] Supervisor."

5. **Flowline** - CCR title 14, section 1760(g) defines as "any pipeline that connects a well with a gathering line or header."

6. **Freeboard** - Elevation difference between the produced wastewater (liquid) level in a pond and the lowest point of the pond embankment before wastewater can overflow.

7. **Hazardous Waste** - See definition in CCR, title 22, section 66261.3.

8. **High Quality Water** – Waters where a constituent is found at concentrations lower than the applicable water quality objective are considered to be "high quality waters" under the antidegradation policy. It is important to note that water can still be considered a high quality water when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.

9. **Operator** - CCR title 14, section 1741(j) defines as "any person drilling, maintaining, operating, pumping, or in control of any well."

10. **Overflow** - The intentional or unintentional discharge from the Production Facility that is not authorized by this General Order.

11. **Pond** - Also referred to as "Surface Impoundment," is any earthen structure, which may be lined/or unlined, used for the separation, treatment, storage, and/or disposal of produced wastewater. Oil and Gas Production Facility components that are not required to obtain coverage under the General Order are those that meet all of the following requirements:

    a. small in size or volumes of produced wastewater received,
    b. properly engineered and constructed to eliminate percolation (e.g., re-enforced concrete or other appropriately engineered liner),
    c. operated to contain liquid for short periods of time, and
    d. subject to proper ongoing operation and maintenance.

12. **Produced Wastewater or Wastewater** – The General Order refers to the water that is produced with production fluid from a production well as "wastewater", which is commonly referred to as "produced water" in the oil industry. The General Order also uses the term "effluent" (after treatment).

    CCR title 14, section 1760(r) defines "waste water" as "produced water that after being separated from the produced oil may be of such quality that discharge requirements need to be set by a California Regional Water Quality Control Board."

13. **Production Facility** - Also referred to as Facility. CCR title 14, section 1760(k) defines Production Facility as "any equipment attendant to oil and gas production or injection operations including, but not limited to, tanks, flowlines, headers, gathering lines, wellheads, heater treaters, pumps, valves, compressors, injection equipment, production safety systems, separators, manifolds, and pipelines that are not under the jurisdiction of the State Fire Marshal pursuant to section 51010 of the Government Code, excluding fire suppressant equipment." See above for definition of "flowline."

    In general, includes all the surface equipment used to transfer, process or treat, or store oil and dispose of produced wastewater originating from production wells.

    The term "Facility" includes those operations that collect and dispose of oil field produced wastewater from one or more operators.

14. **Secondary Containment** - An engineered containment used only during operational upsets or failures that are beyond the control of the Facility operator.

    CCR title 14, section 1760(n) defines Secondary Containment as "an engineered impoundment, such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility." Section 1773.1 requires following conditions:

    (a) All production facilities storing and/or processing fluids, except valves, headers, manifolds, pumps, compressors, wellheads, pipelines, flowlines and gathering lines shall have secondary containment.
    (b) Secondary containment shall be capable of containing the equivalent volume of liquids from the single piece of equipment with the largest gross capacity within the secondary containment.
    (c) Secondary containment shall be capable of confining liquid for a minimum of 72 hours.
    (d) When not in use for rain water management, rain water valves on a secondary containment shall be closed and secured to prevent unauthorized use.
    (e) All damage to secondary containment shall be repaired immediately.
    (f) The requirements of this section are not applicable until six months after the effective date of this regulation."

    For the purposes of this General Order, secondary containment does not include structures used to manage produced wastewater or other wastes during periods of routine maintenance or used to address a lack of adequate facility maintenance or treatment capacity or storage.

15. **Solid Wastes** - Viscous liquids, sludges, and solids collected from tank bottoms as oily sand and/or organic sludge waste collected from the surface of ponds are collectively referred to as “solid waste.”

16. **Storm Water** - Storm water runoff, snowmelt runoff, and surface runoff resulting from a storm or precipitation event.

17. **Waste** - Defined in Water Code section 13050(d) where it, “includes sewage and any and all 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 purposes of, disposal.”

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT B

INFORMATION NEEDS SHEET
FOR
ORDER R5-2017-0034

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER ONE

This Information Needs Sheet describes information needed to prepare a Notice of Intent (NOI) to obtain coverage under the General Order. A NOI shall consist of:

1. **State Form 200.** A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. **An application fee.** Dischargers not operating under waste discharge requirements (WDRs) need to submit an application fee that serves as the first annual fee. The initial 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. **A technical report.** The technical report shall characterize all waste generation, treatment, storage, reuse and disposal activities applicable to the specific Facility that will be covered under the General Order. The technical report shall be prepared by a California registered civil engineer or engineering geologist. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

After Central Valley Water Board staff review of the NOI, staff will determine the appropriate TTWQ and CPLX rating and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing Notice of Applicability (NOA). The NOA will describe appropriate monitoring and reporting requirements and site specific information.

TECHNICAL REPORT PREPARATION

Please note the following tips to expedite the NOI preparation and facilitate Central Valley Water Board staff review process:

1. Providing the information in the same order as the listed below for technical report will help to expedite the NOI review process. Staff will use this as a checklist.

2. If any of the information is missing or incomplete, the NOI will be deemed incomplete and the process (and your project) will be delayed until all of the required information is submitted. You will be notified in writing of the NOI status within 30 days of the NOI submittal. If the NOI is incomplete, the additional information that is required to complete the NOI will be specified in the notification.

3. All numerical data presented in tables and calculations performed using spreadsheets should be provided in digital form (MS Excel compatible spreadsheet) as well as hard copy.

4. If some of the information listed below can be found in a previous technical report prepared by a California registered professional, the NOI can incorporate the report as an appendix, but the NOI text must specify where in the report the required information can be found. However, if appended reports contain information that conflicts with the body of the NOI, it may cause further delays.

✓	**A. Facility Information:**
	1. Is this an **existing or new** oil and gas production facility **or expansion** or startup of existing facility with discharges of produced wastewater (effluent) to pond(s)?
	a. If this is an existing facility (began discharge to land prior to 26 November 2014), the Discharger can apply for coverage under the general orders and the facility is exempt from requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.). Therefore, the Discharger does not need to produce evidence of compliance with CEQA.
	b. If this is a new facility (did not begin discharge to land **prior to 26 November 2014**) or expansion or startup of an existing facility, the Discharger can apply for individual WDRs instead of coverage under the general orders.
	c. If the Discharger has questions about a. or b. or permitting in general contact Central Valley Water Board staff at (559) 445-5116 for guidance.
	2. Is this **facility** currently regulated under individual or general WDRs issued by the Central Valley Water Board?
	a. If so, provide the WDRs order number and a copy of the WDRs.
	b. If not, provide the name of the local agency that issued the current operating permit and the number of years ponds have been in use as a method of

	disposal.
	3. Provide a copy of any other permits that reference or relate to the discharge of oil field produced wastewater treatment, storage, disposal, and containment systems. This includes Use Permits and any other relevant permits (e.g., Division of Oil, Gas, and Geothermal Resources (DOGGR) disposal well permits, facility permits, etc.).
	4. Provide the following information for the oil and gas production facility and related treatment, storage, and/or disposal units:
	a. Section, Township, and Range.
	b. Street address of the facility (provide street name and distance from nearest cross street if there is no street number), if applicable.
	c. The approximate latitude and longitude of the facility and its components (treatment, storage tanks or tank battery, ponds, disposal wells, etc.).
	d. County and Assessor's Parcel Numbers, if applicable.
	5. Provide a detailed description of the facilities that generate wastewater, and all wastewater conveyance, treatment, and disposal systems. Use site plans and conceptual drawings as appropriate to illustrate locations and typical construction. Include all treatment processes. Provide the following maps, plans, and illustrations:
	a. A facility location map showing local topography; all wells (including producing, injectors, disposal, monitoring, and domestic/agricultural supply wells, etc.); the production, treatment, and disposal facility locations; and boundaries, streets, and surface water features (including natural drainages, seasonal streams, storm water drainage ditches, irrigation canals, and irrigation/tailwater ditches, etc.).
	b. A process flow schematic for the entire treatment, storage, and disposal system. Include existing and proposed flow monitoring devices and sampling locations proposed to determine compliance with the General Order.
	c. A scaled map for production, treatment, storage, disposal facility site plan and acreage. Identify the locations of all the containment structures.

	d. A scaled map showing the limits of all the production wastewater treatment, storage and disposal areas. If disposal methods include combination use of ponds or disposal wells or other methods, identify all the locations on the scaled map.
	6. For each wastewater treatment, storage, disposal pond, and containment structure, provide the following information:
	a. Identification (name) and function of the structures.
	b. Surface area, depth, and volumetric capacity at two feet of freeboard for the ponds.
	c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee.
	d. Materials used to construct each berm or levee (e.g., containment structures and ponds).
	e. Description of the engineered liner, if any. Include a copy of the Construction Quality Assurance (CQA) Report if one was prepared.
	f. Overflow prevention features for each structure.
	g. Operation and maintenance procedures for each structure.
	h. Storm water runoff management methods, applicable for each structure.
	7. Projected monthly water balances demonstrating adequate containment capacity in storage structures (e.g., ponds and secondary containments) for both the average rainfall year and the 100-year return period total annual precipitation, including consideration of at least the following:
	a. Base line wastewater production to the pond and any inflow sources, if applicable.
	b. A minimum of two feet of freeboard in each pond at all times (unless a registered civil engineer determines that a lower freeboard level will not cause overtopping or berm failure).
	c. Historical local pan evaporation (monthly average values).
	d. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns.
	e. Disposal system hydraulic loading rates distributed monthly in accordance with expected seasonal variations based on evaporation rates.

	f. Projected long-term percolation rates (including consideration of percolation and the effects of solids buildup in unlined ponds or containment structures).
	g. Submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the facility (i.e., tank battery and pond storage capacity) is consistent with the flow limits based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
	B. Wastewater Treatment, Storage, and Disposal Systems For The Facility:
	1. A description of all the sources and types of wastewater flowing into the treatment, storage, and disposal facility, including:
	a. A list of oil leases or individuals or entities that use the wastewater treatment, storage, and disposal system.
	b. The number of permitted active and idle production wells (which produce oil, water, or gas) for each oil lease and the associated total monthly fluid production for each type of fluid (oil, gas, and produced wastewater) for each lease since 2013, broken out into monthly flows.
	c. The method(s) of oil field reservoir drives (e.g., primary or enhanced oil recovery (EOR) drive such as steam flood, water flood, etc.).
	d. A list of wastewater treatment units that treat the produced wastewater that is discharged to ponds or to land.
	2. For any chemicals or additives used in the exploration and production of oil, and the treatment of produced wastewater, provide the following:
	a. A detailed accounting of all the chemicals and additives used that could enter the wastewater, the reservoir, and/or produced wastewater stream (e.g., acids, bases, salts, surfactants, emulsion breakers, etc.), and a description of how and where in the production or wastewater stream they are deployed. Calculate the volumes of each individual chemical and additive used on a quarterly basis and describe any seasonal variability in chemical usage.
	b. Report any hazardous wastes that may be generated at the facility and certify that all hazardous wastes will be disposed of in accordance with State and federal laws and will not be commingled with wastewater.
	3. Characterize each wastewater stream type that discharges to the oil and gas production facility using the constituent list provided in **Table I of Monitoring and**

	Reporting Program R5-2017-0034 including (but not limited to) the following:
	a. Produced wastewater after production facility treatment, but prior to discharge to the pond (effluent), and within pond.
	b. If the facility receives produced wastewater from other leases, or individuals, or entities, or properties or from different reservoirs, characterize each produced wastewater stream prior to mixing with other produced wastewaters and prior to treatment.
	c. Identify all other sources of wastes prior to mixing with produced wastewater and characterize each waste stream independently (e.g., reverse osmosis brine streams, steam generator blow down, etc.).
	4. Demonstrate maximum monthly average effluent flow to each pond that occurred between 26 November 2004 and 26 November 2014 and the basis for the effluent flow limit. Consider dry weather flows vs. peak flows and seasonal variations, if applicable. Include the technical basis for the flow limit (e.g., design treatment capacity; hydraulic capacity of system components; and demonstrated (historical) effluent storage/disposal capacity).
	5. A narrative description of treatment and storage system operation and maintenance procedures to be employed, including those associated with effluent storage and disposal.
	6. The names and contact numbers for production treatment facility operators and facility supervisors and the hours that the facility is staffed.
	7. Provide preventive and contingency measures for controlling spills and accidental discharges in production facility:
	a. Provide any spill prevention plans. The spill prevention plan should provide specific measures to effectively control any spills or failures in the production facility with supporting documents, a facility schematic, and flow diagrams that show that a spill to the secondary containment areas could only occur during emergency or catastrophic conditions.
	b. A description of proposed alarm notification systems, emergency wastewater storage facilities, secondary containment system, and other means of preventing treatment system bypass or failure during reasonably foreseeable overload conditions (e.g., peak flows, power failure, pipeline blockage, etc.).

	Consider both potential problems at the treatment, storage and disposal systems and within the conveyance systems (e.g., flow lines).
	c. Provide description of flood and frost protection measures (structural and operational) employed at the facility.
	8. Describe all solid wastes generated at the facility and discuss how they are handled and disposed of. Volumes, chemical and physical characteristics, and final disposition of each waste stream (e.g., land application, compost, landfill) must be described. If solid wastes are treated or disposed of on-site, a waste management plan for those wastes must be included. The waste management plan shall include the following:
	a. A description of solids generation rates, on-site treatment and handling systems, and short-term storage procedures.
	b. A description of measures to be used to control runoff or percolation from the solids as they are transferred, stored, and/or mixed, and a schedule that shows how and where all the solids will be land applied or removed from the site prior to the onset of the rainy season (1 October).
	c. Confirmation that solids removed for reuse within the lease area would be analyzed to indicate that they are non-hazardous. Handling and application practices that would ensure that solid wastes do not migrate once placed. **Note:** At least 180 days prior to any solid waste removal and disposal, the Discharger must submit a solids management plan for the Executive Officer's approval.
	d. See Provision E.6 of the General Order for additional information.
	9. If the Discharger plans to apply produced wastewater for dust control or construction activities at the facility, the Discharger shall submit a management plan that includes:
	a. Technical justification that the dust control or construction activities are best practicable treatment or control and protective of surface waters and groundwater, and a demonstration that discharges will not create nuisance or pollution conditions.
	b. Provide constituent of concern concentrations and loading rates, frequency of wastewater applications, wastewater runoff control measures in-place, and a detailed aerial map of the field and facility clearly identifying areas of wastewater applications including acreage, nearest water ways, and seasonal drainage courses. **Note:** The Discharger shall submit the management plan 90 days prior to the anticipated

	discharges and the Executive Officer approval of the plan should be prior to commencement of the wastewater application.
	c. See Provision E.5 of the General Order for additional information.
	10. If Discharge Prohibition A.5 of the General Order applies to the Discharger for discharge of produced wastewater from wells that have been stimulated as defined by CCR title 14, section 1761; then the Discharger must satisfy the requirements of the General Order Provision E.7 by submitting a draft Work Plan to come into compliance with this prohibition. See Provision E.7 of the General Order for additional information.
	C. Antidegradation Analysis:
	1. An antidegradation analysis that evaluates the proposed discharge's consistency with State Water Resources Control Board Resolution 68-16, *Policy with Respect to Maintaining High Quality Waters of the State*. This policy, known as the antidegradation policy, prohibits a regional board from allowing degradation of high quality water unless the Board makes specific findings. If the discharge is expected to degrade high quality waters, the Board must demonstrate that the degradation is consistent with the maximum benefit to the people of the state, that the discharge will not unreasonably affect present and anticipated beneficial uses of the water, that the discharge will not result in water quality less than that prescribed in applicable water quality control policies, and that the treatment system results in the "best practicable treatment or control" of the constituents of concern. In addressing the antidegradation policy, the NOI shall include:
	a. An identification of the beneficial uses of the groundwater in the vicinity of the discharge. Beneficial uses are designated in the applicable water quality control plan.
	b. An identification of the applicable water quality objectives (i.e., identify applicable Maximum Contaminant Levels or other waste concentration levels that cause odors or impair the taste of groundwater designated as suitable for municipal and domestic beneficial use, identify salinity thresholds that will be protective of groundwaters designated as suitable for agricultural use).
	c. An identification of waste constituents currently found in groundwater at concentrations lower (of better quality) than the applicable water quality objectives. Waters where a constituent is found at concentrations lower than the applicable water quality objective are considered "high quality waters" under the antidegradation policy. It is important to note that water can still be considered high quality water even when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.

	d. An evaluation of how the proposed discharge may degrade groundwater that has been identified as a high quality water. The evaluation shall compare the concentrations of waste constituents in the discharge with the concentrations of these constituents in underlying groundwater and with applicable water quality objectives, and must be conducted on a constituent-by-constituent basis. Include in this evaluation waste constituents that may not be present in elevated concentrations in the discharge when applied to land, but may be released to groundwater as a result of the discharge (e.g., nitrate, iron, manganese, arsenic).
	e. When the above analysis finds that high quality waters will be degraded by the discharge, the following is also needed:
	(1) A justification why the degradation is consistent with the maximum benefit to the people of the state. It is appropriate to consider "important social and economic development" when evaluating whether the degradation is consistent with the maximum benefit to the people of the state.
	(2) With respect to the treatment or control measures that will be implemented, evaluate how these measures reduce the discharge's potential to degrade groundwater and how these measures ensure that the discharge does not cause or contribute to existing conditions of groundwater degradation, where the degradation is due to controllable factors.
	(3) Include a description of additional control measures that <u>could</u> further reduce the degradation associated with the discharge, and discuss why it is or is not "practicable" to implement these measures at the site. This can include analysis relating the viability of the project to the expense of the pollution control technology (i.e., the project would not be economically viable if higher-cost treatment was required by the Board).

	D. Planned Changes in the Existing Facility or Discharge:
	1. Describe in detail any and all planned changes in the facility or discharge, addressing each of items listed in **Section B** above.
	E. Local and Site-Specific Conditions for Surface, Soil, and Groundwater: **(Illustrate with maps as appropriate)**
	1. Neighboring land uses.
	2. Typical crops grown (if agricultural area).
	3. Water supply sources, including agricultural, municipal, and domestic well(s) within one mile radius of where the ponds are located.

	4. Terrain and site drainage features.
	5. Nearest surface water drainage course.
	6. FEMA floodplain designation(s).
	7. Average Annual precipitation (inches).
	8. 100-year 365-day precipitation (inches).
	9. Reference evaporation (monthly and annual total).
	10. Pan evaporation (monthly and annual total).
	11. A description of the types and depths of soil underlying ponds, containment structures, and/or other effluent disposal areas. Include a copy of the geotechnical report and/or Natural Resources Conservation Service (NRCS) soil report. Include at least the following information:
	a. Depth of unsaturated soil when groundwater is closest to the surface.
	b. Soil types based on site-specific information, sampling locations (accurately measured and recorded), description and results of percolation tests or other tests used to estimate soil long-term infiltration and percolation rates. Include depth, thickness, and soil horizons. Soils must be described at a minimum of five feet below the bottom of any disposal unit. Provide information on soil types underlying ponds and/or wastewater application areas from the ground surface to the saturated zone. Soils information should include data from on-site borings, logged by a California registered geologist or civil engineer, and may include referenced data from published sources.
	c. Bedrock type and condition encountered in disposal area, if any.
	d. A scaled map depicting soil/rock types and test locations.

	12. Provide the following information about hydrogeology and groundwater:
	a. Stratigraphy, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (site conceptual model).
	b. Elevation and gradient of first encountered groundwater at the facility.
	c. Depth to highest anticipated groundwater based upon onsite measurements taken during wet season.
	d. Shallow groundwater quality or first encountered groundwater for typical waste constituents, up and down gradient of disposal ponds. See **Table II of General Order Monitoring and Reporting Program** for constituent list to analyze.

	e. Information on monitoring well locations, construction details, and locations of any geological features (e.g. aquitards, subterranean channels, faults) and aquifer characteristics.
	f. Summary of historical groundwater monitoring results (last 5 years for existing facilities).
	F. Industrial Storm Water General Permit:
	On 1 April 2014, the State Water Resources Control Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) (Industrial Storm Water General Permit) specifying waste discharge requirements for discharges of storm water associated with industrial activities. Order 2014-0057-DWQ became effective 1 July 2015 and required all applicable industrial dischargers to apply for coverage prior to the effective date. Because storm water at oil and gas production wastewater discharge facilities is captured and contained on-site or comingled with produced wastewater before being discharged to ponds or production containment areas (i.e., secondary containment), storm water will generally contain residual oil or produced wastewater. This General Order prohibits discharge from leaving pond areas or secondary containment areas and entering waters of the United States. See the following link for more information: http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/ 1. Many industrial facilities are required to obtain coverage under the Industrial Storm Water General Permit. Provide evidence that the facility is exempt from or has applied for coverage under the Industrial Storm Water General Permit.

	G. Department of Water Resources Well Standards:
	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 94-81* (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. 1. Provide information as to whether existing monitoring wells at the facility were constructed in accordance with the Department of Water Resources Well Standards. See the following link for more information: http://wwwdpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html

EXHIBIT 2

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0035

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER

FOR
OIL FIELD DISCHARGES TO LAND

GENERAL ORDER NUMBER TWO

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 oil and gas production facilities (hereinafter referred to as Facilities or Facility) that:
   a. primarily discharge produced wastewater from oil and gas extraction operations to land, including but not limited to produced wastewater disposal ponds, 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. exceed the maximum oil field discharge 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 **26 November 2014.**

   This General Order classifies such Facilities as "existing."

2. The Board will notify Dischargers of coverage under the terms and conditions of this General Order by Executive Officer issuance of a Notice of Applicability as described in the application process below.

3. 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 and dust control 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).

4. It is the intent of the Central Valley Water Board that Facilities regulated by outdated WDRs can also apply for coverage under this General Order.

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 any water, precipitation, or rainfall runoff that contacts produced wastewater or residual oil field wastes in the Facility. See Attachment A for specific definitions of many of the terms used in this General Order.

6. There are approximately 326 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) with the Central Valley Water Board within 30 days of the adoption date of this General Order. 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. The NOI for the Facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average

produced wastewater discharge flow to ponds that occurred in the ten years immediately prior to 26 November 2014. Any increase in flow beyond this number constitutes an expansion requiring a CEQA evaluation. The use of the actual maximum monthly average produced wastewater discharge flow in the last ten years to define the existing operations accounts for fluctuations in oil and gas production and associated wastewater flows due to changes in economic conditions.

9. 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). Coverage under this General Order will commence upon issuance of the NOA. The NOA will describe the appropriate monitoring and reporting requirements.

10. 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

11. 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 Facilities located in the Central Valley Region.

12. Existing 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. 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 most 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.

13. 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 Boards also issued orders under Water Code section 13304 to those discharging to ponds without valid waste discharge requirements. The 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 notice of intent to comply with this General Order, another general order, or to support individual waste discharge requirements.

14. Discharges that would qualify for this General Order are those that exceed the Basin Plan salinity limits but, due to site specific conditions, will not substantially affect water quality nor cause a violation of water quality objectives in the groundwater.

BASIN PLAN AND BENEFICIAL USES

15. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised January 2015* (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 Resources Control Board (State Water Board).

16. 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.

17. The beneficial uses of groundwater described in 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. Further, the Basin Plan incorporates State Water Board Resolution No. 88-63, known as the State "Sources of Drinking Water Policy." Pursuant to this policy, all groundwater is designated as MUN (the use may be existing or potential) unless specifically exempted by the Central Valley Water Board and approved for exemption by the State Water Board. In addition, unless otherwise designated by the Central Valley Water Board, all groundwater in the Region is considered suitable or potentially suitable, at a minimum, for agricultural supply (AGR), industrial supply (IND), and industrial process supply (PRO).

18. Pursuant to Water Code section 13263(a), this General Order must implement the Basin Plan, and the Central Valley Water Board must consider the beneficial uses of water, the water quality objectives reasonably required to protect 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.

19. 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 Central Valley Water Board considers relevant numerical criteria and guidelines developed and/or published by other agencies and organizations.

20. Water quality objectives that apply to groundwater include, but are not limited to: (1) numeric objectives such as the chemical constituents objective (includes state drinking water primary and secondary maximum contaminant levels (MCLs) promulgated in California Code of Regulations (CCR), title 22, sections 64431, 64444, and 64449 applicable to municipal and domestic supply), and (2) narrative objectives including the chemical constituents, taste and odor, and toxicity objectives.

21. California Code of Regulations, title 22, section 64449, *Table 64449-B Secondary Maximum Contaminant Levels-"Consumer Acceptance Contaminant Level Ranges"* contains recommended total dissolved solids (TDS), specific conductance (or EC), and chloride levels for drinking water of 500 mg/L, 900 µmho/cm, and 250 mg/L, respectively. The upper recommended TDS, EC, and chloride levels are 1000 mg/L, 1,600 µmhos/cm, and 500 mg/L, respectively. Groundwater with concentrations of TDS, EC, and chloride concentrations below the upper recommended levels is considered acceptable for municipal supply with respect to those constituents.

22. California Code of Regulations, title 22, section 64444, *Table 64444-A "Maximum Contaminant Levels for Organic Chemicals,"* indicates the primary MCLs for benzene, ethylbenzene, toluene, xylenes, benzo(a)pyrene, are 1.0 µg/L, 300 µg/L,150 µg/L, 1750 µg/L, and 0.5 µg/L, respectively. Groundwater containing these constituents below the MCLs is considered acceptable for municipal supply.

23. 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 µmhos/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 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

24. 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.

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

Constituent	**Limitation**
Electrical Conductivity (EC) (umhos/cm)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

26. For the White Wolf subarea (consisting of 64,000 acres within the valley floor, at the southern tip of the Basin, about 20 miles south of Bakersfield, bounded on the 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:

	Effluent Limits	
Constituent	**Class I Irrigation Water**	**Class 2 Irrigation Water**
EC (umhos/cm)	1000	2000
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.

27. 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.

28. This General Order prohibits the discharge of 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)

29. 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.

30. 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.

31. The primary waste constituents of concern (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.

32. When issuing NOAs under this General Order, the Central Valley 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 authorize 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.

33. This General Order prohibits the discharge of oil field related wastes to surface waters or surface water drainages.

34. To assess compliance with the State Antidegradation Policy, this General Order requires Dischargers to monitor discharges to groundwater or demonstrate that the discharge cannot affect the quality of the underlying groundwater. The demonstration must be based on an analysis of appropriate hydrogeologic information. Absent such a demonstration, the requirements to monitor first encountered groundwater are met when the Dischargers perform individual groundwater monitoring or participate in a regional groundwater monitoring program as part of a group of Dischargers with several small facilities in similar hydrogeological areas. The purpose of monitoring is to demonstrate compliance with Resolution 68-16 and the requirements of this General Order.

35. This General Order provides small and medium operators (i.e., those that discharge 250 or fewer barrels per day and those that discharge 250 up to and including 1,000 barrels per day of produced wastewater to land, respectively) time schedules to comply with the groundwater monitoring requirements in the Monitoring and Reporting Program R5-2017-0035 (MRP). Given this General Order applies to discharges that will not substantially affect water quality nor cause a violation of water quality objectives in the groundwater, it is unlikely that the discharges will degrade groundwater during the time extension.

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 to file a report of that discharge with the Central Valley Water Board. An NOI meets this requirement.

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 discharge authorized herein is 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 treated waste discharged to the pond 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) states:

> Operators shall adhere to the following requirements for the storage and handling of well stimulation treatment fluids, additives, and produced waters from a well that has had a well stimulation treatment: … (4) Fluids shall be stored in containers and shall not be stored 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.

47. This General Order contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger to fund, study, and implement appropriate compliance options.

48. This General Order does not authorize violation of any federal, state, or local law or regulation.

49. 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.

50. 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. Consistent with this policy, this General Order has requirements that prohibit discharges from causing a condition of pollution in waters that are suitable for the beneficial uses of municipal and domestic water supply.

51. 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.

52. 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 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.

53. This General Order clarifies that discharges of wastewater to secondary containment units are to be due to emergency events that are beyond the control of the Facility operator and that the discharges to the secondary containment are short term, limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment units and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Board. Discharges of storm water containing pollutants to waters of state and waters of the United States would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

54. 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.

55. The technical reports required by this General Order and the attached MRP 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.

56. The MRP requires extensive monitoring of the Facility, the wastewater, and the groundwater. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

57. 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.

58. The Findings of this General Order, attachments and details in the 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.

59. 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.

60. 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

61. 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.).

62. 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." The CEQA Guidelines also contemplate that physical conditions at other points in time may constitute the appropriate baseline. (CCR, title 14, section 15125(a), Cherry Valley Pass Acres and Neighbors v. City of Beaumont (2010) 190 Cal. App. 4th 316, 336.)

63. 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 because it commences the development of an individual permit. Therefore, the date an application is received is appropriate for the environmental baseline. (Fat v. County of Sacramento (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

64. In November 2014, the Board recognized the need to develop a general order to regulate produced wastewater discharges to ponds. Beginning in January 2015, the Board issued Notices of Violation (NOVs) to operators discharging to ponds without WDRs.

65. A rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production and associated wastewater discharge flows have fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline shall be based on the existing operations, which is the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.

66. This General Order is designed to enhance the protection of surface and groundwater resources, and its application to existing 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, to existing Facilities and their existing operations as described in their NOIs. Any increase in flow beyond the existing operations constitutes an expansion requiring a CEQA evaluation.

    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 Facilities to make improvements to their waste management systems that will result in only minor alterations to land, water, and/or vegetation.

67. The Central Valley Water Board has notified interested agencies and persons of its intent to issue this General Order for discharges of wastes from oil field production facilities and has provided them with an opportunity for a public hearing and an opportunity to submit comments.

68. 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 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 containing well stimulation treatment fluids is prohibited except as provided by Provision E.7.

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 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 actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also shall not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI.
2. The discharge shall remain within the permitted waste treatment/containment/disposal structures at all times, or in case of emergency, within secondary containment structures.
3. All ponds shall be operated and maintained to prevent wastes from concentrating to hazardous levels.
4. 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).
5. Ponds shall be free of oil or effectively netted to preclude the entry of wildlife in accordance with CCR, title 14, section 1778 (d).
6. The Discharger shall operate all systems and equipment to optimize the water quality of the discharge to ponds.
7. All conveyance, treatment, storage, and disposal systems including ponds, tank batteries, and other components of Facilities and their wastewater treatment and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
8. 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.
9. Pond berms shall be designed and maintained to prevent leakage caused by erosion, slope failure, or animal burrowing.
10. 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.

11. 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.

12. On or about 1 October of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications B.7 and B.11.

13. 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 shall be done in compliance with labeling instructions and 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.

14. 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.

15. The Discharger shall monitor the accumulation of solid waste in the wastewater treatment/storage/disposal units and ponds at least every five years, beginning in the year that the NOA is issued, and shall periodically remove solids as necessary to maintain adequate treatment, storage, and disposal capacity. Specifically, if the estimated volume of solids in any unit 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 lesser capacity is adequate.

16. Dischargers who are subject to this General Order shall implement BPTC to protect high quality water and to maintain compliance with applicable water quality objectives.

17. All precipitation and surface drainage (i.e., “run on”) from outside the Facility, where it could come into contact with waste, shall be diverted away from the Facility or pond unless such drainage is fully contained.

18. Produced wastewater application rates, on the 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.

19. Application of produced wastewater at the 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, in combination with other sources, shall not cause groundwater to contain waste constituents in concentrations that exceed water quality objectives or adversely affect beneficial uses of groundwater as identified in the Basin Plan. If natural groundwater quality contains constituents in concentrations that exceed the water quality objectives identified in the Basin Plan, then the discharges authorized herein cannot cause the concentrations of those constituents in groundwater 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. 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 the 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 date 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. If the Discharger accepts produced wastewater from wells that have been stimulated, it shall comply with Prohibition A.5 in accordance with the following compliance schedule:

Task[1]	**Task Description**	**Due date**[2]
1.	a. Submit a Work Plan to conduct studies necessary to demonstrate that the discharges of produced wastewater from wells that have been stimulated do not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. The Work Plan shall include, but is not limited to, a proposed monitoring program for wells that have been stimulated or are planned for stimulation, specific milestones to accomplish the proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer. **Or**	**3 Months from Date of NOA**

Task[1]	Task Description	Due date[2]
	b. Submit a Work Plan for an alternate disposal method for wastewater discharges from wells with a history of, or are planned to receive a "well stimulation treatment." The Work Plan shall include, but is not limited to, permitting and construction schedules for disposal wells, specific milestones to accomplish the proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer.	
2.	The Discharger shall implement the Work Plan after the Work Plan has been approved by the Executive Officer and shall also provide progress reports toward compliance with this task every six months. By the end of the 36th month from the date the NOA is issued, the Discharger shall submit a technical report for review and approval by the Executive Officer. The technical report shall demonstrate compliance with Prohibition A.5. Upon written approval letter by the Executive Officer, this provision shall be satisfied. The Executive Officer may at its discretion modify this time schedule based on evidence that meeting the compliance date is infeasible through no fault of the Discharger, or when evidence shows that compliance by an earlier date is feasible.	**36 Months from Date of NOA[1]**
3.	If the Discharger does not achieve compliance with Prohibition A.5 by the compliance date in Task 2, the Discharger must cease discharge(s) and submit a written certification that the discharges from the Facility have ceased.	**36 Months from Date of NOA**

1. Where local geology and discharge quality is similar, Dischargers may work together as a group to submit required work plans, technical reports, and studies. The work plans, technical reports, and studies shall explicitly identify the areas and Dischargers covered by the group effort.
2. All the compliance due dates start from the issuance date of the NOA by the Executive Officer. For example if NOA was issued on 1 July 2017, the final task (Task 2 technical report) due date is on 1 July 2020.

8. 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.

9. Pursuant to section 13264 of the Water Code, the Discharger shall submit a complete revised NOI or a complete Report of Waste Discharge (RWD) for an individual permit 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.

10. 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.

11. 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.

12. The Discharger shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this General Order.

13. 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.

14. 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.

15. 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.

16. 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.

17. A copy of this General Order including the MRP, Information Sheet, and Attachments A and B, and Standard Provisions, shall be kept at the Facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

18. The Central Valley Water Board will review this General Order periodically and will revise requirements when necessary.

19. Coverage under this General Order is effective upon written notification by the Executive Officer (i.e., issuance of NOA) that this General Order applies to the Discharger.

20. 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.

21. 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.

22. 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 60 of this General Order and the Discharger must participate in the CV-SALTS Program to qualify for an exception.

23. 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 RWD 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 6 April 2017.

Original signed by

_____
PAMELA C. CREEDON, Executive Officer

Attachments:

A: Definitions
B: Information Needs Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0035
FOR
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER TWO

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location(s) shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

This MRP includes Monitoring, Record-Keeping, and Reporting requirements. Monitoring requirements include monitoring of discharges, of produced wastewater, solid waste, application of recycled materials (wastewater and solids), and groundwater to in order to determine if the Discharger is complying with the requirements of Waste Discharge Requirements General Order No. R5-2017-0035 (Order). All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with ***Standard Provisions and Reporting Requirements for Waste Discharge Requirements***, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as a pH meter) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the State Water Board's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after a statistically significant number of sampling events, the Discharger may request this MRP be revised by the Executive Officer to reduce monitoring frequency or minimize the list of constituents. The proposal must include adequate technical justification for reduction in monitoring frequency.

Monitoring requirements include the periodic visual inspection of the facility to ensure continued compliance with the Order. The MRP also requires submittal of information regarding the use of all chemicals used during well drilling, installation, operation, and maintenance activities associated with each well generating waste materials (liquids and solids) that are discharged to land and regulated under this Order.

This MRP requires the Discharger to keep and maintain records for five years from the date the monitoring activities occurred and to prepare and submit reports containing the results of monitoring

specified below. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Central Valley Water Board.

FACILITY MONITORING

Permanent markers in ponds shall be in place with calibrations indicating the water level at design capacity and available operational freeboard (two feet minimum required). The freeboard shall be monitored monthly on all ponds to the nearest tenth of a foot.

Annually, prior to the anticipated rainy season, but **no later than 30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for: drainage control systems; slope failure; groundwater monitoring wells, or any change in site conditions that could impair the integrity of the waste management unit or precipitation and drainage control structures; and shall assess preparedness for winter conditions including, but not limited to, erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be **completed by 31 October**. Annual facility inspection reporting shall be **submitted by 30 November**.

The Discharger shall inspect all precipitation diversion and drainage facilities for damage **within 7 days** following major storm events (e.g., a storm that causes continual runoff for at least one hour) capable of causing flooding, damage, or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be commenced **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Reporting Requirements of this MRP.

The Discharger shall monitor and record on-site rainfall data using an automated rainfall gauge, or subject to Executive Officer approval other acceptable gauge/monitoring arrangement, or a weather monitoring station within three miles of the facility. Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for waste management unit design and conveyance and drainage design. Daily data and on-site observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the quarterly monitoring reports, as required by this MRP.

CHEMICAL AND ADDITIVE MONITORING

The Discharger shall provide the following for all chemicals and additives[1] used at all leases and facilities that discharge produced wastewater to land:

Requirement	Frequency
A list of all chemicals and additives used including chemical formulas and specific chemical names.	Quarterly
The volume of each chemical and additive used in gallons.	Quarterly
A list of the leases and facilities where the chemicals and additives are being used.	Quarterly
Material safety data sheets for each chemical and/or additive.	Annually

[1] Chemicals that are a part of trade secrets shall be kept confidential at the Central Valley Water Board. Documents containing trade secrets shall be properly marked on the cover, by the Discharger, prior to submitting the document to the Central Valley Water Board. Individuals that have received permission by the Discharger shall be granted access to view the files at the office.

PRODUCED WASTEWATER MONITORING

Produced wastewater (also referred to as effluent) samples shall be representative of the volume and nature of the discharges. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of five years.

A complete list of substances that are tested for and reported on by the testing laboratory shall be provided to the Central Valley Water Board. All peaks must be reported. In addition, both the method detection limit (MDL) and the practical quantification limit (PQL) shall be reported. Detection limits shall be equal to or more precise than USEPA methodologies. Analysis with an MDL greater than the most stringent drinking water standard that results in non-detection needs to be reanalyzed with the MDL set lower than the drinking water standard or at the lowest level achievable by the laboratory. All quality assurance/quality control (QA/QC) samples must be run on the same dates when samples were actually analyzed. Proper chain of custody procedures must be followed, and a copy of the completed chain of custody form shall be submitted with the report. All analyses must be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge.

DISCHARGE 001

Produced wastewater samples shall be collected downstream from the treatment system and prior to discharge to land (roads, ponds, etc.) (Discharge 001). Produced wastewater monitoring for Discharge 001 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Flow	mgd	Metered[1]	Continuous
Table I – Effluent Monitoring	Varies	Grab	Varies

[1] In accordance to Order Provision E.3, instead of metering an engineered alternative may be used if approved in writing by the Executive Officer.

DISCHARGE 002

If ponds are used, produced wastewater samples shall be collected in the pond at the distal end of the system (Discharge 002), or if ponds are operated in parallel, in the pond that has contained produced wastewater for the longest period of time (i.e., longest retention time)(Discharge 002). Produced wastewater monitoring for Discharge 002 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Table I – Effluent Monitoring	Varies	Grab	Varies

SOLID WASTE MONITORING

Solid waste generated at the Facility from production related activities, such as tank or pond maintenance, shall be characterized for disposal. Non-hazardous solid wastes may be disposed on-site, as road or berm construction material, for instance, if such disposal does not pose a threat to water quality.

Hazardous waste (as defined in California Code of Regulations (CCR), title 22, section 66261.1) and designated wastes (as defined in California Water Code (CWC) section 13173) shall be properly disposed at a Facility permitted to accept the waste.

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 the subsequent quarterly and annual monitoring reports.

GROUNDWATER WELL SURVEY

The Discharger shall conduct a well survey to identify all water supply wells within one-mile of the ponds that receive produced wastewater or other authorized discharges. The Discharger shall sample the identified domestic water supply wells and analyze the samples for the waste constituents listed in Table II of this MRP. If access to private property is requested and denied, a demonstration of that denial is required.

GROUNDWATER MONITORING

The Discharger shall operate and maintain a groundwater monitoring system that may include groundwater wells available around and downgradient of the Facility and within a reasonable distance from the produced wastewater disposal ponds. At a minimum the monitoring system needs to include three groundwater wells, with at least two wells located downgradient from the ponds' location that monitor first-encountered groundwater to identify any release at the earliest possible time. **If the Discharger demonstrates that the wastes discharged to the ponds cannot affect the quality of underlying groundwater, the Executive Officer may rescind by signed letter all or part of the requirements to complete the groundwater investigation and groundwater monitoring portions of this Order.**

After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor groundwater wells for the following:

Constituent/Parameter	Units	Sample Type	Frequency
Depth to groundwater	Feet[1]	Measured	Quarterly
Groundwater elevation	Feet[1]	Calculated	Quarterly
Table II – Groundwater Monitoring	Varies	Grab	Quarterly

[1] Recorded to one hundredth of a foot

Within 30 days of notification that permission to locate or sample a well(s) is not granted or is revoked, the Discharger shall submit for review and approval by Central Valley Water staff a report that either: (1) demonstrates that a reduction in the number of monitoring well(s) will not impair the ability to clearly and accurately assess potential groundwater impacts, or (2) proposes the installation of a new monitoring well(s) to offset the well(s) that is no longer able to be sampled.

Groundwater Monitoring System

If an appropriate groundwater monitoring system is not in place prior to adoption of the Order, the discharger shall comply with the following monitoring well compliance time schedule:

Task	Task Description	Due Date		
		Small Operator[1]	Medium Operator[2]	Large Operator[3]
1	Submit a Monitoring Well Installation and Sampling Plan (MWISP) for review and approval by the Executive Officer	12 Months after NOA is issued	6 Months after NOA is issued	90 Days after NOA is issued
2	Complete installation of the groundwater monitoring system	In accordance with approved time schedule in MWISP		
3	Submit a Monitoring Well Installation Completion Report (MWICR)	90 Days after groundwater monitoring system is completed		

[1] A Small Operator discharges 250 or fewer barrels of wastewater per day to land.

[2] A Medium Operator discharges from 250 up to and including 1,000 barrels of wastewater per day to land.

[3] A Large Operator discharges more than 1,000 barrels of wastewater per day to land.

At a minimum, the MWISP must contain all of the information listed below.

1. General Information:
   a. Topographic map showing any existing nearby (about 2,000 feet) domestic, irrigation, and municipal supply wells and monitoring wells known to the Discharger, utilities, surface water bodies, drainage courses and their tributaries/destinations, and other major physical and man-made features, as appropriate.
   b. Site plan showing proposed well locations, other existing wells, unused and/or abandoned wells, major physical site structures, any waste handling facilities, irrigated cropland and pasture, and on-site surface water features.

c. Rationale for the number of proposed monitoring wells, their locations and depths, and identification of anticipated depth to groundwater.
d. Local permitting information (as required for drilling, well seals, boring/well abandonment).
e. Drilling details, including methods and types of equipment for drilling and logging activities. Equipment decontamination procedures (as appropriate) should be described.
f. Health and Safety Plan.

2. Proposed Drilling Details:
   a. Drilling techniques.
   b. Well logging method.
   c. Proposed Monitoring Well Design - all proposed well construction information must be displayed on a construction diagram or schematic to accurately identify the following:
   d. Well depth.
   e. Borehole depth and diameter.
   f. Well construction materials.
   g. Casing material and diameter – include conductor casing, if appropriate.
   h. Location and length of perforation interval, size of perforations, and rationale.
   i. Location and thickness of filter pack, type and size of filter pack material, and rationale.
   j. Location and thickness of bentonite seal.
   k. Location, thickness, and type of annular seal.
   l. Surface seal depth and material.
   m. Type of well cap(s).
   n. Type of well surface completion.
   o. Well protection devices (such as below-grade water tight-vaults, locking steel monument, bollards, etc.).

3. Proposed Monitoring Well Development:
   a. Schedule for development (not less than 48 hours or more than 10 days after well completion).
   b. Method of development.
   c. Method of determining when development is complete.
   d. Parameters to be monitored during development.
   e. Method for storage and disposal of development water.

4. Proposed Surveying:
   a. How horizontal and vertical position of each monitoring well will be determined.
   b. The accuracy of horizontal and vertical measurements to be obtained.
   c. The California licensed professional (licensed land surveyor or civil engineer) to perform the survey.

5. Proposed Groundwater Monitoring:
   a. Schedule (at least 48 hours after well development).
   b. Depth to groundwater measuring equipment (e.g., electric sounder or chalked tape capable of ±0.01-foot measurements).
   c. Well purging method, equipment, and amount of purge water.

d. Sample collection (e.g., bottles and preservation methods), handling procedures, and holding times.
e. Quality assurance/quality control (QA/QC) procedures (as appropriate).
f. Analytical procedures.
g. Equipment decontamination procedures (as appropriate).

6. Proposed Schedule:
   a. Fieldwork.
   b. Laboratory analyses.
   c. Report submittal.

At a minimum, the MWICR shall summarize the field activities as described below.

1. General Information:
   a. Brief overview of field activities including well installation summary (such as number, depths), and description and resolution of difficulties encountered during field program.
   b. Topographic map showing any existing nearby domestic, irrigation, and municipal supply wells and monitoring wells, utilities, surface water bodies, drainage courses and their tributaries/destinations, and other major physical and man-made features.
   c. Site plan showing monitoring well locations, other existing wells, unused and/or abandoned wells, major physical site structures, any waste handling facilities, and on-site surface water features.
   d. Period of field activities and milestone events (e.g., distinguish between dates of well installation, development, and sampling).

2. Monitoring Well Construction:
   a. Number and depths of monitoring wells installed.
   b. Monitoring well identification (i.e., numbers).
   c. Date(s) of drilling and well installation.
   d. Description of monitoring well locations including field-implemented changes (from proposed locations) due to physical obstacles or safety hazards.
   e. Description of drilling and construction, including equipment, methods, and difficulties encountered (such as hole collapse, lost circulation, need for fishing).
   f. Name of drilling company, driller, and logger (site geologist to be identified).
   g. As-builts for each monitoring well with the following details:
      i. Well identification.
      ii. Total borehole and well depth.
      iii. Date of installation.
      iv. Boring diameter.
      v. Casing material and diameter (include conductor casing, if appropriate).
      vi. Location and thickness of slotted casing, perforation size.
      vii. Location, thickness, type, and size of filter pack.
      viii. Location and thickness of bentonite seal.
      ix. Location, thickness, and type of annular seal.
      x. Depth of surface seal.
      xi. Type of well cap.

xii. Type of surface completion.
xiii. Depth to water (note any rises in water level from initial measurement) and date of measurement.
xiv. Well protection device (such as below-grade water tight vaults, stovepipe, bollards, etc).

h. All depth to groundwater measurements during field program.
i. Field notes from drilling and installation activities (e.g., all subcontractor dailies, as appropriate).
j. Construction summary table of pertinent information such as date of installation, well depth, casing diameter, screen interval, bentonite seal interval, and well elevation.

3. Monitoring Well Development:
   a. Date(s) and time of development.
   b. Name of developer.
   c. Method of development.
   d. Methods used to identify completion of development.
   e. Development log: volume of water purged and measurements of temperature, pH and electrical conductivity during and after development.
   f. Disposition of development water.
   g. Field notes (such a bailing to dryness, recovery time, number of development cycles).

4. Monitoring Well Survey:
   a. Identify coordinate system or reference points used.
   b. Description of measuring points (i.e. ground surface, top of casing, etc.).
   c. Horizontal and vertical coordinates of well casing with cap removed.
   d. Name, license number, and signature of California licensed professional who conducted survey.
   e. Surveyor's field notes.
   f. Tabulated survey data.

REPORTING REQUIREMENTS

All monitoring results shall be reported in Quarterly Monitoring Reports which are due by the first day of the second month after the calendar quarter as follows:

First Quarter Monitoring Report (January – March):	1 May
Second Quarter Monitoring Report (April – June):	1 August
Third Quarter Monitoring Report (July – September):	1 November
Fourth Quarter Monitoring Report (October – December):	1 February
Facility Inspection Report (Completed by 30 October):	30 November

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory. Reports shall be submitted whether or not there is a discharge.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

Discharger's name
Facility/Lease Name
Waste Discharge Requirements R5-2017-0035
Monitoring and Reporting Program R5-2017-0035
GeoTracker Site Global ID: XXXXXXXXXXXX

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible for all historical and current data. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the MDL and the Reporting limit (RL) or PQL. If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL), but above the MDL, shall be reported and flagged as estimated.

If the Discharger monitors any constituent at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the quarterly monitoring reports. Such increased frequency shall be indicated on the quarterly monitoring reports.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

The Discharger shall submit electronic copies of all work plans, reports, analytical results, and groundwater elevation data over the Internet to the State Water Board Geographic Environmental Information Management System database (GeoTracker)
at http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml
A frequently asked question document for GeoTracker can be found
at http://www.waterboards.ca.gov/ust/electronic_submittal/docs/faq.pdf
Electronic submittals shall comply with GeoTracker standards and procedures, as specified on the State Water Board's web site. Uploads to GeoTracker shall be completed on or prior to the due date.

In addition, a copy of each document shall be sent via electronic mail to CentralValleyFresno@waterboards.ca.gov. Include a copy of the transmittal letter. Laboratory reports submitted in compliance with this MRP shall be accompanied by an Excel file that includes the analytical data found in the laboratory report. Excel files shall be either generated by the laboratory or compiled by the Discharger. At a minimum, the Excel file shall include the constituent name, sample location, sample name, sample date, analysis date, analytical method, result, unit, MDL, RL, and dilution factor.

A. **All Quarterly Monitoring Reports shall include the following**:

Facility reporting:
1. Monthly freeboard results as specified on MRP page 2.
2. The results of Facility inspections conducted during the quarter as specified on MRP page 2.
3. Rainfall data as specified on MRP page 2.

Chemical and Additive reporting:
1. The data required as specified on MRP page 2 and 3.

Produced Wastewater reporting:
1. Tabular summary of current and historical results of effluent discharges as specified on page 3 and 4.
2. For each month of the quarter, calculation monthly effluent flow and the historical monthly effluent flow for the last 12-months.
3. For each quarter, include a current and historical table for each effluent sample point for EC, boron, chloride, and sodium.

Solid Waste reporting:
1. The results of solid Waste monitoring specified on MRP page 4, including the nature, volume, and weight in dry tons of solid waste produced during the quarter.
2. Analytical results characterizing the solid waste, and particularly, whether the waste is hazardous as defined in CCR, title 22, section 66261.1).
3. The method of disposal and disposal locations of the solid wastes.
4. If wastes are hauled to a disposal facility, evidence that the disposal facility is properly permitted.

Groundwater reporting:
1. The results of groundwater monitoring specified on page 4 and 5.
2. For each monitoring well, a table showing constituent concentrations for current and historical concentrations.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or effluent disposal area(s). The map shall also include the locations of monitoring wells and wastewater storage and discharge areas.

B. **Fourth Quarter Monitoring Reports**, in addition to the above, by 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

Production Facility information:
1. The names and general responsibilities of all persons employed to operate the produced wastewater treatment systems.
2. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
3. If field meters are used, then a statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.4).

4. A summary of all spills/releases, if any, that occurred during the year at the production facility, tasks undertaken in response to the spills, and the results of the tasks undertaken.
5. A summary of the chemical and additive data collected under the Chemical and Additive Monitoring section, the required MSDS sheets, chemical formulas and specific chemical names, and a discussion of whether any of the chemicals or additives were found in effluent discharges.
6. A flow chart (i.e. diagram that clearly illustrates all processes that produced wastewater undergoes from well extraction to discharge to land) and map of the following:
    - Facility within the oil field,
    - Facility/Lease boundaries
    - Production and wastewater distribution network with all stock tanks, and transfer pipes, and discharge points to the ponds or land.
7. Annual report in tabular form for all the effluent and groundwater monitoring data and domestic water supply well data, if applicable.
8. Annual assessment of groundwater monitoring program's adequacy to assess compliance with the Order, including whether the data provided are representative of conditions upgradient and downgradient of the Facility.
9. Annual assessment of groundwater monitoring to delineate lateral and vertical extend of impacts on groundwater quality.

Requesting Administrative Review by the State Water Board. Any person aggrieved by an action of the Central Valley Water Board that is subject to review as set forth in Water Code section 13320(a), may petition the State Water Board to review the action. Any petition must be made in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition within thirty (30) days of the date the action was taken, except that if the thirtieth day following the date the action was taken falls on a Saturday, Sunday, or state holiday, then the State Water Board must receive the petition by 5:00 p.m. on the next business day. Copies of the laws and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml or will be provided upon request.

Modifications. Any modification to this Monitoring and Reporting Program shall be in writing and approved by the Assistant Executive Officer, including any extensions. Any written extension request by the Discharger shall include justification for the delay.

The Discharger shall implement the above monitoring program on the first day of the Executive Officer issuance of the NOA for coverage under the Order.

Ordered by: *Original signed by*

PAMELA C. CREEDON, Executive Officer

6 April 2017

Table I – Effluent Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method[9]	Reporting Frequency
Field Parameters				
Temperature	°F[1]	Quarterly	Meter	Quarterly
Electrical Conductivity	µmhos/cm[2]	Quarterly	Meter	Quarterly
pH	pH units	Quarterly	Meter	Quarterly
Monitoring Parameters				
Total Dissolved Solids (TDS)	mg/L[3]	Quarterly	160.1	Quarterly
Total Suspended Solids (TSS)	mg/L	Quarterly	160.2	Quarterly
Total Organic Carbon (TOC)	mg/L	Quarterly	415.3	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly	2510B	Quarterly
Boron, dissolved	mg/L	Quarterly	6010B	Quarterly
Standard Minerals				
Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Sulfate, dissolved	mg/L	Quarterly	300.0	Quarterly
Nitrate-N, dissolved	mg/L	Quarterly	300.0	Quarterly
Calcium, dissolved	mg/L	Quarterly	6010B	Quarterly
Magnesium, dissolved	mg/L	Quarterly	6010B	Quarterly
Sodium, dissolved	mg/L	Quarterly	6010B	Quarterly
Potassium	mg/L	Quarterly	6010B	Quarterly
Chloride	mg/L	Quarterly	300.0	Quarterly
PAHs[4]	µg/L[5]	Quarterly	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	Quarterly	418.1	Quarterly
Volatile Organic Compounds				
Full Scan	µg/L	Quarterly	8260B	Quarterly
Oil and Grease	mg/L	Quarterly	1664A	Quarterly
Stable Isotopes				
Oxygen (^{18}O)	pCi/L[6]	Quarterly	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	Quarterly	900.0	Quarterly
Radionuclides				
Radium-226	pCi/L	Quarterly	SM[7] 7500-Ra	Quarterly
Radium-228	pCi/L	Quarterly	SM 7500-Ra	Quarterly
Gross Alpha particle (excluding	pCi/L	Quarterly	SM 7110	Quarterly

Table I – Effluent Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method[9]	Reporting Frequency
radon and uranium)				
Uranium	pCi/L	Quarterly	200.8	Quarterly
Constituents of Concern				
Lithium	mg/L	Quarterly	200.7	Quarterly
Strontium	mg/L	Quarterly	200.7	Quarterly
Iron	mg/L	Quarterly	200.8	Quarterly
Manganese	mg/L	Quarterly	200.8	Quarterly
Antimony	mg/L	Quarterly	200.8	Quarterly
Arsenic	mg/L	Quarterly	200.8	Quarterly
Barium	mg/L	Quarterly	200.8	Quarterly
Beryllium	mg/L	Quarterly	200.8	Quarterly
Cadmium	mg/L	Quarterly	200.8	Quarterly
Chromium (total)	mg/L	Quarterly	200.8	Quarterly
Chromium (hexavalent)	mg/L	Quarterly	7196A	Quarterly
Cobalt	mg/L	Quarterly	200.8	Quarterly
Copper	mg/L	Quarterly	200.8	Quarterly
Lead	mg/L	Quarterly	200.8	Quarterly
Mercury	mg/L	Quarterly	7470A	Quarterly
Molybdenum	mg/L	Quarterly	200.8	Quarterly
Nickel	mg/L	Quarterly	200.8	Quarterly
Selenium	mg/L	Quarterly	200.8	Quarterly
Silver	mg/L	Quarterly	200.8	Quarterly
Thallium	mg/L	Quarterly	200.8	Quarterly
Vanadium	mg/L	Quarterly	200.8	Quarterly
Zinc	mg/L	Quarterly	200.8	Quarterly
Oil Production and Process Chemicals and Additives[8]	µg/L	Quarterly	As Appropriate[9]	Quarterly

[1] Degrees Fahrenheit
[2] Micromhos per centimeter
[3] Milligrams per liter
[4] Polycyclic aromatic hydrocarbons
[5] Micrograms per liter
[6] Picocuries per liter
[7] Standard Methods
[8] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[9] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Assistant Executive Officer

Table II – Groundwater Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method	Reporting Frequency
Groundwater Elevation	feet & hundredths, MSL[1]	Quarterly		Quarterly
Field Parameters				
Temperature	°F[2]	Quarterly	Meter	Quarterly
Electrical Conductivity	µmhos/cm[3]	Quarterly	Meter	Quarterly
pH	pH units	Quarterly	Meter	Quarterly
Monitoring Parameters				
Total Dissolved Solids (TDS)	mg/L[4]	Quarterly	160.1	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly	2510B	Quarterly
Total Organic Carbon (TOC)	mg/L	Quarterly	415.3	Quarterly
Boron, dissolved	mg/L	Quarterly	6010B	Quarterly
Standard Minerals				
Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	Quarterly	310.1	Quarterly
Sulfate, dissolved	mg/L	Quarterly	300.0	Quarterly
Nitrate-N, dissolved	mg/L	Quarterly	300.0	Quarterly
Calcium, dissolved	mg/L	Quarterly	6010B	Quarterly
Magnesium, dissolved	mg/L	Quarterly	6010B	Quarterly
Sodium, dissolved	mg/L	Quarterly	6010B	Quarterly
Potassium	mg/L	Quarterly	6010B	Quarterly
Chloride	mg/L	Quarterly	300.0	Quarterly
PAHs[5]	µg/L[6]	Quarterly	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	Quarterly	418.1	Quarterly
Volatile Organic Compounds				
Full Scan	µg/L	Quarterly	8260B	Quarterly
Oil and Grease	mg/L	Quarterly	1664A	Quarterly
Stable Isotopes				
Oxygen (^{18}O)	pCi/L[7]	Quarterly	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	Quarterly	900.0	Quarterly
Radionuclides				
Radium-226	pCi/L	Quarterly	SM[8] 7500-Ra	Quarterly

Table II – Groundwater Monitoring

Parameters	Units	Monitoring Frequency	US EPA or other Method	Reporting Frequency
Radium-228	pCi/L	Quarterly	SM 7500-Ra	Quarterly
Gross Alpha particle (excluding radon and uranium)	pCi/L	Quarterly	SM 7110	Quarterly
Constituents of Concern				
Lithium	mg/L	Quarterly	200.7	Quarterly
Strontium	mg/L	Quarterly	200.7	Quarterly
Iron	mg/L	Quarterly	200.8	Quarterly
Manganese	mg/L	Quarterly	200.8	Quarterly
Antimony	mg/L	Quarterly	200.8	Quarterly
Arsenic	mg/L	Quarterly	200.8	Quarterly
Barium	mg/L	Quarterly	200.8	Quarterly
Beryllium	mg/L	Quarterly	200.8	Quarterly
Cadmium	mg/L	Quarterly	200.8	Quarterly
Chromium (total)	mg/L	Quarterly	200.8	Quarterly
Chromium (hexavalent)	mg/L	Quarterly	7196A	Quarterly
Cobalt	mg/L	Quarterly	200.8	Quarterly
Copper	mg/L	Quarterly	200.8	Quarterly
Lead	mg/L	Quarterly	200.8	Quarterly
Mercury	mg/L	Quarterly	7470A	Quarterly
Molybdenum	mg/L	Quarterly	200.8	Quarterly
Nickel	mg/L	Quarterly	200.8	Quarterly
Selenium	mg/L	Quarterly	200.8	Quarterly
Silver	mg/L	Quarterly	200.8	Quarterly
Thallium	mg/L	Quarterly	200.8	Quarterly
Vanadium	mg/L	Quarterly	200.8	Quarterly
Zinc	mg/L	Quarterly	200.8	Quarterly
Oil Production and Process Chemicals and Additives[9]	µg/L	Quarterly	As Appropriate[10]	Quarterly

[1] Mean Sea Level
[2] Degrees Fahrenheit
[3] Micromhos per centimeter
[4] Milligrams per liter
[5] Polycyclic aromatic hydrocarbons
[6] Micrograms per liter
[7] Picocuries per liter
[8] Standard Methods
[9] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[10] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0035
INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER TWO

ELIGIBILITY

Eligibility for coverage under Waste Discharge Requirements General Order No. R5-2017-0035 (General Order) will apply to owners and/or operators (hereinafter referred to as "Dischargers") of existing oil and gas production facilities that:

1. primarily discharge produced wastewater from oil and gas extraction operations to land, including but not limited to ponds, 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,

2. exceed the maximum oil field discharge 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

3. began discharge of wastewater to land prior to **26 November 2014**.

BACKGROUND

California ranks third in the U.S. in oil production. Based on 2014 data, approximately 74 percent of California's production occurs within the Central Valley. In most oil fields in California, the oil is comingled with formation water. This means that large quantities of water are extracted with the oil. Within the Central Valley, on average approximately 16 barrels of water are produced with each barrel of oil. Oil and gas production facilities separate the water from the oil. This separated water is called produced wastewater.

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. tank batteries, induced gas or air flotation tanks commonly referred to as WEMCOs), storage units, produced wastewater treatment systems, and disposal systems that can include evaporation and percolation ponds. In some operations, produced wastewater is disposed of through Class II underground injection wells permitted and regulated by California Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR). In some 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. This type of reuse is 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 include oil field dust control and to aid in compaction on oil field construction projects. Sludge and solids removed from tanks are commonly mixed with soil and used as asphalt on

roads within the oil fields. This General Order includes specific requirements to regulate these discharges and ensure they do not cause pollution or nuisance conditions.

Beginning in May 2014, the Central Valley Water Board began an effort to re-evaluate its Oil Field Program with respect to discharges to ponds. Central Valley Water Board staff identified and inspected oil field production facilities with ponds. Staff found that there are approximately 326 facilities with 1100 ponds that receive produced wastewater. Approximately 241 facilities are discharging to ponds without waste discharge requirements. Approximately 85 facilities are discharging to ponds under WDRs that are twenty years old or older.

In response to the re-evaluation, Central Valley Water Board staff has issued various information and enforcement orders requiring those discharging without WDRs and those discharging under old WDRs to characterize their discharge practices and to provide information to support ongoing discharges, if feasible.

RATIONALE FOR ISSUING A GENERAL ORDER AND OTHER CONSIDERATIONS

Water Code section 13263(i) describes the criteria that the Central Valley Water Board uses to determine whether a group of facilities should be regulated under a general order (as opposed to individual orders). These criteria include:

1. The discharges are produced by the same or similar types of operations,
2. The discharges involve the same or similar types of wastes,
3. The discharges require the same or similar treatment standards, and
4. The discharges are more appropriately regulated under general WDRs rather than individual WDRs.

The discharges that can be covered under this General Order meet the above listed requirements of 13263(i).

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.

Pursuant to Water Code sections 13241 and 13263, the Central Valley Water Board, in establishing the requirements contained in this General Order, 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.

This General Order provides small operators (i.e., those that discharge 250 or fewer barrels per day of produced wastewater to land) and medium operators (i.e., those that discharge 250 up to and including1000 bbls per day of produced wastewater to land) extended time schedules to comply with the groundwater monitoring requirements described in the Monitoring and Reporting Program R5-2017-0035 (MRP). Implementing groundwater monitoring is a complicated and expensive endeavor. Dischargers of 1000 bbls per day or less have reported that additional time beyond 90 days is necessary to gather sufficient resources to prepare an appropriate Monitoring Well Installation and Sampling Plan (MWISP) to comply with the Groundwater Monitoring Requirements of MRP R5-2017-0035. The MRP provides small Dischargers an extra 275 days and medium Dischargers an extra 90 days to develop the MWISP. The extra time only extends for a short period the submittal date for the MWISP. It does not alleviate the need to comply with the Groundwater Monitoring Requirements of the General Order and MRP. Most of these facilities have been discharging for decades in the same or similar manner. Given this General Order applies to discharges that will not substantially affect water quality nor cause a violation of water quality objectives in the groundwater, it is unlikely that the small and medium discharges of 1000 bbls per day or less will significantly degrade groundwater during the time extension.

APPLICATION PROCESS

Dischargers seeking coverage under the General Order are required to file a Notice of Intent (NOI) within 30 days of the adoption of the General Order. This process is different from application process for an individual permit where the Report of Waste Discharge is filed (RWD).

A NOI includes the following:

1. A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. An application fee. Discharger's not operating under waste discharge requirements (WDRs) must submit an application fee that serves as the first annual fee. The fee is 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. A technical report. The technical report shall describe the wastewater generation, treatment, storage, reuse and disposal activities. The technical report must be prepared by a California registered civil engineer or engineering geologist. Attachment C to the General

Order, Information Needs Sheet describes the information to be included in the technical report. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

The NOI for an oil and gas production facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average produced wastewater discharge flow to ponds that occurred in the ten years immediately to 26 November 2014.

After review of the NOI by Central Valley Water Board staff, the appropriate TTWQ and CPLX rating of the discharge will be determined and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing Notice of Applicability (NOA). Coverage under the General Order will commence upon issuance of the NOA. The NOA will describe appropriate monitoring and reporting requirements.

APPLICABLE REGULATIONS, PLANS, AND POLICIES

Water Quality Control Plans

The Basin Plan designates the beneficial uses of groundwater and surface waters within the Basin and specifies water quality objectives to protect those uses, and includes implementation plans for achieving water quality objectives. The Basin Plan also incorporates, by reference, plans and policies of the State Water Board.

Beneficial Uses of Surface Water and Groundwater

The beneficial uses of surface water, as identified in the Basin Plan, may include: municipal and domestic supply (MUN); agricultural supply (AGR); industrial process supply (IND); industrial service supply (PRO); hydro-power generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning reproduction and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); rare, threatened, or endangered species (RARE); groundwater recharge (GRW); freshwater replenishment (FRSH); aquaculture (AQUA); and preservation of biological habitats of special significance (BIOL). Basin Plan Table II-1 (Page II-4) lists the surface water bodies of the Tulare Lake Basin and the designated beneficial uses of those specific surface water bodies. Where surface water bodies are not listed, the Basin Plan designates beneficial uses based on the waters to which they are tributary.

The Basin Plan identifies the beneficial uses of groundwater as MUN, AGR, IND, PRO, REC-1, and WILD. Basin Plan Table II-2 lists the designated beneficial uses of groundwater for specific Detailed Analysis Units within the basin. Unless specifically de-designated, all groundwaters of the Basin have the designated beneficial uses of MUN, AGR, IND, and PRO.

Water Quality Objectives

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 the 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.

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 electrical conductivity (EC), total dissolved solids, chloride, and boron), metals (i.e., arsenic), trace elements (i.e., boron, strontium, thallium, lithium, etc.), petroleum hydrocarbons, polynuclear aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs, i.e., benzene, toluene, ethylbenzene, and xylenes [BTEX]), and radionuclides.

The Basin Plan requires waters designated as MUN to meet the State drinking water maximum contaminant levels (MCLs) specified in Title 22 for primary and secondary standards. Some applicable constituents and their MCLs are listed in Tables 1 through 5 below. These tables are limited to the constituents that have been detected in produced wastewater above either the primary or secondary MCLs on at least one occasion:

Table – 1

Title 22, Table 64431-A
Maximum Contaminant Levels Inorganic Chemicals

Chemical	*Maximum Contaminant Level*
Aluminum (µg/L)	1000
Antimony (µg/L)	6.0
Arsenic (µg/L)	10.0
Barium (µg/L)	1000
Beryllium (µg/L)	4.0
Cadmium (µg/L)	5.0
Chromium (µg/L)	50
Fluoride (µg/L)	2000
Mercury (µg/L)	2.0
Nickel (µg/L)	100
Nitrate + Nitrite (sum as nitrogen) (mg/L)	10
Selenium (µg/L)	50
Thallium (µg/L)	2.0

Table – 2

Title 22, Tables 64442
Maximum Contaminant Levels Radionuclide

Chemical	Maximum Contaminant Levels (pCi/L)
Radium-226 and Radium-228 (combined)	5
Gross Alpha particle activity (excluding radon and uranium)	15
Uranium	20

Table – 3

Title 22, Table 64444-A
Maximum Contaminant Levels Organic Chemicals

Chemical	Maximum Contaminant Levels (µg/L)
(a) Volatile Organic Chemicals	
Benzene	1.0
Ethylbenzene	300
Tetrachloroethylene (PCE)	5.0
Toluene	150
Xylenes (m,p)	1750
(b) Non-Volatile synthetic Organic Chemicals	
Benzo(a)pyrene	0.2

Table – 4

Title 22 - Table 64449-A
Secondary Maximum Contaminant Levels
Consumer Acceptance Contaminant Levels

Chemical	Level
Iron (mg/L)	0.3
Manganese (mg/L)	0.05
Silver (mg/L)	0.1
Zinc (mg/L)	5.0

Table – 5			
Title 22, Table 64449-B Maximum Contaminant Levels Consumer Acceptance Contaminant Level Ranges			
	Maximum Contaminant Level Ranges		
Constituent, Units	Recommended	Upper	Short Term
Total Dissolved Solids, mg/L.....	500	1,000	1,500
or			
Specific Conductance, µS/cm.....	900	1,600	2,200
Chloride, mg/L.....	250	500	600
Sulfate, mg/L.....	250	500	600

The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria.

Basin Plan Effluent Limits

The Basin Plan sets specific effluent limits for oil field discharges to land for EC, chloride and boron. On page IV-15, the Basin Plan states that the maximum salinity limits for wastewaters in unlined sumps overlying groundwater with existing and future probable beneficial uses are as follows:

Constituent	Maximum Limit
EC (µmhos/cm)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

In 1982, the Central Valley Water Board amended the Basin Plan to allow discharges of oil field wastewater to exceed the above limits to facilitate use for irrigation and other beneficial uses where the exception would not cause an exceedance of a water quality objective. The Basin Plan, therefore, provides some flexibility to allow oil field wastewater exceeding Basin Plan salinity limits to be used for agricultural use in water short areas, provided the discharger first successfully demonstrates to the Central Valley Water Board that the increases will not cause exceedances of water quality objectives.

The Basin Plan states that discharges of oil field wastewater that exceed the above maximum salinity limits may be permitted to unlined sumps, 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.The Basin Plan also includes separate limits for the White Wolf Subarea based on the class of irrigation water underlying the discharge. These limits are as follows:

Constituent/Irrigation Water Class	Class I	Class II
EC (µmhos/cm)	1000	2000
Chloride (mg/L)	175	350
Boron (mg/L)	1	2
Sodium (%)	60	75

In areas where groundwater would be Class I except for the concentration of a specific constituent, only that constituent can 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.

The White Wolf Subarea is defined as 64,000 acres within the valley floor, at the southern tip of the Tulare Lake Basin, about 20 miles south of Bakersfield. The subarea is bounded on the west by the San Emigdio Mountains, on the south and east by the Tehachapi Mountains, and on the north by the White Wolf Fault (Basin Plan page IV-15).

The Basin Plan criteria for mineral quality of irrigation water are described in following table.

Constituent	Class I	Class II	Class III
TDS (mg/l)	<700	700 - 2,000	>2,000
EC (µmhos/cm)	<1,000	1,000 - 3,000	>3,000
Chlorides (mg/l)	<175	175 – 350	>350
Sodium (percent base constituents)	<60	60 – 75	>75
Boron (mg/l)	<0.5	0.5 – 2	>2

The Basin Plan states all groundwaters shall be maintained as close to natural concentrations of dissolved matter as is reasonable considering careful use and management of water resources. It acknowledges that the Tulare Lake Basin is closed and 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 Basin Plan states the maximum average annual increase in salinity measured as electrical conductivity shall not exceed the values specified in Table III-4 for each hydrographic unit shown on Figure III-1 (Basin Plan Pages III-8 and 9).

Table – 6	
Table III-4 TULARE LAKE BASIN	
GROUND WATER QUALITY OBJECTIVES FOR SALINITY	
Hydrographic Unit	Maximum Average Annual Increase in Electrical Conductivity (µmhos/cm)
Westside (North and South)	1
Kings River	4
Tulare Lake and Kaweah River	3
Tule River and Poso	6
Kern River	5

These incremental increases objectives apply to the entire Hydrographic Unit, and not to point source discharges.

Oil Field Discharges and Proposed Discharge Limits

As mentioned above, the primary waste COCs associated with discharges of waste from oil field facilities include, but are not limited to, electrical conductivity (EC), total dissolved solids, chloride, and boron, some metals (i.e., arsenic), some trace elements (i.e., strontium, thallium, lithium, etc.), petroleum hydrocarbons, PAHs, VOCs, and radionuclides.

With respect to EC, total dissolved solids, chloride and boron, and consistent with the Basin Plan, this General Order authorizes discharges to land that exceed the Basin Plan limits described above provided Dischargers can demonstrate through an appropriate, constituent-by-constituent analysis, that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives.

Oil field produced wastewater can also contain metals exceeding MCLs, and particularly arsenic at levels exceeding the MCL of 10 µg/L. Whether those metals pose a threat to groundwater quality and designated beneficial uses depends on many factors including, but not limited to, discharge concentrations, discharge volumes, depth to groundwater, soil types and hydrogeology underlying the discharge location, and natural groundwater quality. Generally, most metals associated with oil field produced water discharges are relatively immobile in the alkaline soils associated with most areas of the Central Valley and are expected to attenuate as they percolate with produced water through the soil profile.

Specifically with respect to arsenic, studies conducted within the Central Valley indicate that arsenic migration to groundwater that would cause exceedances of water quality objectives is unlikely. Kennedy Jenks Consultants completed an arsenic soil-adsorption removal study using soil samples collected from the Famoso Basins in Famoso area in 2011. The results were included in a technical report titled, *Cawelo Water District Famoso Basins Antidegradation Analysis*. The results indicate that the arsenic associated with the discharges up to 120 ug/L will attenuate in the underlying soils and not adversely impact underlying groundwater. Similarly, other studies show that soil can remove significant amounts of arsenic.

Given the above information, this General Order does not include effluent limits for metals associated with discharges to land at this time.

Oil naturally contains numerous organic compounds including BTEX and PAHs. It is the goal of the industry to separate these compounds from the produced wastewater in which they are entrained. Some organic chemicals may be added to oil wells, to separation processes, or to treatment systems to enhance recovery efficiencies and final produced wastewater quality.

Generally, heavier organic compounds associated with oil production do not move readily through the soil and do not pose a significant threat to groundwater. It has also been well-documented in the literature, including a study published by the Lawrence Livermore National Laboratory in 1995 and several reports generated by the State Water Resources Control Board, that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater. The biodegradation of petroleum, in particular, distinguishes petroleum products from other hazardous substances commonly found at commercial and industrial sites.

The limited existing data for produced wastewater discharges that can be directly compared with groundwater monitoring results support the notion that organics associated with petroleum production will not migrate to underlying groundwater in concentrations that exceed water quality objectives.

For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for organic chemicals at this time.

Some geologic formations contain naturally occurring radionuclides. Radium-226 and radium-228, gross alpha- particle activity, uranium have been detected in produced water in concentrations exceeding the primary MCLs. These detections have been limited to specific oil fields. Much like metals discussed above, these constituents don't generally move readily through soils and their threat to groundwater quality will vary based on site specific hydrogeology. For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for radionuclides at this time.

This General Order includes a prohibition that narratively limits discharge waste constituent concentrations to those described in the Discharger's NOI and demonstrated through an appropriate Antidegradation Analysis to be protective of the beneficial uses of groundwater. In this way, the General Order limits the discharge concentrations of specific constituents to those shown to be protective of underlying groundwater and its associated beneficial uses.

As water quality data for produced wastewater and groundwater become available, the Central Valley Water Board staff will be evaluating the data for COCs and will update this General Order to include additional discharge limits if necessary to be protective of the future beneficial uses of the groundwater.

Title 27 of the California Code of Regulations

California Code of Regulations, Title 27, section 20005 et seq. (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. 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.

* * *

Therefore, the discharge authorized in this General Order is exempt from the requirements of Title 27 in accordance with Title 27, sections 20090(b) because: 1) The Central Valley Water Board is issuing general WDRs; 2) The discharge is in compliance with the Basin Plan, and; 3) The treated waste discharged to the pond(s) does not need to be managed as hazardous waste.

***Resolution 68-16* (State Anti-degradation Policy)**

State Water Board Resolution No. 68-16 (*Policy with Respect to Maintaining High Quality Waters of the State*) (Antidegradation Policy) generally prohibits the Central Valley Water Board from authorizing activities that will result in the degradation of high-quality waters unless it has been shown that:

a. The degradation will not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives;
b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
c. The discharger will employ Best Practicable Treatment or Control (BPTC) to minimize degradation; and
d. The degradation is consistent with the maximum benefit to the people of the state.

This General Order will only be issued to Dischargers that can demonstrate, through an appropriate technical report, that the implementation of BPTC, as necessary, will maintain the highest water quality consistent with maximum benefit to the people of the state. Specifically, in its NOI the Discharger must demonstrate through an appropriate antidegradation analysis that COCs will be controlled through the implementation of BPTC and that any degradation that may occur will not adversely affect the existing or potential beneficial uses of groundwater. The

technical report must include a hydrogeological assessment that demonstrates that the proposed discharges of wastes to land will not substantially affect water quality nor cause a violation of water quality objectives. The burden of establishing that water quality degradation is in conformance with Resolution 68-16, rests with the project proponent or Discharger.

This General Order prohibits the discharge of oil field related wastes to surface waters or surface water drainages.

To assess compliance with the State Antidegradation Policy, this General Order requires Dischargers to monitor discharges to groundwater or demonstrate that the discharge cannot affect the quality of the underlying groundwater. The demonstration must be based on an analysis of appropriate hydrogeologic information. Absent such a demonstration, the requirements to monitor first encountered groundwater are met when the Dischargers perform individual groundwater monitoring or participate in a regional groundwater monitoring program as part of a group of Dischargers with several small facilities in similar hydrogeological areas. The purpose of monitoring is to demonstrate compliance with Resolution 68-16 and the requirements of this General Order.

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.

The Kern Economic Development Foundation (KEDF) produced a report titled, *The Economic Contribution of the Oil and Gas Industry in Kern* County (Report), and dated November 2015. The Report indicates California's oil industry is mostly concentrated in the Central Valley and Kern County in particular. The Report states that Kern County's oil and gas industry plays an important role in both the county and state economies and provides as significant source of the state's and country's domestic oil and gas production and reduction in foreign oil imports. The Report indicates Kern County represents 71% of California's oil production and 10% of total U.S. oil production. Kern County produces 66% of the state's total gas production.

The KEDF report also states the oil and gas industry is the number one industry in Kern County in terms of gross domestic product and tax contributions. The industry produces high revenues, creates high wage jobs [Oil and gas extraction industry average annual salary was $143,000 compared to county's average annual salary of $41,000 in 2014], and contributes significant tax revenue to all levels of government. For 2014, the oil and gas industry accounted for 30% of Kern County's $100 billion in property tax valuation. The oil and gas industry also reportedly accounts for 1 in 7 jobs in Kern County. Across oil and gas industry in 2014, there were approximately 50,000 direct, indirect, and induced energy related jobs in Kern County.

The oil and gas industry provides many similar benefits in Fresno, Kings, and Tulare Counties as well.

Limited degradation of groundwater by some waste constituents associated with discharges of 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.

Verifying that the State Anti-degradation Policy is Satisfied

The primary method used to determine if water quality objectives and the requirements of the *State Anti-degradation Policy* are being met is effluent and groundwater quality monitoring. The General Order requires groundwater monitoring of natural background water quality and the water quality downgradient of the production facility area and particularly ponds, unless it can be demonstrated that the discharger cannot adversely affect groundwater quality.

The MRP requires oil field operators to sample existing municipal or domestic water supply wells within one-mile radius of ponds that receive produced wastewater or other authorized discharges, and monitor first-encountered groundwater at their production facility. The purpose of requiring monitoring of water supply wells includes identifying the quality and trends of water being used near or within the oil field. The purpose of requiring monitoring of first-encountered groundwater is to evaluate current discharge practices in order to determine whether such practices are protective of groundwater quality at the most vulnerable point. Groundwater monitoring is necessary to: determine background groundwater quality; determine existing groundwater conditions near ponds and production facility areas; determine whether improved management practices need to be implemented; and confirm that discharge practices are not causing degradation that could adversely affect groundwater beneficial uses.

This General Order requires Dischargers to report any noncompliance that endangers human health or the environment or any significant noncompliance with the Prohibitions contained in the General Order within 24 hours of becoming aware of its occurrence. The General Order and requires Dischargers to submit annual monitoring reports in a tabular form for all the effluent and groundwater monitoring data and domestic water supply well data, if applicable. Additionally, an annual assessment of groundwater monitoring is required to delineate the lateral and vertical extent of adverse impacts on groundwater quality. The assessment must include an evaluation of the groundwater monitoring program's adequacy to assess compliance with the General Order, including whether the data provided are representative of conditions upgradient and downgradient of the production facility.

The Central Valley Water Board recognizes that monitoring the effectiveness of the oil field facilities' BPTC and their effect on groundwater is needed to verify that water quality is adequately protected and the intent of the Anti-degradation Policy is met.

The individual groundwater monitoring provisions and requirements are designed to measure water quality data over time in first-encountered groundwater. It is recognized that in many cases, a single set of groundwater monitoring data, or even monitoring data over a period of months or years, may not be sufficient to determine the effectiveness of existing wastewater discharge practices. Evaluating groundwater results over an extended period of time, in conjunction with gathering data regarding existing surface practices, is necessary to determine whether water quality is being protected or is being unreasonably impacted.

California Environmental Quality Act

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 CEQA Guidelines also contemplate that physical conditions at other points in time may also constitute the appropriate baseline.(*Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal. App. 4th 316, 336.)

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 because it commences the development of an individual permit. Therefore, the date a permit application is received is appropriate for the environmental baseline. (*Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

The Central Valley Water Board began developing this General Order in 2015 with the issuance of Notices of Violation and other orders requiring owners/operators without WDRs to submit RWDs. However, a rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production has fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline is based on a Discharger's existing operations, which is the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.

For these facilities, the adoption of this General Order, which prescribes regulatory requirements for existing facilities in order to ensure the protection of groundwater resources, is exempt from the requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.) based on the following three categorical exemptions:

1. California Code of Regulations, title 14, section 15301 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 to oil field facilities that were discharging produced wastewater to ponds prior to 26 November 2014, and their existing operations as described in their NOIs. Any increase in flow beyond the existing operations constitutes an expansion requiring a CEQA evaluation.

2. 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…"

3. 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…"

Central Valley Salinity Alternatives for Long-Term Sustainability

The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has the goal of developing sustainable solutions to the increasing salt and nitrate concentrations that threaten achievement of water quality objectives in Central Valley surface waters and groundwaters. The General Order requires actions that will reduce salt and COCs loading and improve management practices to be protective of good groundwater quality. The Central Valley Water Board intends to coordinate all such actions with the CV-SALTS initiative. CV-SALTS may identify additional actions that need to be taken by existing wastewater production facility and others to address COCs. The General Order may also be amended in the future to implement any policies or requirements established by the Central Valley Water Board as a result of the CV-SALTS process.

REQUIREMENTS OF THE OIL FIELD GENERAL ORDER

The following describes Prohibitions, Discharge Specifications, Groundwater Limitations, Solids Disposal Specifications, and Provisions are intended to protect the quality of surface water and groundwater.

Prohibitions

Dischargers wishing to obtain coverage under this General Order must submit NOI to comply with the requirements of the General Order. The NOI must contain a detailed description of all discharges that will be regulated under the General Order. The General Order also requires Dischargers to submit a detailed technical report including an Antidegradation Analysis describing how the proposed discharge will meet BPTC requirements and demonstrating how discharges at the proposed volumes and concentrations will ensure maintenance of beneficial uses of underlying groundwater. The General Order prohibits discharges, other than those described in the NOI and subsequently approved in a NOA.

Discharges of wastes other than produced wastewater from production wells to pond(s) are prohibited unless the Executive Officer approves the discharge in accordance with an appropriate management plan outlined in the Provisions section of the General Order.

Storm water that comes into contact with residual oil, produced wastewater, or oil field wastes may contain pollutants. This General Order prohibits the discharge of any wastes to surface

waters or surface water drainages. It also prohibits discharges of storm water that has come into contact with oil field wastes.

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. The General Order also contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger time to marshal funding, develop and complete appropriate studies, and to implement appropriate compliance options.

The General Order strictly prohibits the discharge of hazardous wastes.

Operation or discharge of produced wastewater to ponds that could impact nearby water supply wells is prohibited in the General Order unless the Discharger can demonstrate that there will be no impact to the municipal or domestic water supply well.

To ensure that all wastes are properly treated and contained, the General Order prohibits the bypass of treatment and the discharges related to overflow of ponds.

The General Order prohibits the collection, treatment, discharge or disposal of wastes in a manner that could result in the creation of nuisance or pollution conditions.

Discharge Specifications

The discharge flow for coverage under the General Order must not exceed actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also must not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI.

Ponds are required to be free of oil or be netted to preclude the entry of wildlife (CCR, title 14, section 1778 (d)).

The General Order restricts the public contact with wastes to such means as fences or other acceptable alternatives (CCR, title 14, section 1770 (b) through (b)(4)).

The General Order requires all the conveyance, treatment, storage, and disposal systems including pond, tank battery, and other components of oil and gas production wastewater discharge facility, to be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. By 1 October of each year the available capacity in ponds is required to be sufficient to capture seasonal precipitation and production facility wastewater design flow.

This General Order clarifies that discharges to secondary containment units are to be due to emergency events that are beyond the control of facility operators and that the discharges to the secondary containment are short term, limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment unit ponds and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Board. The General Order also proscribes discharges of storm water containing pollutants from secondary containment to waters of the state (both surface and groundwaters) and waters of the United States. Discharges of storm water containing pollutants to such waters would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

The Discharger is required to operate and maintain all ponds with two feet of freeboard using a staff gauge unless a California registered civil engineer certifies that the operation of ponds less than two feet is adequate and will not impact the integrity of the ponds.

The General Order requires the ponds and containment structures be managed and operated to prevent breeding of vectors. Specifically ponds must be managed to minimize the accumulation of dead algae, vegetation, and debris on the pond surface; minimize growth of weeds and vegetation; and control pond erosion to limit vector breeding sites.

The General Order also allows the Discharger to use the produced wastewater generated from the production facility wells for dust control and construction activities as long as it is consistent with an approved management plan. The application rates are limited to those that are reasonable rates to preclude creation of a nuisance conditions and unreasonable degradation of groundwater. Applied wastewater shall not be allowed to pond onsite or runoff from the site.

Groundwater Water Limitations

The General Order proscribes the discharge of produced wastewater or other wastes from causing groundwater to contain constituents in concentrations that exceed water quality objectives. If natural groundwater quality already contains constituents in concentrations exceeding applicable water quality objectives, the discharge of produced wastewater or other wastes cannot cause those constituent concentrations to increase.

Solids Disposal Specifications

The General Order defines oil field solids as the solid, semisolid, and liquid residues removed from treatment processes or accumulated in tanks, ponds, or other facility components. The General Order requires any handling and storage of solids to be controlled in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soil in a mass or concentration that will violate the groundwater limitations of the General Order.

The General Order requires solids removed from the facility to be managed and disposed of in a manner consistent with solids management plan approved by the Executive Officer. The removal of solids for reuse plans as road mix is restricted to within the lease area.

The General Order also requires for solids to be tested prior to use as a road mix and shown to be non-hazardous. Any proposed changes in solids use or disposal practices are required to be reported in writing to the Executive Officer at least 90 days in advance of the change and be pre-approved by the Executive Officer.

Provisions

The General Order requires compliance with the applicable sections of "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991 (Standard Provisions) and compliance with the MRP. During application process, the NOAs issued will delineate the Standard Provisions that are applicable.
The General Order also requires the Discharger to install acceptable flow metering or flow monitoring. An engineered alternative to flow metering may be used if approved in writing by the Executive Officer.

The General Order authorizes discharge of waste from oil field activities other than produced wastewater from production wells if the Discharger can demonstrate through water quality data that the discharge of wastewater is similar, compatible, or better than the produced wastewater quality and in addition the discharge does not pose a threat to beneficial uses of the groundwater. The General Order also requires prior approval of these oil field related discharges to ponds by the Executive Officer.

The General Order allows the application of produced wastewater at the production facility for dust control or construction activities if it is consistent with an Executive Officer approved management plan. The management plan must contain: 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) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; d) proposed constituent loading rates; e) a list of all management practices to be implemented to ensure produced wastewater does not migrate from proposed application areas; 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.

The General Order requires Dischargers to submit a solids management plan for approval of the Executive Officer at least 180 days prior to any solids reuse. For Dischargers already reusing solids for road mix the General Order requires submittal of a solids management plan for approval by the Executive Officer within 60 days of receipt of the NOA for the Facility. The solids management plan is to include a complete characterization of the quality and quantity of the solids. For reuse of solids as road mix within the lease area, the solids management plan must contain: 1) a demonstration that the solids are not hazardous as defined by CCR Title 22, et Seq., 2) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; 3) proposed constituent loading rates; 4) a list of all management practices that will be implemented to ensure wastes will remain where processed and applied and will not migrate

from the site; and 5) 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.\

For off-site disposal of solids, the solids management plan must contain: 1) the name of the recipient of the waste, 2) the location of the waste disposal site, and 3) evidence that the wastes are being hauled to a properly permitted facility.

Evaluation of Discharge Practices

The General Order requires monitoring of all activities that result in discharges to land. Specifically, the MRP requires:

- Extensive produced wastewater discharge monitoring
- Pond and facility monitoring
- Groundwater monitoring
- Solids monitoring
- Hydrogeological evaluation of the discharge facility, if applicable
- Annual reporting
- Noncompliance reporting
- Spill and release reporting

This monitoring will be reviewed and evaluated to determine compliance with the General Order. Discharges that do not comply with the requirements of the General Order will be subject to enforcement under the provisions of the California Water Code. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT A

DEFINITION OF TERMS
FOR
ORDER R5-2017-0035

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER TWO

1. **Degradation** - Any measurable adverse change in water quality.

2. **Existing Operations** - The actual maximum monthly average produced wastewater discharged to land (e.g., pond) that occurred between 26 November 2004 to 26 November 2014 and does not exceed maximum design flow of the Facility approved during NOI process.

3. **Expansion** - Any activity that results in an increase in the volume of wastes or mass of wastes discharged to land (Also, see Standard Provisions sections A.3 and A.4).

   "Expansion" does not include installation or modification of the Facility or equipment to achieve compliance with the requirements of this General Order so long as the modification or installation is sized to accommodate only the existing Facility flows.

4. **Field or Oil Field** - CCR title 14, section 1741(d) defines Field as "the same general surface area which is underlaid or reasonably appears to be underlaid by one or more pools."

   Also, CCR title 14, section 1760(f) defines Field as "the general surface area that is underlain or reasonably appears to be underlain by an underground accumulation of crude oil or natural gas, or both. The surface area is delineated by the administrative boundaries shown on maps maintained by the [State Oil and Gas] Supervisor."

5. **Flowline** - CCR title 14, section 1760(g) defines Flowline as "any pipeline that connects a well with a gathering line or header."

6. **Freeboard** - Elevation difference between the produced wastewater (liquid) level in a pond and the lowest point of the pond embankment before wastewater can overflow.

7. **Hazardous Waste** - See definition in CCR, title 22, section 66261.3.

8. **High Quality Water** – Waters where a constituent is found at concentrations lower than the applicable water quality objective, are considered "high quality waters" under the antidegradation policy. It is important to note that water can still be considered a high quality water even when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.

9. **Operator** - CCR title 14, section 1741(j) defines as "any person drilling, maintaining, operating, pumping, or in control of any well."

10. **Overflow** - The intentional or unintentional discharge from the Production Facility that is not authorized by this General Order.

11. **Pond** - Also referred to as "Surface Impoundment," is any earthen structure, which may be lined/or unlined, used for the separation, treatment, storage, and/or disposal of produced wastewater. Oil and Gas Production Facility components that are not required to obtain coverage under the General Order are those that meet all of the following requirements:

    a. small in size or volumes of produced wastewater received,
    b. properly engineered and constructed to eliminate percolation (e.g., re-enforced concrete or other appropriately engineered liner),
    c. operated to contain liquid for short periods of time, and
    d. subject to proper ongoing operation and maintenance.

12. **Produced Wastewater or Wastewater** - The General Order refers to the water that is produced with production fluid from a production well as "wastewater," which is commonly referred to as "produced water" in the oil industry. The General Order also uses the term "effluent" (after treatment).

    CCR title 14, section 1760(r) defines "waste water," as "produced water that after being separated from the produced oil may be of such quality that discharge requirements need to be set by a California Regional Water Quality Control Board."

13. **Production Facility** - Also referred to as Facility. CCR title 14, section 1760(k) defines Production Facility as "any equipment attendant to oil and gas production

or injection operations including, but not limited to, tanks, flowlines, headers, gathering lines, wellheads, heater treaters, pumps, valves, compressors, injection equipment, production safety systems, separators, manifolds, and pipelines that are not under the jurisdiction of the State Fire Marshal pursuant to section 51010 of the Government Code, excluding fire suppressant equipment." See above for definition of "flowline."

In general, includes all the surface equipment used to transfer, process or treat, or store oil and dispose of produced wastewater originating from production wells.

The term "Facility" includes those operations that collect and dispose of oil field produced wastewater from one or more operators.

14. **Secondary Containment** - An engineered containment used only during operational upsets or failures that are beyond the control of the Facility operator.

CCR title 14, section 1760(n) defines Secondary Containment as "an engineered impoundment, such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility." CCR, title 14, section 1773.1 requires the following conditions:

(a) All production facilities storing and/or processing fluids, except valves, headers, manifolds, pumps, compressors, wellheads, pipelines, flowlines and gathering lines shall have secondary containment.
(b) Secondary containment shall be capable of containing the equivalent volume of liquids from the single piece of equipment with the largest gross capacity within the secondary containment.
(c) Secondary containment shall be capable of confining liquid for a minimum of 72 hours.
(d) When not in use for rain water management, rain water valves on a secondary containment shall be closed and secured to prevent unauthorized use.
(e) All damage to secondary containment shall be repaired immediately.
(f) The requirements of this section are not applicable until six months after the effective date of this regulation.

For the purposes of this General Order, secondary containment does not include structures used to manage produced wastewater or other wastes during periods of routine maintenance or used to address a lack of adequate facility maintenance or treatment capacity or storage.

15. **Solid Wastes** – Viscous liquids, sludges, and solids collected from tank bottoms as oily sand and/or organic sludge waste collected from the surface of ponds are collectively referred to as “solid waste.”

16. **Storm Water** - Storm water runoff, snowmelt runoff, and surface runoff resulting from a storm or precipitation event.

17. **Waste** - Defined in Water Code section 13050(d) where it “includes sewage and any and all 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 purposes of, disposal.”

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT B

INFORMATION NEEDS SHEET
FOR
ORDER R5-2017-0035

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER TWO

This Information Needs Sheet describes information needed to prepare a Notice of Intent (NOI) to obtain coverage under the General Order. A NOI shall consist of:

1. **State Form 200.** A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. **An application fee.** Discharger's not operating under waste discharge requirements (WDRs) need to submit an application fee that serves as the first annual fee. The initial 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. **A technical report.** The technical report shall characterize all waste generation, treatment, storage, reuse and disposal activities applicable to the specific Facility that will be covered under the General Order. The technical report shall be prepared by a California registered civil engineer or engineering geologist. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

After Central Valley Water Board staff review of the NOI, the staff will determine the appropriate TTWQ and CPLX rating and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing Notice of Applicability (NOA). The NOA will describe appropriate monitoring and reporting requirements and site specific information.

TECHNICAL REPORT PREPARATION

Please note the following tips to expedite the NOI preparation and facilitate Central Valley Water Board staff review process:

1. Providing the information in the same order as the listed below for technical report will help to expedite the NOI review process. Staff will use this as a checklist.

2. If any of the information is missing or incomplete, the NOI will be deemed incomplete and the process (and your project) will be delayed until all of the required information is submitted. You will be notified in writing of the NOI status within 30 days of the NOI submittal. If the NOI is incomplete, the additional information that is required to complete the NOI will be specified in the notification.

3. All numerical data presented in tables and calculations performed using spreadsheets should be provided in digital form (MS Excel compatible spreadsheet) as well as hard copy.

4. If some of the information listed below can be found in a previous technical report prepared by a California registered professional, the NOI can incorporate the report as an appendix, but the NOI text must specify where in the report the required information can be found. However, if appended reports contain information that conflicts with the body of the NOI, it may cause further delays.

✓	**A. Facility Information:**
	1. Is this an **existing or new** oil and gas production facility **or expansion** or startup of existing facility with discharges of produced wastewater (effluent) to pond(s)?
	a. If this is an existing facility (began discharge to land prior to 26 November 2014), the Discharger can apply for coverage under the general orders and the facility is exempt from requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.). Therefore, the Discharger does not need to produce evidence of compliance with CEQA.
	b. If this is a new facility (did not begin discharge to land **prior to 26 November 2014**) or expansion or startup of an existing facility, the Discharger can apply for individual WDRs instead of coverage under the general orders.
	c. If the Discharger has questions about a. or b. or permitting in general contact Central Valley Water Board staff at (559) 445-5116 for guidance.
	2. Is this **facility** currently regulated under individual or general WDRs issued by the Central Valley Water Board?
	a. If so, provide the WDRs order number and a copy of the WDRs.
	b. If not, provide the name of the local agency that issued the current operating permit and the number of years ponds have been in use as a method of disposal.

	3. Provide a copy of any other permits that reference or relate to the discharge of oil field produced wastewater treatment, storage, disposal, and containment systems. This includes Use Permits and any other relevant permits (e.g., Division of Oil, Gas, and Geothermal Resources (DOGGR) disposal well permits, facility permits, etc.).
	4. Provide the following information for the oil and gas production facility and related treatment, storage, and/or disposal units:
	a. Section, Township, and Range.
	b. Street address of the facility (provide street name and distance from nearest cross street if there is no street number), if applicable.
	c. The approximate latitude and longitude of the facility and its components (treatment, storage tanks or tank battery, ponds, disposal wells, etc.).
	d. County and Assessor's Parcel Numbers, if applicable.
	5. Provide a detailed description of the facilities that generate wastewater, and all wastewater conveyance, treatment, and disposal systems. Use site plans and conceptual drawings as appropriate to illustrate locations and typical construction. Include all treatment processes. Provide the following maps, plans, and illustrations:
	a. A facility location map showing local topography; all wells (including producing, injectors, disposal, monitoring, and domestic/agricultural supply wells, etc.); the production, treatment, and disposal facility locations; and boundaries, streets, and surface water features (including natural drainages, seasonal streams, storm water drainage ditches, irrigation canals, and irrigation/tailwater ditches, etc.).
	b. A process flow schematic for the entire treatment, storage, and disposal system. Include existing and proposed flow monitoring devices and sampling locations proposed to determine compliance with the General Order.
	c. A scaled map for production, treatment, storage, disposal facility site plan and acreage. Identify the locations of all the containment structures.
	d. A scaled map showing the limits of all the production wastewater treatment, storage and disposal areas. If disposal methods include combination use of ponds or disposal wells or other methods, identify all the locations on the scaled map.

	6. For each wastewater treatment, storage, disposal pond, and containment structure, provide the following information:
	a. Identification (name) and function of the structures.
	b. Surface area, depth, and volumetric capacity at two feet of freeboard for the ponds.
	c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee.
	d. Materials used to construct each berm or levee (e.g., containment structures and ponds).
	e. Description of the engineered liner, if any. Include a copy of the Construction Quality Assurance (CQA) Report if one was prepared.
	f. Overflow prevention features for each structure.
	g. Operation and maintenance procedures for each structure.
	h. Storm water runoff management methods, applicable for each structure.
	7. Projected monthly water balances demonstrating adequate containment capacity in storage structures (e.g., ponds and secondary containments) for both the average rainfall year and the 100-year return period total annual precipitation, including consideration of at least the following:
	a. Base line wastewater production to the pond and any inflow sources, if applicable.
	b. A minimum of two feet of freeboard in each pond at all times (unless a registered civil engineer determines that a lower freeboard level will not cause overtopping or berm failure).
	c. Historical local pan evaporation (monthly average values).
	d. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns.
	e. Disposal system hydraulic loading rates distributed monthly in accordance with expected seasonal variations based on evaporation rates.
	f. Projected long-term percolation rates (including consideration of percolation and the effects of solids buildup in unlined ponds or containment structures).

	g. Submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the facility (i.e., tank battery and pond storage capacity) is consistent with the flow limits based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
	B. Wastewater Treatment, Storage, and Disposal Systems For The Facility:
	1. A description of all the sources and types of wastewater flowing into the treatment, storage, and disposal facility, including:
	a. A list of oil leases or individuals or entities that use the wastewater treatment, storage, and disposal system.
	b. The number of permitted active and idle production wells (which produce oil, water, or gas) for each oil lease or individual or entity and the associated total monthly fluid production for each type of fluid (oil, gas, and produced wastewater) for each lease since 2013, broken out into monthly flows.
	c. The method(s) of oil field reservoir drives (e.g., primary or enhanced oil recovery (EOR) drive such as steam flood, water flood, etc.).
	d. A list of wastewater treatment units that treat the produced wastewater that is discharged to ponds or to land.
	2. For any chemicals or additives used in the exploration and production of oil, and the treatment of produced wastewater, provide the following:
	a. A detailed accounting of all the chemicals and additives used that could enter the wastewater, the reservoir, and/or produced wastewater stream (e.g., acids, bases, salts, surfactants, emulsion breakers, etc.), and a description of how and where in the production or wastewater stream they are deployed. Calculate the volumes of each individual chemical and additive used on a quarterly basis and describe any seasonal variability in chemical usage.
	b. Report any hazardous wastes that may be generated at the facility and certify that all hazardous wastes will be disposed of in accordance with State and federal laws and will not be commingled with wastewater.
	3. Characterize each wastewater stream type that discharges to the oil and gas production facility using the constituent list provided in **Table I of Monitoring and Reporting Program R5-2017-0035** including (but not limited to) the following:
	a. Produced wastewater after production facility treatment, but prior to discharge

	to the pond (effluent), and within pond.
	b. If the facility receives produced wastewater from other leases, or individuals, or entities, or properties or from different reservoirs, characterize each produced wastewater stream prior to mixing with other produced wastewaters and prior to treatment.
	c. Identify all other sources of wastes prior to mixing with produced wastewater and characterize each waste stream independently (e.g., reverse osmosis brine streams, steam generator blow down, etc.).
	4. Demonstrate maximum monthly average effluent flow to each pond that occurred between 26 November 2004 and 26 November 2014 and the basis for the effluent flow limits. Consider dry weather flows vs. peak flows and seasonal variations, if applicable. Include the technical basis for the flow limit (e.g., design treatment capacity; hydraulic capacity of system components; and demonstrated (historical) effluent storage/disposal capacity).
	5. A narrative description of treatment and storage system operation and maintenance procedures to be employed, including those associated with effluent storage and disposal.
	6. The names and contact numbers for production treatment facility operators and facility supervisors and the hours that the facility is staffed.
	7. Provide preventive and contingency measures for controlling spills and accidental discharges in production facility:
	a. Provide any spill prevention plans. The spill prevention plan should provide specific measures to effectively control any spills or failures in the production facility with supporting documents, a facility schematic, and flow diagrams that show that a spill to the secondary containment areas could only occur during emergency or catastrophic conditions.
	b. A description of proposed alarm notification systems, emergency wastewater storage facilities, secondary containment system, and other means of preventing treatment system bypass or failure during reasonably foreseeable overload conditions (e.g., peak flows, power failure, pipeline blockage, etc.). Consider both potential problems at the treatment, storage and disposal systems and within the conveyance systems (e.g., flow lines).

	c. Provide description of flood and frost protection measures (structural and operational) employed at the facility.
	8. Describe all solid wastes generated at the facility and discuss how they are handled and disposed of. Volumes, chemical and physical characteristics, and final disposition of each waste stream (e.g., land application, compost, landfill) must be described. If solid wastes are treated or disposed of on-site, a waste management plan for those wastes must be included. The waste management plan shall include the following:
	a. A description of solids generation rates, on-site treatment and handling systems, and short-term storage procedures.
	b. A description of measures to be used to control runoff or percolation from the solids as they are transferred, stored, and/or mixed, and a schedule that shows how and where all the solids will be land applied or removed from the site prior to the onset of the rainy season (1 October).
	c. Confirmation that solids removed for reuse within the lease area would be analyzed to indicate that they are non-hazardous. Handling and application practices that would ensure that solid wastes do not migrate once placed. **Note:** At least 180 days prior to any solid waste removal and disposal, the Discharger must submit a solids management plan for the Executive Officer's approval.
	d. See Provision E.6 of the General Order for additional information.

	9. If the Discharger plans to apply produced wastewater for dust control or construction activities at the facility, the Discharger shall submit a management plan that includes:
	a. Technical justification that the dust control or construction activities are best practicable treatment or control and protective of surface waters and groundwater, and a demonstration that discharges will not create nuisance or pollution conditions.
	b. Provide constituent of concern concentrations and loading rates, frequency of wastewater applications, wastewater runoff control measures in-place, and a detailed aerial map of the field and facility clearly identifying areas of wastewater applications including acreage, nearest water ways, and seasonal drainage courses. **Note:** The Discharger shall submit the management plan 90 days prior to the anticipated discharges and the Executive Officer approval of the plan should be prior to commencement of the wastewater application.

	c. See Provision E.5 of the General Order for additional information.
	10. If the Discharge Prohibition A.5 of the General Order applies to the Discharger for discharge of produced wastewater from wells that have been stimulated as defined by CCR title 14, section 1761; then the Discharger must satisfy the requirements of the General Order Provision E.7 by submitting a draft Work Plan to come into compliance with this prohibition. See Provision E.7 of the General Order for additional information.
	C. Antidegradation Analysis:
	1. An antidegradation analysis that evaluates the proposed discharge's consistency with State Water Resources Control Board Resolution 68-16, *Policy with Respect to Maintaining High Quality Waters of the State*. This policy, known as the antidegradation policy, prohibits a regional board from allowing degradation of high quality water unless the Board makes specific findings. If the discharge is expected to degrade high quality waters, the Board must demonstrate that the degradation is consistent with the maximum benefit to the people of the state, that the discharge will not unreasonably affect present and anticipated beneficial uses of the water, that the discharge will not result in water quality less than that prescribed in applicable water quality control policies, and that the treatment system results in the "best practicable treatment or control" of the constituents of concern. In addressing the antidegradation policy, the NOI shall include:
	a. An identification of the beneficial uses of the groundwater in the vicinity of the discharge. Beneficial uses are designated in the applicable water quality control plan.
	b. An identification of the applicable water quality objectives (i.e., identify applicable Maximum Contaminant Levels or other waste concentration levels that cause odors or impair the taste of groundwater designated as suitable for municipal and domestic beneficial use, identify salinity thresholds that will be protective of groundwaters designated as suitable for agricultural use).
	c. An identification of waste constituents currently found in groundwater at concentrations lower (of better quality) than the applicable water quality objectives. Waters where a constituent is found at concentrations lower than the applicable water quality objective are considered "high quality waters" under the antidegradation policy. It is important to note that water can still be considered a high quality water even when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.

	d. An evaluation of how the proposed discharge may degrade groundwater that has been identified as a high quality water. The evaluation shall compare the concentrations of waste constituents in the discharge with the concentrations of these constituents in underlying groundwater and with applicable water quality objectives, and must be conducted on a constituent-by-constituent basis. Include in this evaluation waste constituents that may not be present in elevated concentrations in the discharge when applied to land, but may be released to groundwater as a result of the discharge (e.g., nitrate, iron, manganese, arsenic).
	e. When the above analysis finds that high quality waters will be degraded by the discharge, the following is also needed:
	(1) A justification why the degradation is consistent with the maximum benefit to the people of the state. It is appropriate to consider "important social and economic development" when evaluating whether the degradation is consistent with the maximum benefit to the people of the state.
	(2) With respect to the treatment or control measures that will be implemented, evaluate how these measures reduce the discharge's potential to degrade groundwater and how these measures ensure that the discharge does not cause or contribute to existing conditions of groundwater degradation, where the degradation is due to controllable factors.
	(3) Include a description of additional control measures that <u>could</u> further reduce the degradation associated with the discharge, and discuss why it is or is not "practicable" to implement these measures at the site. This can include analysis relating the viability of the project to the expense of the pollution control technology (i.e., the project would not be economically viable if higher-cost treatment was required by the Board).

	D. Planned Changes in the Existing Facility or Discharge:
	1. Describe in detail any and all planned changes in the facility or discharge, addressing each of items listed in **Section B** above.
	E. Local and Site-Specific Conditions for Surface, Soil, and Groundwater: **(Illustrate with maps as appropriate)**
	1. Neighboring land uses.
	2. Typical crops grown (if agricultural area).
	3. Water supply sources, including agricultural, municipal, and domestic well(s) within one mile radius of where the ponds are located.

	4. Terrain and site drainage features.
	5. Nearest surface water drainage course.
	6. FEMA floodplain designation(s).
	7. Average Annual precipitation (inches).
	8. 100-year 365-day precipitation (inches).
	9. Reference evaporation (monthly and annual total).
	10. Pan evaporation (monthly and annual total).
	11. A description of the types and depths of soil underlying ponds, containment structures, and/or other effluent disposal areas. Include a copy of the geotechnical report and/or Natural Resources Conservation Service (NRCS) soil report. Include at least the following information:
	a. Depth of unsaturated soil when groundwater is closest to the surface.
	b. Soil types based on site-specific information, sampling locations (accurately measured and recorded), description and results of percolation tests or other tests used to estimate soil long-term infiltration and percolation rates. Include depth, thickness, and soil horizons. Soils must be described at a minimum of five feet below the bottom of any disposal unit. Provide information on soil types underlying ponds and/or wastewater application areas from the ground surface to the saturated zone. Soils information should include data from on-site borings, logged by a California registered geologist or civil engineer, and may include referenced data from published sources.
	c. Bedrock type and condition encountered in disposal area, if any.
	d. A scaled map depicting soil/rock types and test locations.

	12. Provide the following information about hydrogeology and groundwater:
	a. Stratigraphy, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (site conceptual model).
	b. Elevation and gradient of first encountered groundwater at the facility.
	c. Depth to highest anticipated groundwater based upon onsite measurements taken during wet season.
	d. Shallow groundwater quality or first encountered groundwater for typical waste constituents, up and down gradient of disposal ponds. See **Table II of General Order Monitoring and Reporting Program** for constituent list to analyze.

	e. Information on monitoring well locations, construction details, and locations of any geological features (e.g. aquitards, subterranean channels, faults) and aquifer characteristics.
	f. Summary of historical groundwater monitoring results (last 5 years for existing facilities).
	F. Industrial Storm Water General Permit:
	On 1 April 2014, the State Water Resources Control Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) (Industrial Storm Water General Permit) specifying waste discharge requirements for discharges of storm water associated with industrial activities. Order 2014-0057-DWQ became effective 1 July 2015 and required all applicable industrial dischargers to apply for coverage prior to the effective date. Because storm water at oil and gas production wastewater discharge facilities is captured and contained on-site or comingled with produced wastewater before being discharged to ponds or production containment areas (i.e., secondary containment), storm water will generally contain residual oil or produced wastewater. This General Order prohibits discharge from leaving pond areas or secondary containment areas and entering waters of the United States. See the following link for more information: http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/ 1. Many industrial facilities are required to obtain coverage under the Industrial Storm Water General Permit. Provide evidence that the facility is exempt from or has applied for coverage under the Industrial Storm Water General Permit.
	G. Department of Water Resources Well Standards:
	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 94-81* (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. 1. Provide information as to whether existing monitoring wells at the facility were constructed in accordance with the Department of Water Resources Well Standards. See the following link for more information:

	http://wwwdpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html

EXHIBIT 3

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0036

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
OIL FIELD DISCHARGES TO LAND

GENERAL ORDER NUMBER THREE

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 oil and gas production facilities (herein after referred to as Facilities or Facility) that:
   a. primarily discharge produced wastewater from oil and gas extraction operations to land, including but not limited to produced wastewater disposal ponds, 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. exceed 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);
   c. discharge where the first encountered groundwater is of poor quality or there is no first encountered groundwater;
   d. discharge where the first encountered groundwater does not support beneficial uses as identified in the Basin Plan as Municipal and Domestic Supply (MUN), or Agricultural Supply (AGR), or Industrial Service Supply (IND) or Industrial Process Supply (PRO); and
   e. began discharge of wastewater to pond(s) prior to **26 November 2014.**

   This General Order classifies such Facilities as "existing."

2. The Board will notify Dischargers of coverage under the terms and conditions of this General Order by Executive Officer issuance of a Notice of Applicability as described in the application process below.

3. 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 and dust control 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).

4. It is the intent of the Central Valley Water Board that Facilities regulated by outdated WDRs can also apply for coverage under this General Order.

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 Facility. See Attachment A for specific definitions of many of the terms used in this General Order.

6. There are approximately 326 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) with the Central Valley Water Board within 30 days of the adoption date of this General Order. 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. The NOI for the Facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average produced wastewater discharge flow to ponds that occurred in the ten years immediately prior to 26 November 2014. Any increase in flow beyond this number constitutes an expansion requiring a CEQA evaluation. The use of the actual maximum monthly average produced wastewater discharge flow in the last ten years to define the existing operations accounts for fluctuations in oil and gas production and associated wastewater flows due to changes in economic conditions.

9. 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). Coverage under this General Order will commence upon issuance of the NOA. The NOA will describe the appropriate monitoring and reporting requirements.

10. 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 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

11. This General Order prescribes requirements for discharges of non-hazardous oil field produced wastewater to ponds and other low threat discharges to land at the existing Facilities located in the Central Valley Region.

12. Existing 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. 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 most 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.

13. 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 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.

14. Discharges that would qualify for this General Order are those that discharge where there is no underlying groundwater or where the poor quality of underlying groundwater precludes beneficial use and would support removal of designated beneficial uses through Basin Plan amendments.

BASIN PLAN AND BENEFICIAL USES

15. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised January 2015* (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 Resources Control Board (State Water Board).

16. 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.

17. The beneficial uses of groundwater described in 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. Further, the Basin Plan incorporates State Water Board Resolution No. 88-63, known as the State "Sources of Drinking Water Policy." Pursuant to this policy, all groundwater is designated as MUN (the use may be existing or potential) unless specifically exempted by the Central Valley Water Board and approved for exemption by the State Water Board. In addition, unless otherwise designated by the Central Valley Water Board, all groundwater in the Region is considered suitable or potentially suitable, at a minimum, for agricultural supply (AGR), industrial supply (IND), and industrial process supply (PRO).

18. 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.

19. 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.

20. Water quality objectives that apply to groundwater include, but are not limited to, (1) numeric objectives and the chemical constituents objective (includes state drinking water primary and secondary maximum contaminant levels (MCLs) promulgated in California Code of Regulations (CCR), title 22, sections 64431, 64444, and 64449 applicable to municipal and domestic supply), and (2) narrative objectives including the chemical constituents, taste and odor, and toxicity objectives.

21. Chapter III of the 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.

22. In considering any exceptions to the beneficial use designation of MUN in the Basin Plan, the Central Valley Water Board must consider the criteria from Resolution No. 88-63, the state's Sources of Drinking Water Policy.

23. The Sources of Drinking Water Policy states that all groundwaters of the state are considered to be suitable, or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Board with the exception of where the groundwater meets one or more of the following criteria:

a. The total dissolved solids (TDS) exceed 3,000 milligrams per liter (mg/L) (5,000 micromhos per centimeter (µmhos/cm) electrical conductivity) and it is not reasonably be expected by the Regional Boards to supply a public water system; or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; or

c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day; or

d. The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, section 261.3.

Exceptions to the Sources of Drinking Water Policy are not self-implementing, but must be established in an amendment to the Basin Plan.

24. To be consistent with the Sources of Drinking Water Policy in making exceptions to beneficial use designations other than MUN, the Central Valley Water Board will consider criteria for exceptions, parallel to Resolution No. 88-63 exception criteria, which would indicate limitations on those other beneficial uses as follows:

In making any exceptions to the beneficial use designation of agricultural supply (AGR), the Central Valley Water Board will consider the following criteria:

a. There is pollution, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for agricultural use using either Best Management Practices or best economically achievable treatment practices, or

b. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day, or

c. The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon,

or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, section 261.3.

In making any exceptions to the beneficial use designation of industrial supply (IND or PRO), the Central Valley Water Board will consider the following criteria:

a. There is pollution, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for industrial use using either Best Management Practices or best economically achievable treatment practices, or

b. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

25. The Basin Plan at page i states:

> Basin plans are adopted and amended by regional water boards under a structured process involving full public participation and state environmental review. Basin plans and amendments do not become effective until approved by the State Water Board. Regulatory provisions must be approved by the Office of Administrative Law.

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) (µmhos/cm)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

The Basin Plan maximum salinity limits do not apply to this General Order because the groundwater is poor quality and exceeds the maximum salinity limits and exceeds the Basin Plan water quality objectives.

ANTIDEGRADATION POLICY / BASIN PLAN AMENDMENTS

27. 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), 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. Resolution 68-16 does not apply to waters that are not high quality.

28. Where the water body is not high quality (i.e., "poor quality"), the "best efforts" approach is considered. The "best efforts" approach involves implementation of reasonable control measures to treat produced wastewater prior to discharge to land. The factors that should be analyzed under the "best efforts" approach include the water quality achieved by other similarly situated Dischargers, the good faith efforts of the Discharger to limit the discharge of constituents of concern (COCs), and the measures necessary to achieve compliance.

29. The primary 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 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.

30. As described in Finding 1, this General Order applies to areas where first encountered groundwater does not exist (e.g., it is petroleum or hydrocarbon producing only) or if it does exist, it is such poor quality that it does not, and could not be reasonably expected to support designated beneficial uses.

31. As described in Finding 17, the Basin Plan applies MUN to all groundwater where it is not specifically de-designated. The Basin Plan also states that unless otherwise designated by the Regional Water Board, all groundwaters in the Region are considered suitable or potentially suitable for AGR, IND, and PRO. Hydrogeological conditions, particularly in the oil fields on the west side of the Central Valley, have resulted in areas where first encountered groundwater is petroleum or hydrocarbon producing and/or is of such poor quality that it cannot reasonably be expected to be used, now or in the future, for the Basin Plan assigned beneficial uses, even with the implementation of best management practices or best economically achievable treatment practices. Under these circumstances, Dischargers are expected to apply "best efforts" to minimize water quality degradation and prevent conditions of nuisance. Also, under these circumstances, Dischargers may also be able to obtain amendments to the Basin Plan that de-designate the beneficial uses that cannot reasonably be achieved.

32. Where groundwater exists, but its quality does not and could not support beneficial uses, this General Order puts the Discharger on a five year compliance schedule (Provision E.4) to obtain an amendment or amendments to the Basin plan to de-designate the beneficial uses of MUN, AGR, IND, or PRO, as appropriate. The

schedule requires the Discharger to demonstrate, in the case of MUN, that its discharges will meet the Sources of Drinking Water Policy exception criteria, or in the case of AGR, IND, and PRO, parallel criteria. The compliance schedule also requires the Discharger to demonstrate, where it can meet the above criteria that its discharges will not migrate from the areas where the beneficial uses will be de-designated to areas of higher quality groundwater, it must demonstrate containment. The compliance schedule may be extended by up to two years by the Executive Officer if, through no fault of the Discharger, the process is delayed.

33. If the Discharger is unable to obtain the amendments to the Basin Plan necessary to continue discharge by the end of the compliance schedule, the discharge must cease discharge unless the Discharger can demonstrate that the groundwater does not exist and discharges of produced wastewater to land is contained.

34. Where Dischargers can demonstrate through an appropriate hydrogeological investigation that groundwater does not exist and discharges of produced wastewater and other wastes to land will not migrate into areas where groundwater does exist, Basin Plan amendments are not required. This General Order will regulate these discharges to confirm the results of the hydrogeological investigation, protect surface waters and surface water drainages, and to prevent the creation of nuisance conditions.

35. This General Order only applies where there is no groundwater or where groundwater is of such poor quality that it cannot support beneficial uses designated in the Basin Plan. This General Order Provides dischargers in these areas a schedule to pursue amendments to the Basin Plan to remove these designated beneficial uses. Dischargers in close proximity to each other and with similar hydrogeological conditions are encouraged to participate in a regional or group effort to provide the technical information necessary to demonstrate that coverage under this General Order is appropriate and to obtain the Basin Plan amendments. Those pursuing Basin Plan amendments will be required to participate in Central Valley Salinity Alternatives for Long-Tern Sustainability (CV-SALTS).

STATUTORY AND REGULATORY CONSIDERATIONS

36. 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 to file a report of that discharge with the Central Valley Water Board. An NOI meets this requirement.

37. 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.

38. 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.

39. 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.

* * *

40. 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 treated waste discharged to the ponds does not need to be managed as hazardous waste.

41. New regulations in CCR, title 14, concerning well stimulation treatment went into effect on 1 July 2015.

42. 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.

43. CCR, title 14, section 1786(a) states:

    Operators shall adhere to the following requirements for the storage and handling of well stimulation treatment fluids, additives, and produced waters from a well that has

had a well stimulation treatment: … (4) Fluids shall be stored in containers and shall not be stored in sumps or pits.

44. 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.

45. This General Order contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger to fund, study, and implement appropriate compliance options.

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. Consistent with this policy, this General Order has requirements that prohibit discharges from causing a condition of pollution in waters that are suitable for the beneficial uses of municipal and domestic water supply.

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 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.

51. This General Order clarifies that discharges of wastewater to secondary containment units are to be due to emergency events that are beyond the control of the Facility operator and that the discharges to the secondary containment are short term, limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment units and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Board. Discharges of storm water containing pollutants to waters of state and waters of the United States would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

52. 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.

The technical reports required by this General Order and the attached MRP 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 MRP requires extensive monitoring of the Facility and the wastewater. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

54. 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.

55. The Findings of this General Order, attachments and details in the 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.

56. 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.

57. 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." The CEQA Guidelines also contemplate that physical conditions at other points in time may constitute the appropriate baseline. (CCR, title 14, section 15125(a), Cherry Valley Pass Acres and Neighbors v. City of Beaumont (2010) 190 Cal. App. 4th 316, 336.)

60. 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 because it commences the development of an individual permit. Therefore, the date an application is received is appropriate for the environmental baseline. (Fat v. County of Sacramento (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

61. In November 2014, the Board recognized the need to develop a general order to regulate produced wastewater discharges to ponds. Beginning in January 2015, the Board issued Notices of Violation (NOVs) to operators discharging to ponds without WDRs.

62. A rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production and associated wastewater discharge flows have fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline shall be based on the existing operations, which is the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.

63. This General Order is designed to enhance the protection of surface and groundwater resources, and its application to existing 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, to existing Facilities and their existing operations as described in their NOIs. Any increase in flow beyond the existing operations constitutes an expansion requiring a CEQA evaluation.

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."

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."

64. 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 Facilities, and has provided them with an opportunity for a public hearing and an opportunity to submit comments.

65. 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 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. 5, 6, and 7.

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 containing well stimulation treatment fluids is prohibited except as provided by Provision E.8.

6. Acceptance, treatment, or discharge of "hazardous waste," as defined in the 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 Facility that results in the creation of a condition of pollution or nuisance is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The Discharger shall achieve compliance with this General Order in accordance with the time schedule in Provision E.4.

2. The discharge flow shall not exceed actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also shall not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI.

3. The discharge shall remain within the permitted waste treatment/containment/disposal structures at all times, or in case of emergency, within secondary containment structures.

4. All ponds shall be operated and maintained to prevent wastes from concentrating to hazardous levels.

5. 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).

6. Ponds shall be free of oil or effectively netted to preclude the entry of wildlife in accordance with CCR, title 14, section 1778 (d).

7. The Discharger shall operate all systems and equipment to optimize the water quality of the discharge to ponds.

8. All conveyance, treatment, storage, and disposal systems including ponds, tank batteries, and other components of Facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

9. 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.

10. Pond berms shall be designed and maintained to prevent leakage caused by erosion, slope failure, or animal burrowing.

11. 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.

12. 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.

13. On or about 1 October of each year, available capacity shall at least equal the volume necessary to comply with Discharge Specifications B.8 and B.12.

14. 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 application are to be done in compliance with labeling 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.

15. 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.

16. The Discharger shall monitor solids accumulation in the wastewater treatment units and ponds at least every five years beginning in the year the NOA is issued, 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 lesser pond capacity is adequate.

17. Dischargers who are subject to this General Order shall implement water quality management practices based on “best efforts,” as necessary, to protect water quality and to maintain compliance with applicable water quality objectives.

18. All precipitation and surface drainage (i.e., “run on”) from outside the Facility where it could come into contact with waste shall be diverted away from the Facility or pond unless such drainage is fully contained.

19. Produced wastewater application rates, on the 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.6.

20. Application of produced wastewater at the 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 to contain constituents in concentrations that adversely affect the beneficial uses.

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.7. 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 the 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 date 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 engineering alternative may be used if approved in writing by the Executive Officer.

4. The Discharger shall either:

   a. Provide by **(60 days of issuance of the NOA)**, as directed in the NOA issued for coverage under this General Order, the results of a hydrogeological investigation demonstrating that there is no groundwater beneath the Facility discharge areas and that produced wastewater and constituents associated with other approved wastes discharged at the Facility will not migrate into areas that there is groundwater with designated beneficial uses. Upon the written concurrence of the investigation results by the Executive Officer, this provision shall be considered satisfied,

   or

   b. If there is first encountered groundwater underlying the Facility or the Executive Officer does not concur with the results of the investigation in Provision E.4.a., above, the Discharger shall demonstrate that the natural background groundwater quality for the Facility meets the Sources of Drinking Water Policy exception criteria and/or parallel exception criteria outlined in this General Order (Findings 22 through 24) and thus the current Basin Plan groundwater beneficial uses are eligible for de-designation in accordance with the following compliance schedule (Tasks 1 through 10):

Task	**Task Description**	**Due date**[1]
1.	Participate in the CV-SALTS Group to facilitate the Basin Plan Amendment (BPA) process under the Salt and Nutrient Management Plan.	**On-going**
2.	Develop an outline of a BPA Work Plan for CV-SALTS Technical Advisory Committee review and comment prior to submittal to the Central Valley Water Board staff for evaluation of the de-designation of Basin Plan beneficial uses of the groundwater. The Work Plan shall include: a. Consideration of Sources of Drinking Water Policy and applicable exemption criteria for MUN and applicable parallel criteria for exemption of AGR, IND, and PRO; b. Consideration of available data or how the data will be collected to evaluate and support the exemption criteria; and c. An outline of a draft proposal to de-designate the Basin Plan	**4 Months from Date of NOA**

Task	Task Description	Due date[1]
	beneficial uses that are not applicable under the area of consideration.	
3.	Central Valley Water Board staff shall review and consider for approval the outline of BPA Work Plan.	**6 Months from Date of NOA**
4.	Work with Central Valley Water Board staff to develop a Work Plan describing BPA tasks that will be completed and deliverables that will be produced to support the de-designation of the Basin Plan beneficial uses of the groundwater under consideration. The BPA tasks and resulting deliverables shall include but are not limited to: a. Delineation of the horizontal and vertical extent of the sub-basin or subject area under consideration, b. A summary of available data and analyses for each beneficial use proposed for de-designation, c. Maps, geologic cross sections, well and water quality data and any other information that are supportive of de-designation, d. A description of additional data or studies required to fill in any data gaps and support de-designation, e. A final proposed BPA Work Plan to accomplish above tasks a-d, and f. The development of a final technical report that compiles all the information developed in tasks a-e.	**10 Months from Date of NOA**
5.	Central Valley Water Board staff shall review and consider for approval[2] the final BPA Work Plan and proposed deliverables.	**12 Months from Date of NOA**
6.	Implement final Work Plan and submit the final technical report to the Central Valley Water Board. The Discharger shall **provide** semi-annual progress reports.	**36 Months from Date of NOA**
7.	Central Valley Water Board staff will evaluate the final technical report and provide written directions to the Discharger for: a. Completing the CEQA scoping process for the BPA, b. Developing a draft staff report for the Central Valley Water	**45 Months from Date of NOA**

Task	Task Description	Due date[1]
	Board, and c. Preparing a final staff report for the Central Valley Water Board.	
8.	The Central Valley Water Board and Discharger shall implement BPA Process including: a. Stakeholder Participation-Public review of final draft of staff report, b. Peer Review Process-Request peer reviewers to provide comments for final staff report, c. Administrative Records-Preparing record keeping tasks and staff review and comments on deliverables, d. Progress Reports-Providing periodic presentation/reports to the Board and the public on the progress of BPA and deliverables. e. Final Central Valley Water Board approval-Provide a presentation of final report to the Board for consideration, and f. Finalize Administrative Records and submit to State Water Board for consideration.	**54 Months from Date of NOA**
9.	State Water Board to consider Central Valley Water Board adopted Basin Plan Amendment(s).	**57 Months from Date of NOA**
10.	Office of Administrative Law review and approval of adopted Basin Plan Amendment(s).	**60 Months from Date of NOA** **(No later than 5 years[3] from the date of NOA issuance[4])**
11.	If Basin Plan Amendments are not secured by the compliance date in Task 10 above, the discharges at the Facility shall cease and the Discharger shall submit a Report of Waste Discharge for closure/post closure waste discharge requirements.	**60 Months from Date of NOA** **(No later than 5 years[3] from the date of NOA issuance[4])**

1. All the compliance due dates are based on the issuance date of the NOA by the Executive Officer. The Executive Officer can extend the due dates of Tasks 1 through 10 if the Discharger is making acceptable progress and misses a due date through no fault of its own.
2. When proposing Basin Plan amendment, it is not a guarantee that it will be approved. The science must support the amendment.
3. Central Valley Water Board in special circumstances (when significant progress has been made) can extend the 5 year compliance period up to an additional 2 years with the written concurrence of the Executive Officer.
4. For example if the NOA was issued on 1 December 2017, the final task due date is on 1 December 2022, unless extended.

5. Discharges of wastes from oil field activities other than produced wastewater from production wells to pond(s) 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 beneficial uses of the groundwater.

6. 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 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.

7. 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.

8. If the Discharger accepts produced wastewater from wells that have been stimulated, it shall comply with Prohibition A.5 in accordance with the following compliance schedule:

Task[1]	**Task Description**	**Due date**[2]
1.	a. Submit a Work Plan to conduct studies necessary to demonstrate that the discharges of produced wastewater from wells that have been stimulated do not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. The Work Plan shall include, but is not limited to, a proposed monitoring program for wells that have been stimulated or are planned for stimulation, specific milestones to accomplish the	**3 Months from Date of NOA**

Task[1]	Task Description	Due date[2]
	proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer. **Or** b. Submit a Work Plan for an alternate disposal method for wastewater discharges from wells with a history of, or are planned to receive a "well stimulation treatment." The Work Plan shall include, but is not limited to, permitting and construction schedules for disposal wells, specific milestones to accomplish the proposed scope of work, and a schedule for compliance with Prohibition A.5. The Work Plan shall be reviewed and approved by the Executive Officer.	
2.	The Discharger shall implement the Work Plan after the Work Plan has been approved by the Executive Officer and shall also provide progress reports toward compliance with this task every six months. By the end of the 36th month from the date the NOA is issued, the Discharger shall submit a technical report for review and approval by the Executive Officer. The technical report shall demonstrate compliance with Prohibition A.5. Upon written approval letter by the Executive Officer, this provision shall be satisfied. The Executive Officer may at its discretion modify this time schedule based on evidence that meeting the compliance date is infeasible through no fault of the Discharger, or when evidence shows that compliance by an earlier date is feasible.	**36 Months from Date of NOA**
3.	If the Discharger does not achieve compliance with Prohibition A.5 by the compliance date in Task 2, the Discharger must cease discharge(s) and submit a written certification that the discharges from the Facility have ceased.	**36 Months from Date of NOA**

1. Where local geology and discharge quality is similar, Dischargers may work together as a group to submit required work plans, technical reports, and studies. The work plans, technical reports, and studies shall explicitly identify the areas and Dischargers covered by the group effort.
2. All the compliance due dates start from the issuance date of the NOA by the Executive Officer. For example if NOA was issued on 1 July 2017, the final task (Task 2 technical report) due date is on 1 July 2020.

9. 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.

10. Pursuant to section 13264 of the Water Code, the Discharger shall submit a complete revised NOI or a complete Report of Waste Discharge (RWD) for an individual permit 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.

11. 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.

12. 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.

13. The Discharger shall use the best efforts including proper operation and maintenance, to comply with this General Order.

14. 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.

15. 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 applicable NOA by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

16. 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.

17. 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.

18. A copy of this General Order including the MRP, Information Sheet, Standard Provisions, and Attachments A and B shall be kept at the Facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

19. The Central Valley Water Board will review this General Order periodically and will revise requirements when necessary.

20. 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.

21. 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.

22. 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.

23. 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 57 of this General Order and the Discharger must participate in the CV-SALTS Program to qualify for an exception.

24. 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 RWD 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 6 April 2017.

Original signed by

_____
PAMELA C. CREEDON, Executive Officer

Attachments:

A: Definitions
B: Information Needs Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2017-0036
FOR
WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER THREE

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267. The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location(s) shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

This MRP includes Monitoring, Record-Keeping, and Reporting requirements. Monitoring requirements include monitoring of discharges, of produced wastewater, solid waste, application of recycled materials (wastewater and solids), and groundwater to in order to determine if the Discharger is complying with the requirements of Waste Discharge Requirements General Order No. R5-2017-0036 (Order). All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with ***Standard Provisions and Reporting Requirements for Waste Discharge Requirements***, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as a pH meter) may be used provided that the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the State Water Board's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after a statistically significant number of sampling events, the Discharger may request this MRP be revised by the Executive Officer to reduce monitoring frequency or minimize the list of constituents. The proposal must include adequate technical justification for reduction in monitoring frequency.

Monitoring requirements include the periodic visual inspection of the facility to ensure continued compliance with the Order. The MRP also requires submittal of information regarding the use of all chemicals used during well drilling, installation, operation, and maintenance activities associated with each well generating waste materials (liquids and solids) that are discharged to land and regulated under this Order.

This MRP requires the Discharger to keep and maintain records for five years from the date the monitoring activities occurred and to prepare and submit reports containing the results of monitoring

specified below. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Central Valley Water Board.

FACILITY MONITORING

Permanent markers in ponds shall be in place with calibrations indicating the water level at design capacity and available operational freeboard (two feet minimum required). The freeboard shall be monitored **monthly** on all ponds to the nearest tenth of a foot.

Annually, prior to the anticipated rainy season, but **no later than 30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess repair and maintenance needed for: drainage control systems; slope failure; groundwater monitoring wells, or any change in site conditions that could impair the integrity of the waste management unit or precipitation and drainage control structures; and shall assess preparedness for winter conditions including, but not limited to, erosion and sedimentation control. The Discharger shall take photos of any problems areas before and after repairs. Any necessary construction, maintenance, or repairs shall be **completed by 31 October**. Annual facility inspection reporting shall be **submitted by 30 November**.

The Discharger shall inspect all precipitation diversion and drainage facilities for damage **within 7 days** following major storm events (e.g., a storm that causes continual runoff for at least one hour) capable of causing flooding, damage, or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be commenced **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Reporting Requirements of this MRP.

The Discharger shall monitor and record on-site rainfall data using an automated rainfall gauge, or subject to Executive Officer approval other acceptable gauge/monitoring arrangement, or a weather monitoring station within three miles of the facility. Data shall be used in establishing the severity of storm events and wet seasons for comparison with design parameters used for waste management unit design and conveyance and drainage design. Daily data and on-site observation shall be used for establishing the need for inspection and repairs after major storm events. Rainfall data shall be reported in the quarterly monitoring reports, as required by this MRP.

CHEMICAL AND ADDITIVE MONITORING

The Discharger shall provide the following for all chemicals and additives[1] used at all leases and facilities that discharge produced wastewater to land:

Requirement	Frequency
A list of all chemicals and additives used including chemical formulas and specific chemical names.	Quarterly
The volume of each chemical and additive used in gallons.	Quarterly
A list of the leases and facilities where the chemicals and additives are being used.	Quarterly
Material safety data sheets for each chemical and/or additive.	Annually

[1] Chemicals that are a part of trade secrets shall be kept confidential at the Central Valley Water Board. Documents containing trade secrets shall be properly marked on the cover, by the Discharger, prior to submitting the document to the Central Valley Water Board. Individuals that have received permission by the Discharger shall be granted access to view the files at the office.

PRODUCED WASTEWATER MONITORING

Produced wastewater (also referred to as effluent) samples shall be representative of the volume and nature of the discharges. The Discharger shall maintain all sampling and analytical results: date, exact place, and time of sampling; dates analyses were performed; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of five years.

A complete list of substances that are tested for and reported on by the testing laboratory shall be provided to the Central Valley Water Board. All peaks must be reported. In addition, both the method detection limit (MDL) and the practical quantification limit (PQL) shall be reported. Detection limits shall be equal to or more precise than USEPA methodologies. Analysis with an MDL greater than the most stringent drinking water standard that results in non-detection needs to be reanalyzed with the MDL set lower than the drinking water standard or at the lowest level achievable by the laboratory. All quality assurance/quality control (QA/QC) samples must be run on the same dates when samples were actually analyzed. Proper chain of custody procedures must be followed, and a copy of the completed chain of custody form shall be submitted with the report. All analyses must be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed below, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge.

DISCHARGE 001

Produced wastewater samples shall be collected downstream from the treatment system and prior to discharge to land (roads, ponds, etc.) (Discharge 001). Produced wastewater monitoring for Discharge 001 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Flow	mgd	Metered[1]	Continuous
Table I – Effluent Monitoring	Varies	Grab	Varies

[1] In accordance to Order Provision E.3, instead of metering an engineered alternative may be used if approved in writing by the Executive Officer.

DISCHARGE 002

If ponds are used, produced wastewater samples shall be collected in the pond at the distal end of the system (Discharge 002), or if ponds are operated in parallel, in the pond that has contained produced wastewater for the longest period of time (i.e., longest retention time)(Discharge 002). Produced wastewater monitoring for Discharge 002 shall include at least the following:

Constituent/Parameter	Units	Sample Type	Frequency
Table I – Effluent Monitoring	Varies	Grab	Varies

SOLID WASTE MONITORING

Solid waste generated at the Facility from production related activities, such as tank or pond maintenance, shall be characterized for disposal. Non-hazardous solid wastes may be disposed on-site, as road or berm construction material, for instance, if such disposal does not pose a threat to water quality.

Hazardous waste (as defined in California Code of Regulations (CCR), title 22, section 66261.1) and designated wastes (as defined in California Water Code (CWC) section 13173) shall be properly disposed at a Facility permitted to accept the waste.

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 the subsequent quarterly and annual monitoring reports.

GROUNDWATER WELL SURVEY

The Discharger shall conduct a well survey to identify all water supply wells within one-mile of the ponds that receive produced wastewater or other authorized discharges. The Discharger shall sample the identified domestic water supply wells and analyze the samples for the waste constituents listed in Table II of this MRP. If access to private property is requested and denied, a demonstration of that denial is required.

REPORTING REQUIREMENTS

All monitoring results shall be reported in Quarterly Monitoring Reports which are due by the first day of the second month after the calendar quarter as follows:

First Quarter Monitoring Report (January – March):	1 May
Second Quarter Monitoring Report (April – June):	1 August
Third Quarter Monitoring Report (July – September):	1 November
Fourth Quarter Monitoring Report (October – December):	1 February
Facility Inspection Report (Completed by 30 October):	30 November

A transmittal letter shall accompany each monitoring report. The transmittal letter shall discuss any violations that occurred during the reporting period and all actions taken or planned for correcting violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory. Reports shall be submitted whether or not there is a discharge.

The following information is to be included on all monitoring reports, as well as report transmittal letters:

Discharger's name
Facility/Lease Name
Waste Discharge Requirements R5-2017-0036
Monitoring and Reporting Program R5-2017-0036
GeoTracker Site Global ID: XXXXXXXXXXXX

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible for all historical and current data. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the MDL and the Reporting limit (RL) or PQL. If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL), but above the MDL, shall be reported and flagged as estimated.

If the Discharger monitors any constituent at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the quarterly monitoring reports. Such increased frequency shall be indicated on the quarterly monitoring reports.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

The Discharger shall submit electronic copies of all work plans, reports, analytical results, and groundwater elevation data over the Internet to the State Water Board Geographic Environmental Information Management System database (GeoTracker)
at http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml
A frequently asked question document for GeoTracker can be found
at http://www.waterboards.ca.gov/ust/electronic_submittal/docs/faq.pdf
Electronic submittals shall comply with GeoTracker standards and procedures, as specified on the State Water Board's web site. Uploads to GeoTracker shall be completed on or prior to the due date.

In addition, a copy of each document shall be sent via electronic mail to CentralValleyFresno@waterboards.ca.gov. Include a copy of the transmittal letter. Laboratory reports submitted in compliance with this MRP shall be accompanied by an Excel file that includes the analytical data found in the laboratory report. Excel files shall be either generated by the laboratory or compiled by the Discharger. At a minimum, the Excel file shall include the constituent name, sample location, sample name, sample date, analysis date, analytical method, result, unit, MDL, RL, and dilution factor.

A. **All Quarterly Monitoring Reports shall include the following**:

Facility reporting:

1. Monthly freeboard results as specified on MRP page 2.
2. The results of Facility inspections conducted during the quarter as specified on MRP page 2.
3. Rainfall data as specified on MRP page 2.

Chemical and Additive reporting:

1. The data required as specified on MRP page 2 and 3.

Produced Wastewater reporting:

1. Tabular summary of current and historical results of effluent discharges as specified on page 3 and 4.
2. For each month of the quarter, calculation monthly effluent flow and the historical monthly effluent flow for the last 12-months.
3. For each quarter, include a current and historical table for each effluent sample point for EC, boron, chloride, and sodium.

Solid Waste reporting:

1. The results of solid Waste monitoring specified on MRP page 4, including the nature, volume, and weight in dry tons of solid waste produced during the quarter.
2. Analytical results characterizing the solid waste, and particularly, whether the waste is hazardous as defined in CCR, title 22, section 66261.1).
3. The method of disposal and disposal locations of the solid wastes.
4. If wastes are hauled to a disposal facility, evidence that the disposal facility is properly permitted.

B. **Fourth Quarter Monitoring Reports**, in addition to the above, by 1 February of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

Production Facility information:

1. The names and general responsibilities of all persons employed to operate the produced wastewater treatment systems.
2. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations.
3. If field meters are used, then a statement certifying when the flow meters and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.4).
4. A summary of all spills/releases, if any, that occurred during the year at the facility, tasks undertaken in response to the spills, and the results of the tasks undertaken.
5. A summary of the chemical and additive data collected under the Chemical and Additive Monitoring section, the required MSDS sheets, chemical formulas and specific chemical names, and a discussion of whether any of the chemicals or additives were found in effluent discharges.

6. A flow chart (i.e. diagram that clearly illustrates all processes that produced wastewater undergoes from well extraction to discharge to land) and map of the following:
   - Facility within the oil field,
   - Facility/Lease boundaries
   - Production and wastewater distribution network with all stock tanks, and transfer pipes, and discharge points to the ponds or land.
7. Annual report in tabular form for all the effluent and domestic water supply well data, if applicable.

Requesting Administrative Review by the State Water Board. Any person aggrieved by an action of the Central Valley Water Board that is subject to review as set forth in Water Code section 13320(a), may petition the State Water Board to review the action. Any petition must be made in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 and following. The State Water Board must receive the petition within thirty (30) days of the date the action was taken, except that if the thirtieth day following the date the action was taken falls on a Saturday, Sunday, or state holiday, then the State Water Board must receive the petition by 5:00 p.m. on the next business day. Copies of the laws and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality/index.shtml or will be provided upon request.

Modifications. Any modification to this Monitoring and Reporting Program shall be in writing and approved by the Assistant Executive Officer, including any extensions. Any written extension request by the Discharger shall include justification for the delay.

The Discharger shall implement the above monitoring program on the first day of the Executive Officer issuance of the NOA for coverage under the Order.

Ordered by: _____

PAMELA C. CREEDON, Executive Officer

_____

(Date)

Table I-Effluent Monitoring

Parameters	Units	US EPA or other Method[9]	Reporting Frequency
Field Parameters			
Temperature	°F[1]	Meter	Quarterly
Electrical Conductivity	µmhos/cm[2]	Meter	Quarterly
pH	pH units	Meter	Quarterly
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L[3]	160.1	Quarterly
Total Suspended Solids (TSS)	mg/L	160.2	Quarterly
Electrical Conductivity	µmhos/cm	2510B	Quarterly
Total Organic Carbon (TOC)	mg/L	415.3	Quarterly
Boron, dissolved	mg/L	6010B	Quarterly
Standard Minerals			
Alkalinity as CaCO3	mg/L	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	310.1	Quarterly
Sulfate, dissolved	mg/L	300.0	Quarterly
Nitrate-N, dissolved	mg/L	300.0	Quarterly
Calcium, dissolved	mg/L	6010B	Quarterly
Magnesium, dissolved	mg/L	6010B	Quarterly
Sodium, dissolved	mg/L	6010B	Quarterly
Potassium	mg/L	6010B	Quarterly
Chloride	mg/L	300.0	Quarterly
PAHs[4]	µg/L[5]	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	418.1	Quarterly
Volatile Organic Compounds			
Full Scan	µg/L	8260B	Quarterly
Oil and Grease	mg/L	1664A	Quarterly
Stable Isotopes			
Oxygen (^{18}O)	pCi/L[6]	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	900.0	Quarterly
Radionuclides			
Radium-226	pCi/L	SM[7] 7500-Ra	Quarterly

Table I-Effluent Monitoring

Parameters	Units	US EPA or other Method[9]	Reporting Frequency
Radium-228	pCi/L	SM 7500-Ra	Quarterly
Gross Alpha particle (excluding radon and uranium)	pCi/L	SM 7110	Quarterly
Uranium	pCi/L	200.8	Quarterly
Constituents of Concern			
Lithium	mg/L	200.7	Quarterly
Strontium	mg/L	200.7	Quarterly
Iron	mg/L	200.8	Quarterly
Manganese	mg/L	200.8	Quarterly
Antimony	mg/L	200.8	Quarterly
Arsenic	mg/L	200.8	Quarterly
Barium	mg/L	200.8	Quarterly
Beryllium	mg/L	200.8	Quarterly
Cadmium	mg/L	200.8	Quarterly
Chromium (total)	mg/L	200.8	Quarterly
Chromium (hexavalent)	mg/L	7196A	Quarterly
Cobalt	mg/L	200.8	Quarterly
Copper	mg/L	200.8	Quarterly
Lead	mg/L	200.8	Quarterly
Mercury	mg/L	7470A	Quarterly
Molybdenum	mg/L	200.8	Quarterly
Nickel	mg/L	200.8	Quarterly
Selenium	mg/L	200.8	Quarterly
Silver	mg/L	200.8	Quarterly
Thallium	mg/L	200.8	Quarterly
Vanadium	mg/L	200.8	Quarterly
Zinc	mg/L	200.8	Quarterly
Oil Production and Process Chemicals and Additives[8]	µg/L	As Appropriate[9]	Quarterly

[1] Degrees Fahrenheit
[2] Micromhos per centimeter
[3] Milligrams per liter
[4] Polycyclic aromatic hydrocarbons
[5] Micrograms per liter
[6] Picocuries per liter
[7] Standard Methods
[8] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[9] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Assistant Executive Officer

Table II-Water Supply Well Monitoring

Parameters	Units	US EPA or other Method	Reporting Frequency
Groundwater Elevation	feet & hundredths, MSL[1]		Quarterly
Field Parameters			
Temperature	°F[2]	Meter	Quarterly
Electrical Conductivity	µmhos/cm[3]	Meter	Quarterly
pH	pH units	Meter	Quarterly
Monitoring Parameters			
Total Dissolved Solids (TDS)	mg/L[4]	160.1	Quarterly
Total Organic Carbon (TOC)	mg/L	415.3	Quarterly
Electrical Conductivity	µmhos/cm	2510B	Quarterly
Boron, dissolved	mg/L	6010B	Quarterly
Standard Minerals			
Alkalinity as CaCO3	mg/L	310.1	Quarterly
Bicarbonate Alkalinity as CaCO3	mg/L	310.1	Quarterly
Carbonate Alkalinity as CaCO3	mg/L	310.1	Quarterly
Hydroxide Alkalinity as CaCO3	mg/L	310.1	Quarterly
Sulfate, dissolved	mg/L	300.0	Quarterly
Nitrate-N, dissolved	mg/L	300.0	Quarterly
Calcium, dissolved	mg/L	6010B	Quarterly
Magnesium, dissolved	mg/L	6010B	Quarterly
Sodium, dissolved	mg/L	6010B	Quarterly
Potassium	mg/L	6010B	Quarterly
Chloride	mg/L	300.0	Quarterly
PAHs[5]	µg/L[6]	8270	Quarterly
Total Petroleum Hydrocarbons (TPH)	µg/L	418.1	Quarterly
Volatile Organic Compounds			
Full Scan	µg/L	8260B	Quarterly
Oil and Grease	mg/L	1664A	Quarterly
Stable Isotopes			
Oxygen (^{18}O)	pCi/L[7]	900.0	Quarterly
Deuterium (Hydrogen 2, ^{2}H, or D)	pCi/L	900.0	Quarterly
Radionuclides			
Radium-226	pCi/L	SM[8] 7500-Ra	Quarterly

Table II-Water Supply Well Monitoring

Parameters	Units	US EPA or other Method	Reporting Frequency
Radium-228	pCi/L	SM 7500-Ra	Quarterly
Gross Alpha particle (excluding radon and uranium)	pCi/L	SM 7110	Quarterly
Constituents of Concern			
Lithium	mg/L	200.7	Quarterly
Strontium	mg/L	200.7	Quarterly
Iron	mg/L	200.8	Quarterly
Manganese	mg/L	200.8	Quarterly
Antimony	mg/L	200.8	Quarterly
Arsenic	mg/L	200.8	Quarterly
Barium	mg/L	200.8	Quarterly
Beryllium	mg/L	200.8	Quarterly
Cadmium	mg/L	200.8	Quarterly
Chromium (total)	mg/L	200.8	Quarterly
Chromium (hexavalent)	mg/L	7196A	Quarterly
Cobalt	mg/L	200.8	Quarterly
Copper	mg/L	200.8	Quarterly
Lead	mg/L	200.8	Quarterly
Mercury	mg/L	7470A	Quarterly
Molybdenum	mg/L	200.8	Quarterly
Nickel	mg/L	200.8	Quarterly
Selenium	mg/L	200.8	Quarterly
Silver	mg/L	200.8	Quarterly
Thallium	mg/L	200.8	Quarterly
Vanadium	mg/L	200.8	Quarterly
Zinc	mg/L	200.8	Quarterly
Oil Production and Process Chemicals and Additives[9]	µg/L	As Appropriate[10]	Quarterly

[1] Mean Sea Level
[2] Degrees Fahrenheit
[3] Micromhos per centimeter
[4] Milligrams per liter
[5] Polycyclic aromatic hydrocarbons
[6] Micrograms per liter
[7] Picocuries per liter
[8] Standard Methods
[9] The Discharger shall provide analytical results for all chemicals and additives used in the exploration, production, and/or processing of all oil and the treatment of produced wastewater discharged to land (e.g., ponds, roads, etc.) as described under the Chemical and Additive Monitoring section of the MRP for which there are ELAP approved analyses. For those constituents for which there are not ELAP approved analytical methods, the Discharger shall submit a technical report describing how it intends to address this issue.
[10] Appropriate analytical methods may be proposed by the Discharger but are subject to the approval of the Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2017-0036
INFORMATION SHEET

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR
OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER THREE

ELIGIBILITY

This Information Sheet provides information to support the findings and requirements contained in Waste Discharge Requirements General Order No. R5-2017-0036, General Order No. 3 (hereafter, General Order). This General Order regulates discharges of produced wastewater and other discharges from oil production facilities to land within the Tulare Lake Basin of the Central Valley Region where:

1. Discharges exceed the maximum salinity limits of the *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised January 2015* (with Approved Amendments) (Basin Plan). These salinity limits are discussed in more detail below.

2. The first encountered groundwater is of poor quality or there is no first encountered groundwater.

3. The first encountered groundwater does not support beneficial uses as identified in Basin Plan as Municipal and Domestic Supply (MUN), or Agricultural Supply (AGR), Industrial Service Supply (IND), or Industrial Process Supply (PRO).

4. Discharge of wastewater to land began prior to **26 November 2014.**

BACKGROUND

California ranks third in the U.S. in oil production. Based on 2014 data, approximately 74 percent of California's production occurs within the Central Valley. In most oil fields in California, the oil is comingled with formation water. This means that large quantities of water are extracted with the oil. Within the Central Valley, approximately 16 barrels of water are produced with each barrel of oil. Oil and gas production facilities separate the water from the oil. This separated water is called produced wastewater.

Many oil and gas production facilities within the Central Valley share many similarities. Facility components can include production wells, enhanced oil recovery wells, networks of pipelines, gas separators and dehydrators, oil and water separation units of various configurations and types (e.g. tank batteries, induced gas or air flotation tanks commonly referred to as WEMCOs), storage units, produced wastewater treatment systems, and disposal systems that can include evaporation and percolation ponds or "ponds." In some operations, produced wastewater is disposed of through Class II underground injection wells permitted and regulated by California

Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR). In some 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. This type of reuse is 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 include oil field dust control and to aid in compaction on oil field construction projects. Sludge and solids removed from tanks are commonly mixed with soil and used to asphalt roads within the oil fields. This General Order includes specific requirements to regulate these discharges, with the exception of reuse for agricultural supplies, and ensure they do not cause pollution or nuisance conditions.

Beginning in May 2014, the Central Valley Water Board began an effort to re-evaluate its Oil Field Program with respect to discharges to ponds. Central Valley Water Board staff identified and inspected oil field production facilities with ponds. Staff found that there are approximately 326 facilities with 1100 ponds that receive produced wastewater. Approximately 241 facilities are discharging to ponds without waste discharge requirements. Approximately 85 facilities are discharging to ponds under WDRs that are twenty years old or older.

In response to the re-evaluation, Central Valley Water Board staff has issued various information and enforcement orders requiring those discharging without WDRs and those discharging under old WDRs to characterize their discharge practices and to provide information to support ongoing discharges, if feasible.

RATIONALE FOR ISSUING A GENERAL ORDER AND OTHER CONSIDERATIONS

Water Code section 13263(i) describes the criteria that the Central Valley Water Board must use to determine whether a group of facilities should be regulated under a general order (as opposed to individual orders). These criteria include:

1. The discharges are produced by the same or similar types of operations,
2. The discharges involve the same or similar types of wastes,
3. The discharges require the same or similar treatment standards, and
4. The discharges are more appropriately regulated under general WDRs rather than individual WDRs.

The discharges that can be covered under this General Order meet the above listed requirements of 13263(i).

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.

Pursuant to Water Code sections 13241 and 13263, the Central Valley Water Board, in establishing the requirements contained in this General Order, 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.

This General Order applies to discharges where the first encountered groundwater is of such poor quality that it cannot support beneficial uses or there is no encountered groundwater. Therefore, this General Order does not require groundwater monitoring. The General Order does include a time schedule for Dischargers to demonstrate there is no groundwater in the area of their facilities or the groundwater that is present does not support beneficial uses, and to obtain appropriate Basin Plan amendments removing any designated beneficial uses. During the NOI process, Dischargers must demonstrate with appropriate technical information that coverage under this General Order is appropriate and that they can be successful in obtaining the required Basin Plan amendments. The Basin Plan amendment process requires the compilation and presentation of detailed technical information supporting the de-designation of beneficial uses and requires Discharger participation in CV-SALTS. Dischargers in close proximity to each other and with similar hydrogeological conditions are encouraged to participate in regional or group efforts to collect the necessary information.

APPLICATION PROCESS

Dischargers seeking coverage under the General Order are required to file a Notice of Intent (NOI) within 30 days of the adoption of the General Order. This process is different from application process for an individual permit where the Report of Waste Discharge is filed (RWD).

A NOI includes the following:

1. A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. An application fee. Discharger's not operating under waste discharge requirements (WDRs) must submit an application fee that serves as the first annual fee. The fee is 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. A technical report. The technical report must describe the wastewater generation, treatment, storage, reuse and disposal activities. The technical report must be prepared by a California registered civil engineer or engineering geologist. Attachment B to the General Order, *Information Needs Sheet* describes the information to be included in the technical report. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

The NOI for an oil and gas production facility seeking coverage under this General Order shall document the existing operations, which is defined as the actual maximum monthly average produced wastewater discharge flow to ponds that occurred in the ten years immediately to 26 November 2014.

After Central Valley Water Board staff review the NOI, they will determine the appropriate TTWQ and CPLX rating of the discharge, and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing Notice of Applicability (NOA). Coverage under the General Order will commence upon issuance of the NOA. The NOA will describe appropriate monitoring and reporting requirements.

APPLICABLE REGULATIONS, PLANS, AND POLICIES

Water Quality Control Plans

The Basin Plan designates the beneficial uses of groundwater and surface waters within the Basin and specifies water quality objectives to protect those uses, and includes implementation plans for achieving water quality objectives. The Basin Plan also incorporates, by reference, plans and policies of the State Water Board. The requirements of the General Order are designed to ensure that discharges authorized therein comply with the Basin Plan.

Beneficial Uses of Surface Water and Groundwater

The beneficial uses of surface water, as identified in the Basin Plan, may include: municipal and domestic supply (MUN); agricultural supply (AGR); industrial process supply (IND); industrial service supply (PRO); hydro-power generation (POW); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning reproduction and/or early development (SPWN); wildlife habitat (WILD); navigation (NAV); rare, threatened, or endangered species (RARE); groundwater recharge (GRW); freshwater replenishment (FRSH); aquaculture (AQUA); and preservation of biological habitats of special significance (BIOL). Basin Plan Table II-1 (Page II-4) lists the surface water bodies of the Tulare Lake Basin and the designated beneficial uses of those specific surface water bodies. Where surface water bodies are not listed, the Basin Plan designates beneficial uses based on the waters to which they are tributary.

The Basin Plan identifies the beneficial uses of groundwater as MUN, AGR, IND, PRO, REC-1, and WILD. Basin Plan Table II-2 lists specific designated beneficial uses of groundwater within each Detailed Analysis Unit of the Basin. Chapter II of the Basin Plan in Existing and Potential Beneficial Uses states:

> Due to the "Sources of Drinking Water Policy," all ground waters are designated MUN (the use may be existing or potential) unless specifically exempted by the Regional Water Board and approved for exemption by the State Water Board. Ground water areas exempted from MUN are footnoted in Table II-2. In addition, unless otherwise designated by the Regional Water Board, all ground waters in the Region are considered suitable or potentially suitable, at a minimum, for agricultural supply (AGR), industrial supply (IND), and industrial process supply (PRO).

Therefore, in accordance to the Basin Plan Sources of Drinking Water Policy (which is described in detail below), unless beneficial uses are de-designated by the Central Valley Water Board, all groundwaters of the Basin have the designated beneficial use of MUN. All groundwaters are also designated as suitable or potentially suitable for AGR, IND, and PRO use. The current Basin Plan exempts a few limited areas from MUN as described in the Basin Plan Table II-2 footnote.

Consideration of Sources of Drinking Water Policy

The Basin Plan states that pursuant to Sources of Drinking Water Policy (Resolution No. 88-63), all groundwaters of the State are considered to be suitable, or potentially suitable, for municipal or domestic water supply and are so designated by the Central Valley Water Board. When considering exceptions to the MUN beneficial use designation; the Central Valley Water Board will employ the following criteria:

a. The total dissolved solids (TDS) exceeds 3,000 milligrams per liter (mg/L) (5,000 micromhos per centimeter (µmhos/cm) electrical conductivity) and it is not reasonably expected by the Central Valley Water Board to supply a public water system; or

b. There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices; or

c. The aquifer does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day; or

d. The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, section 261.3.

Exceptions to the Sources of Drinking Water Policy are not self-implementing, but must be established in an amendment to the Basin Plan.

The Basin Plan provides for consistency with the Sources of Drinking Water Policy in making exceptions to beneficial use designations other than MUN, parallel to Resolution No. 88-63 exception criteria, as follows:

In making any exceptions to the beneficial use designation of agricultural supply (AGR), the Central Valley Water Board will consider the following criteria:

a. There is pollution, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for agricultural use using either Best Management Practices or best economically achievable treatment practices, or

b. The aquifer does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day, or

c. The aquifer is regulated as a geothermal energy producing source or has been exempted administratively pursuant to 40 CFR, section 146.4 for the purpose of underground injection of fluids associated with the production of hydrocarbon, or geothermal energy, provided that these fluids do not constitute a hazardous waste under 40 CFR, section 261.3.

In making any exceptions to the beneficial use designation of industrial supply (IND or PRO), the Central Valley Water Board will consider the following criteria:

a. There is pollution, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for industrial use using either Best Management Practices or best economically achievable treatment practices, or

b. The aquifer does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

Dischargers authorized under this General Order are those where the natural background groundwater quality meets the Sources of Drinking Water Policy exception criteria and/or parallel to exception criteria outlined above.

The Basin Plan at page i states:

> Basin plans are adopted and amended by regional water boards under a structured process involving full public participation and state environmental review. Basin plans and amendments do not become effective until approved by the State Water Board. Regulatory provisions must be approved by the Office of Administrative Law.

The General Order includes a five year compliance time schedule to de-designate beneficial uses through a structured process, which is further described in this Information Sheet Provisions section.

Water Quality Objectives

Pursuant to Water Code section 13263(a), the General Order must implement the Basin Plan including consideration of the beneficial uses of water, the water quality objectives 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. 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 the 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 Central Valley Water Board considers relevant numerical criteria and guidelines developed and/or published by other agencies and organizations.

Chapter III of the Basin Plan under Water Quality Objectives for groundwater for salinity, states:

> All groundwaters 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 groundwater salinity control the rate of increase.
>
> The maximum average annual increase in salinity measured as electrical conductivity shall not exceed the values specified in Table III-4 for each hydrographic unit shown on [Basin Plan] Figure III-1.

The Basin Plan requires waters designated as MUN to meet the State drinking water maximum contaminant levels (MCLs) specified in Title 22 for primary and secondary standards.

The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Taste and Odors, and Toxicity. The Basin Plan states that when compliance with a narrative objective is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations in order to implement the narrative objective. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria.

Under this General Order, the background groundwater quality is poor and constituents of concern exceed the Basin Plan water quality objectives.

Basin Plan Effluent Limits

The Basin Plan is unique in that it sets specific effluent limits for oil field discharges to land for EC, chloride and boron and even more specific effluent limits for discharges associated with oil field activities. On page IV-15, the Basin Plan specifically states that the maximum salinity limits for wastewaters in unlined sumps overlying groundwater with existing and future probable beneficial uses are as follows:

Constituent	Maximum Limit
EC (µmhos/cm)	1000
Chloride (mg/L)	200
Boron (mg/L)	1

The Basin Plan also includes separate salinity limits for the White Wolf Subarea based on the class of irrigation water underlying the discharge.

The Basin Plan specifically states that discharges of oil field wastewater that exceed the above maximum salinity limits may be permitted to unlined sumps, 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.

The Basin Plan maximum salinity limits do not apply to the discharge of the wastewater to land under this General Order because the groundwater is poor quality, the groundwater exceeds the Basin Plan water quality objectives, and the groundwater does not support existing and future probable beneficial uses.

Oil Field Discharges and Proposed Discharge Limits

The primary waste constituent of concerns (COCs) associated with discharges of waste from oil field facilities include, but are not limited to, electrical conductivity (EC), total dissolved solids, chloride, and boron, some metals (i.e., arsenic), some trace elements (i.e., strontium, thallium, lithium, etc.), petroleum hydrocarbons, PAHs, VOCs, and radionuclides.

With respect to EC, total dissolved solids, chloride, and boron, this General Order authorizes discharges to land that exceed the Basin Plan salinity limits described above since the General Order applies to areas where first encountered groundwater does not exist or if it does exist, it is such poor quality that it does not, and could not be reasonably expected to support designated beneficial uses. In this General Order the discharge of produced wastewater is not allowed to cause groundwater to contain COCs in concentrations that adversely affect the beneficial uses. Therefore, this General Order require “best efforts” approach in implementing reasonable control measures to treat produced wastewater prior to discharge to land. As result, this General Order does not have discharge or effluent limits.

Oil field produced wastewater can also contain metals exceeding MCLs, and particularly arsenic at levels exceeding the MCL of 10 µg/L. Whether those metals pose a threat to groundwater quality and designated beneficial uses depends on many factors including, but not limited to,

discharge concentrations, discharge volumes, depth to groundwater, soil types and hydrogeology underlying the discharge location, and natural groundwater quality. Generally, most metals associated with oil field produced water discharges are relatively immobile in the alkaline soils associated with most areas of the Central Valley and are expected to attenuate as they percolate with produced water through the soil profile.

Specifically with respect to arsenic, studies conducted within the Central Valley indicate that arsenic migration to groundwater that would cause exceedances of water quality objectives is unlikely. Kennedy Jenks Consultants completed an arsenic soil-adsorption removal study using soil samples collected from the Famoso Basins in Famoso area in 2011. The results were included in a technical report titled, *Cawelo Water District Famoso Basins Antidegradation Analysis*. The results indicate that the arsenic associated with the discharges up to 120 µg/L will attenuate in the underlying soils and not adversely impact underlying groundwater. Similarly, other studies show that soil can remove significant amounts of arsenic.
Given the above information, this General Order does not include effluent limits for metals associated with discharges to land at this time.

Oil naturally contains numerous organic compounds including BTEX and PAHs. It is the goal of the industry to separate these compounds from the produced wastewater in which they are entrained. Some organic chemicals may be added to oil wells, to separation processes, or to treatment systems to enhance recovery efficiencies and final produced wastewater quality.

Generally, heavier organic compounds associated with oil production do not move readily through the soil and do not pose a significant threat to groundwater. It has also been well-documented in the literature, including a study published by the Lawrence Livermore National Laboratory in 1995 and several reports generated by the State Water Resources Control Board, that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater. The biodegradation of petroleum, in particular, distinguishes petroleum products from other hazardous substances commonly found at commercial and industrial sites.

The limited existing data for produced wastewater discharges that can be directly compared with groundwater monitoring results support the notion that organics associated with petroleum production will not migrate to underlying groundwater in concentrations that exceed water quality objectives.

For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for organic chemicals at this time.

Some geologic formations contain naturally occurring radionuclides. Radium-226 and radium-228, gross alpha- particle activity, uranium have been detected in produced water in concentrations exceeding the primary MCLs. These detections have been limited to specific oil fields. Much like metals discussed above, these constituents don't generally move readily through soils and their threat to groundwater quality will vary based on site specific hydrogeology. For these reasons, Central Valley Water Board staff does not recommend specific produced wastewater discharge limits to ponds for radionuclides at this time.

As water quality data for produced wastewater and groundwater become available, the Central Valley Water Board staff will be evaluating the data for COCs and will update this General Order to include additional discharge limits if necessary to be protective of the future beneficial uses of the groundwater.

Title 27 of the California Code of Regulations

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. 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.

* * *

Therefore, the discharge authorized in this General Order is exempt from the requirements of Title 27 in accordance with Title 27, sections 20090(b) because: 1) The Central Valley Water Board is issuing general WDRs; 2) The discharge is in compliance with the Basin Plan, and; 3) The treated waste discharged to the pond(s) does not need to be managed as hazardous waste.

***Resolution 68-16* (State Antidegradation Policy) and Basin Plan Amendments**

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), 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. Resolution 68-16 does not apply to waters that are not high quality. The “best efforts” approach is considered where a water body is “poor quality.”

This General Order applies to areas where first encountered groundwater does not exist (e.g., it is petroleum or hydrocarbon producing only) or, if it does exist, it is such poor quality that it does not, and could not, be reasonably expected to support beneficial uses. Accordingly, the State Antidegradation Policy does not apply to this General Order, and the “best efforts” approach is considered to minimize the natural background groundwater quality degradation and to

implement reasonable waste discharge treatments to land. (*E.g.*, State Water Board Order WQ 86-5, at p. 7 (*City of Corona*); State Water Board Order No. WQ 81-5, at pp. 6-7 (*City of Lompoc*)). The "best efforts" approach involves implementation of reasonable control measures to treat produced wastewater prior to discharge to land. The factors analyzed under the "best efforts" approach include the water quality achieved by other similarly-situated Dischargers, the good faith efforts of the Discharger to limit the discharge of COCs, and the measures necessary to achieve compliance.

The primary waste constituents of concerns due to discharges of waste from oil field facilities with respect to surface waters and groundwater are in general elevated concentrations of general minerals (especially total dissolved solids 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.

As described in the Beneficial Uses of Surface Water and Groundwater section above, the Basin Plan applies MUN to all groundwater where it is not specifically de-designated. The Basin Plan also states that unless otherwise designated by the Regional Water Board, all groundwaters in the Region are considered suitable or potentially suitable for AGR, IND, and PRO. Hydrogeological conditions, particularly in the oil fields on the west side of the Central Valley, have resulted in areas where first encountered groundwater is petroleum or hydrocarbon producing and/or is of such poor quality that it cannot reasonably be expected to be used, now or in the future, for the Basin Plan assigned beneficial uses, even with the implementation of best management practices or best economically achievable treatment practices. Under these circumstances, Dischargers are expected to apply "best efforts" to minimize water quality degradation and prevent conditions of nuisance. Also, under these circumstances, Dischargers may be able to obtain amendments to the Basin Plan that de-designate the beneficial uses that cannot reasonably be achieved.

This General Order puts the Discharger on a five year compliance schedule (Provision E.4.b of the General Order) to obtain an amendment or amendments to the Basin plan to de-designate the beneficial uses of MUN, AGR, IND, or PRO as appropriate. The compliance time schedule requires the Discharger to demonstrate, in the case of MUN, that its discharges will meet the Sources of Drinking Water Policy exception criteria, or in the case of AGR, IND, and PRO, parallel criteria. The compliance schedule also requires the Discharger to demonstrate, where it can meet the above criteria that its discharges will not migrate from the areas where the beneficial uses will be de-designated to areas of higher quality groundwater; it must demonstrate containment. The compliance schedule may be extended by up to two years by the Executive Officer if, through no fault of the Discharger, the process is delayed.

The General Order compliance time schedule requires the Discharger to cease discharge if it is unable to obtain the amendments to the Basin Plan by the end of the compliance schedule.

The General Order has another option (Provision E. 4.a) for Dischargers where their production facility discharges to land have no underlying first encountered groundwater. Where Dischargers can demonstrate through an appropriate hydrogeological investigation that groundwater does not exist and discharges of produced wastewater and other wastes to land

will not migrate into areas where groundwater does exist, Basin Plan amendments are not required. The General Order will regulate these discharges to confirm the results of the hydrogeological investigation, protect surface waters and surface water drainages, and to prevent the creation of nuisance conditions. The details of this provision are described below in Provisions section of this Information Sheet.

Verifying that the "best efforts" is implemented

The primary method used to determine the appropriateness of this General Order and whether Dischargers are implementing best efforts are the requirements to submit technical information through the NOI process and the Basin Plan amendment process and the monitoring required by Monitoring and Reporting Program No. R5-2017-0036 (MRP).

The MRP requires oil field operators to sample municipal or domestic water supply wells within one-mile radius of ponds that receive produced wastewater or other authorized discharges. The purpose of requiring monitoring of water supply wells includes identifying the quality and trends of water being used near or within the oil field.

This General Order requires the Discharger to report any noncompliance with the Prohibitions of the General Order as soon as becoming aware of its occurrence and to confirm in writing within two weeks of when it became aware of the noncompliance. This General Order and its application process requires the Discharger to submit annual monitoring reports in a tabular form for all the effluent and domestic water supply well data, if applicable.

California Environmental Quality Act

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 CEQA Guidelines also contemplate that physical conditions at other points in time may also constitute the appropriate baseline. (*Cherry Valley Pass Acres and Neighbors v. City of Beaumont* (2010) 190 Cal. App. 4th 316, 336.)

The receipt of a permit application (report of waste discharge) is an event that can be used to mark the beginning of the environmental review process because it commences the development of an individual permit. Therefore, the date a permit application is received is appropriate for the environmental baseline. (*Fat v. County of Sacramento* (2002) 97 Cal.App.4th 1270, 1278.) In the case of general permits, the permit development process begins when a permitting authority identifies the need for a general permit and collects data that demonstrate that a group or category of facilities has similarities that warrant a general permit.

The Central Valley Water Board began developing this General Order in 2015 with the issuance of Notices of Violation and other orders requiring owners/operators without WDRs to submit RWDs. However, a rigid date for establishing the environmental baseline is not suitable for this General Order because oil and gas production has fluctuated over the last decade due to varying economic conditions. Accordingly, the environmental baseline is based on the actual

maximum monthly average produced wastewater discharge flow to ponds during the 10 years prior to 26 November 2014.

The adoption of this General Order, which prescribes regulatory requirements for existing facilities in order to ensure the protection of groundwater resources, is exempt from the requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.) based on the following three categorical exemptions:

1. California Code of Regulations, title 14, section 15301 exempts the "operation, repair, maintenance, [and] permitting … of existing public or private structures, facilities, mechanical equipment, or topographical features" from environmental review. The General Order is exempt from environmental review because it is permitting existing facilities. Only oil field facilities that were discharging produced wastewater prior to 26 November 2014 and their existing operations as described in the NOI are eligible to enroll in the General Order. The General Order does not authorize any increase in flow beyond the existing operations, which is considered the actual maximum monthly average produced wastewater discharge flow to ponds during the 10 years immediately prior to 26 November 2014.

2. 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."

3. 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 and its NOI application process impose requirements for facilities with poor wastewater effluent quality overlying first encountered groundwater with poor qualities with no current and future beneficial uses or there is no first encountered groundwater. The Central Valley Water Board staff also is drafting additional general orders to cover area where groundwater quality conditions support current and future beneficial uses.

Central Valley Salinity Alternatives for Long-Term Sustainability

The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has the goal of developing sustainable solutions to the increasing salt and nitrate concentrations that threaten achievement of water quality objectives in Central Valley surface waters and groundwaters. The General Order requires actions that will implement "best efforts" and improve management practices to minimize degradation of groundwater for COCs. The General Order requires Basin Plan amendment through a compliance schedule to de-designate beneficial uses of groundwater for MUN, AGR, IND, or PRO where there is no existing or future beneficial use. The Central Valley Water Board intends to coordinate all such actions through the CV-SALTS initiative and will require Dischargers participation. CV-SALTS may identify additional actions that need to be taken by existing wastewater production facility and others to address Basin Plan amendment. The General Order may also be amended in the future to implement any

policies or requirements established by the Central Valley Water Board as a result of the CV-SALTS process.

REQUIREMENTS OF THE GENERAL ORDER

The following describes Prohibitions, Discharge Specifications, Groundwater Limitations, Solids Disposal Specifications, and Provisions are intended to protect the quality of surface water and groundwater.

Prohibitions

Dischargers wishing to obtain coverage under this General Order must submit NOI to comply with the requirements of the General Order. The NOI must contain a detailed description of all discharges that will be regulated under the General Order. The General Order prohibits discharges, other than those described in the NOI and approved in a NOA.

The discharge of waste other than produced wastewater from production wells to pond(s) is prohibited unless the Executive Officer approves the discharge in accordance with an appropriate management plan outlined in the Provisions section of the General Order and this Information Sheet.

Storm water that comes into contact with residual oil, produced wastewater, or oil field wastes may contain pollutants. This General Order prohibits the discharge of any wastes to surface waters or surface water drainages.

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. The General Order also contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids. A three-year time schedule is provided for the Discharger to either a) develop an alternate disposal method or b) demonstrate that the produced wastewater does not contain well stimulation treatment fluids in concentrations that could adversely affect beneficial uses of waters. Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced wastewater to land, a time schedule is necessary to allow the Discharger time to marshal funding, develop and complete appropriate studies, and to implement appropriate compliance options.

The General Order strictly prohibits the discharge of hazardous wastes.

To ensure that all wastes are properly treated and contained, the General Order prohibits the bypass of treatment and the discharges related to overflow of ponds.

Operation or discharge of produced wastewater to ponds that could impact nearby water supply wells is prohibited in the General Order unless the Discharger can demonstrate that there will be no impact to the municipal or domestic water supply well.

The General Order prohibits the collection, treatment, discharge or disposal of wastes that could result in the creation of nuisance or pollution conditions.

Discharge Specifications

The General Order requires the Discharger to achieve compliance in accordance with the time schedules in Provision E.4 of the General Order for Basin Plan amendment. The compliance time schedule requirements are described in Provisions section of this Information Sheet as Tasks one through eleven.

The discharge flow for coverage under the General Order must not exceed actual maximum monthly average produced wastewater flow to pond between 26 November 2004 and 26 November 2014. The discharge flow also must not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI.

The General Order requires the discharge remain within the permitted waste treatment/containment/disposal structures at all times, or in case of emergency within secondary containment structures.

Ponds are required to operate and to maintain in a manner that will prevent wastes from concentrating to hazardous levels.

Ponds are required to be free of oil or be netted to preclude the entry of wildlife (CCR, title 14, section 1778 (d)).

The General Order restricts the public contact with wastes to such means as fences or other acceptable alternatives (CCR, title 14, section 1770 (b) through (b)(4)).

The General Order requires all the conveyance, treatment, storage, and disposal systems including ponds, tank batteries, and other components of oil and gas production wastewater discharge facility, to be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency. By 1 October of each year the available capacity in ponds is required to be sufficient to capture seasonal precipitation and production facility wastewater design flows.

The General Order clarifies that discharges to secondary containment units are to be due to emergency events that are beyond the control of facility operators and that the discharges to the secondary containment are short term, of limited duration, and cleaned up. Intermittent discharges that are of longer duration or more frequent would allow wastes to percolate and migrate below the bottoms of the containment unit ponds and threaten groundwater. Secondary containment structures used in this fashion would require regulation by the Central Valley Water Board. The General Order also proscribes discharges of storm water containing pollutants from secondary containment to waters of the state (both surface and groundwaters) and waters of the United States. Discharges of storm water containing pollutants to such waters would require regulation under waste discharge requirements or a National Pollutant Discharge Elimination Permit.

The Discharger is required to operate and maintain all ponds with two feet of freeboard using a staff gauge unless a California registered civil engineer certifies that the operation of ponds less than two feet is adequate and will not impact the integrity of the ponds.

The General Order requires the ponds and containment structures be managed and operated to prevent breeding of vectors. Specifically ponds must be managed to minimize the accumulation of dead algae, vegetation, and debris on the pond surface; minimize growth of weeds and vegetation; and control pond erosion to limit vector breeding sites.

The General Order requires newly reconstructed or rehabilitated berms or levees (excluding internal berms that separate ponds or control the flow of water within a pond) be designed and constructed under the supervision of a California registered civil engineer. A post construction report by the registered civil engineer that oversaw construction is required to be submitted within 60 days of completion of construction and certification that the berms and/or levees were constructed in accordance with design specifications and are suitable for the retention of wastewater.

The General Order also allows the Discharger to use the produced wastewater generated from the production facility wells for dust control and construction activities as long as it is consistent with an approved management plan. The application rates are limited to those that are reasonable rates to preclude creation of a nuisance conditions and unreasonable degradation of groundwater. Applied wastewater shall not be allowed to pond onsite or runoff from the site.

The General Order requires the Dischargers to implement water quality management practices based on “best efforts,” as necessary, to protect water quality and to minimize groundwater degradation.

Groundwater Water Limitations

The General Order proscribes the discharges of produced wastewater from causing the underlying groundwater to contain any constituents in concentrations that adversely affect beneficial uses of the groundwater.

Solids Disposal Specifications

The General Order defines oil field solids as the solid, semisolid, and liquid residues removed from treatment processes or accumulated in tanks, ponds, or other facility components. The General Order requires any handling and storage of solids to be controlled in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soil in a mass or concentration that will violate the groundwater limitations of the General Order.

The General Order requires solids removed from the facility to be managed and disposed of in a manner consistent with solids management plan approved by the Executive Officer. The removal of solids for reuse plans as road mix is restricted to within the lease area.

The General Order also requires for solids to be tested prior to use as a road mix and show to be non-hazardous. Any proposed changes in solids use or disposal practices are required to

be reported in writing to the Executive Officer at least 90 days in advance of the change and be pre-approved by the Executive Officer.

Provisions

The General Order requires compliance with the applicable sections of "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991 (Standard Provisions) and compliance with MRP. During application process, the NOAs issued will delineate the Standard Provisions that are applicable.

The General Order also requires the Discharger to certify that it has installed an acceptable flow meter. An engineered alternative to a flow meter may be used if approved in writing by the Executive Officer.

Once the NOA is issued, the General Order, in Provision E.4, provides two options for the Discharger. The first option, (Provision E.4.a.) would be exercised when there is no groundwater beneath the Facility. The Discharger would provide the results of a hydrogeological investigation demonstrating that there is no groundwater beneath facility discharge areas and that produced wastewater and constituents associated with other approved wastes discharged at the Facility would not migrate into groundwater with designated beneficial uses. Upon the written concurrence of the investigation results by the Executive Officer, this provision would be considered satisfied.

The second option (Provision E.4.b.) would be exercised when there is underlying groundwater beneath the Facility. The Discharger would demonstrate that the natural background groundwater quality would meet the Sources of Drinking Water Policy exception criteria and would obtain an appropriate Basin Plan amendment to de-designate the beneficial uses of groundwater. The Discharger would be required to complete a Basin Plan amendment by completing the following tasks in a five-year compliance schedule:

1. Participate in the CV-SALTS Group to facilitate the Basin Plan Amendment (BPA) process under the Salt and Nutrient Management Plan.

2. Develop an outline of a BPA Work Plan for CV-SALTS Technical Advisory Committee review and comment prior to submittal to the Central Valley Water Board staff for evaluation of the de-designation of Basin Plan beneficial uses of the groundwater. The Work Plan shall include:

    a. Consideration of Sources of Drinking Water Policy and applicable exemption criteria for MUN and applicable parallel criteria for exemption of AGR, IND, and PRO;
    b. Consideration of available data or how the data will be collected to evaluate and support the exemption criteria; and
    c. An outline of a draft proposal to de-designate the Basin Plan beneficial uses that are not applicable under the area of consideration.

3. Central Valley Water Board staff shall review and consider for approval the outline of BPA Work Plan.

4. Work with Central Valley Water Board staff to develop a Work Plan describing BPA tasks that will be completed and deliverables that will be produced to support the de-designation of the Basin Plan beneficial uses of the groundwater under consideration. The BPA tasks and resulting deliverables shall include but are not limited to:

    a. Delineation of the horizontal and vertical extent of the sub-basin or subject area under consideration,
    b. A summary of available data and analyses for each beneficial use proposed for de-designation,
    c. Maps, geologic cross sections, well and water quality data and any other information that are supportive of de-designation,
    d. A description of additional data or studies required to fill in any data gaps and support de-designation,
    e. A final proposed BPA Work Plan to accomplish above tasks a-d, and
    f. The development of a final technical report that compiles all the information developed in tasks a-e.

5. Central Valley Water Board staff shall review and consider for approval the final BPA Work Plan and proposed deliverables.

6. Implement final Work Plan and submit the final technical report to the Central Valley Water Board. The Discharger shall provide quarterly progress reports.

7. Central Valley Water Board staff will evaluate the final technical report and provide written directions to the Discharger for completing the:

    a. CEQA scoping process for the BPA,
    b. Developing a draft staff report for the Central Valley Water Board, and
    c. Preparing a final staff report for the Central Valley Water Board.

8. The Central Water Board and Discharger shall implement BPA Process including:

    a. Stakeholder Participation-Public review of final draft of staff report,
    b. Peer Review Process-Request peer reviewers to provide comments for final staff report,
    c. Administrative Records-Preparing record keeping tasks and staff review and comments on deliverables,
    d. Progress Reports-Providing periodic presentation/reports to the Board and the public on the progress of BPA and deliverables.
    e. Final Central Valley Water Board approval-Provide a presentation of final report to the Board for consideration, and
    f. Finalize Administrative Records and submit to State Water Board for consideration.

9. State Water Board to consider Central Valley Water Board adopted Basin Plan Amendment(s).

10. Office of Administrative Law review and approval of adopted Basin Plan Amendment(s).

11. If Basin Plan Amendments are not secured by the compliance date in Task 10 above, the discharges at the Facility shall cease and the Discharger shall submit a Report of Waste Discharge for closure/post closure waste discharge requirements.

The Executive Officer would be able to extend the due dates of Tasks 1 through 10 if the Discharger is making acceptable progress and misses a due date through no fault of its own. When proposing Basin Plan amendment, there is no guarantee that it would be approved. The science would have to support the amendment.

The General Order authorizes discharge of waste from oil field activities other than produced wastewater from production wells if the Discharger can demonstrate through appropriate water quality data and analysis that the discharge does not pose a threat to beneficial uses of the groundwater. The General Order also requires prior approval of these oil field related discharges to ponds by the Executive Officer.

The General Order allows the application of produced wastewater for dust control or construction activities at the production facility if it is consistent with a management plan approved by the Executive Officer. The management plan would need to contain: a) data characterizing the quality of the produced wastewater that would be applied; b) proposed application/use methods, application rates, and proposed frequencies of application; c) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; d) proposed constituent loading rates; e) a list of all management practices to be implemented to ensure produced wastewater does not migrate from proposed application areas; 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 General Order requires Dischargers to submit a solids management plan for approval of the Executive Officer at least 180 days prior to any solids reuse. For Dischargers already reusing solids for road mix the General Order requires submittal of a solids management plan for approval by the Executive Officer within 60 days of receipt of the NOA for the Facility. The solids management plan shall include a complete characterization of the quality and quantity of the solids. For reuse of solids as road mix within the lease area, the solids management plan must contain: 1) a demonstration that the solids are not hazardous as defined by CCR, title 22, section 66261.1 et seq.; 2) a scaled aerial photograph showing the leases proposed application areas with identified roads, ponds, production treatment facility, surface waters, and surface water drainages; 3) proposed constituent loading rates; 4) a list of all management practices that will be implemented to ensure wastes will remain where processed and applied and will not migrate from the site; and 5) 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. Reuse of solids must not commence prior to obtaining the written approval of the solids management plan from the Executive Officer.

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

How Will the Board Evaluate the Effectiveness of Discharge Practices?

The General Order requires monitoring of all activities that result in discharges to land. Specifically, the MRP requires:

- Extensive produced wastewater discharge monitoring
- Pond and facility monitoring
- Solids monitoring
- Hydrogeological evaluation of the discharge facility, if applicable
- Annual reporting
- Noncompliance reporting
- Spill and release reporting

The monitoring will be reviewed and evaluated to determine compliance with the General Order. Discharges that do not comply with the requirements of the General Order would be subject to enforcement under the provisions of the California Water Code. The MRP can be modified if the Discharger provides sufficient data to support the proposed changes. Any modification of the MRP must be reviewed and approved by the Executive Officer.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT A

DEFINITION OF TERMS
FOR
ORDER R5-2017-0036

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER THREE

1. **Degradation** - Any measurable adverse change in water quality.

2. **Existing Operations** - The actual maximum monthly average produced wastewater discharged to land (e.g., pond) that occurred between 26 November 2004 to 26 November 2014 and does not exceed maximum design flow of the Facility approved during NOI process.

3. **Expansion** - Any activity that results in an increase in the volume of wastes or mass of wastes discharged to land (Also, see Standard Provisions sections A.3 and A.4).

   "Expansion" does not include installation or modification of the Facility or equipment to achieve compliance with the requirements of this General Order so long as the modification or installation is sized to accommodate only the existing Facility flows.

4. **Field or Oil Field** - CCR title 14, section 1741(d) defines Field as "the same general surface area which is underlaid or reasonably appears to be underlaid by one or more pools."

   Also, CCR title 14, section 1760(f) defines Field as "the general surface area that is underlain or reasonably appears to be underlain by an underground accumulation of crude oil or natural gas, or both. The surface area is delineated by the administrative boundaries shown on maps maintained by the [State Oil and Gas] Supervisor."

5. **Flowline** - CCR title 14, section 1760(g) defines Flowline as "any pipeline that connects a well with a gathering line or header."

6. **Freeboard** - Elevation difference between the produced wastewater (liquid) level in a pond and the lowest point of the pond embankment before wastewater can overflow.

7. **Hazardous Waste** - See definition in CCR, title 22, section 66261.3.

8. **High Quality Water** - Waters where a constituent is found at concentrations lower than the applicable water quality objective, are considered “high quality waters” under the antidegradation policy. It is important to note that water can still be considered a high quality water even when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.

9. **Operator** - CCR title 14, section 1741(j) defines as “any person drilling, maintaining, operating, pumping, or in control of any well.”

10. **Overflow** - The intentional or unintentional discharge from the Production Facility that is not authorized by this General Order.

11. **Pond** - Also referred to as “Surface Impoundment,” is any earthen structure, which may be lined/or unlined, used for the separation, treatment, storage, and/or disposal of produced wastewater. Oil and Gas Production Facility components that are not required to obtain coverage under the General Order are those that meet all of the following requirements:

    a. small in size or volumes of produced wastewater received,
    b. properly engineered and constructed to eliminate percolation (e.g., re-enforced concrete or other appropriately engineered liner),
    c. operated to contain liquid for short periods of time, and
    d. subject to proper ongoing operation and maintenance.

12. **Produced Wastewater or Wastewater** - The General Order refers to the water that is produced with production fluid from a production well as “wastewater,” which is commonly referred to as “produced water” in the oil industry. The General Order also uses the term “effluent” (after treatment).

    CCR title 14, section 1760(r) defines “waste water,” as “produced water that after being separated from the produced oil may be of such quality that discharge requirements need to be set by a California Regional Water Quality Control Board.”

13. **Production Facility** - Also referred to as Facility. CCR title 14, section 1760(k) defines Production Facility as “any equipment attendant to oil and gas production

or injection operations including, but not limited to, tanks, flowlines, headers, gathering lines, wellheads, heater treaters, pumps, valves, compressors, injection equipment, production safety systems, separators, manifolds, and pipelines that are not under the jurisdiction of the State Fire Marshal pursuant to section 51010 of the Government Code, excluding fire suppressant equipment." See above for definition of "flowline."

In general, includes all the surface equipment used to transfer, process or treat, or store oil and dispose of produced wastewater originating from production wells.

The term "Facility" includes those operations that collect and dispose of oil field produced wastewater from one or more operators.

14. **Secondary Containment** - An engineered containment used only during operational upsets or failures that are beyond the control of the Facility operator.

CCR title 14, section 1760(n) defines Secondary Containment as "an engineered impoundment, such as a catch basin, which can include natural topographic features, that is designed to capture fluid released from a production facility." CCR title 14, section 1773.1 requires the following conditions:

(a) All production facilities storing and/or processing fluids, except valves, headers, manifolds, pumps, compressors, wellheads, pipelines, flowlines and gathering lines shall have secondary containment.
(b) Secondary containment shall be capable of containing the equivalent volume of liquids from the single piece of equipment with the largest gross capacity within the secondary containment.
(c) Secondary containment shall be capable of confining liquid for a minimum of 72 hours.
(d) When not in use for rain water management, rain water valves on a secondary containment shall be closed and secured to prevent unauthorized use.
(e) All damage to secondary containment shall be repaired immediately.
(f) The requirements of this section are not applicable until six months after the effective date of this regulation.

For the purposes of this General Order, secondary containment does not include structures used to manage produced wastewater or other wastes during periods of routine maintenance or used to address a lack of adequate facility maintenance or treatment capacity or storage.

15. **Solid Wastes** – Viscous liquids, sludges, and solids collected from tank bottoms as oily sand and/or organic sludge waste collected from the surface of ponds are collectively referred to as “solid waste.”

16. **Storm Water** - Storm water runoff, snowmelt runoff, and surface runoff resulting from a storm or precipitation event.

17. **Waste** - Defined in Water Code section 13050(d) where it, “includes sewage and any and all 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 purposes of, disposal.”

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ATTACHMENT B

INFORMATION NEEDS SHEET
FOR
ORDER R5-2017-0036

WASTE DISCHARGE REQUIREMENTS GENERAL ORDER
FOR OIL FIELD DISCHARGES TO LAND
GENERAL ORDER NUMBER THREE

This Information Needs Sheet describes information needed to prepare a Notice of Intent (NOI) to obtain coverage under the General Order. A NOI shall consist of:

1. **State Form 200.** A completed State Form 200, which is available at: http://www.waterboards.ca.gov/publications_forms/forms/docs/form200.pdf.

2. **An application fee.** Discharger's not operating under waste discharge requirements (WDRs) need to submit an application fee that serves as the first annual fee. The initial 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 (CCR), section 2200. The Dischargers with existing WDRs do not need to submit an application fee unless annual fees are due during the application process.

3. **A technical report.** The technical report shall characterize all waste generation, treatment, storage, reuse and disposal activities applicable to the specific Facility that will be covered under the General Order. The technical report shall be prepared by a California registered civil engineer or engineering geologist. Applicants are advised to inquire with the Central Valley Water Board staff before performing investigations and/or preparing the technical report to ensure that the report will be complete.

After Central Valley Water Board staff review of the NOI, the staff will determine the appropriate TTWQ and CPLX rating and additional fees may be required. If the information in the NOI demonstrates that the coverage under the General Order is appropriate, the Central Valley Water Board's Executive Officer (Executive Officer) will authorize coverage under the General Order by issuing Notice of Applicability (NOA). The NOA will describe appropriate monitoring and reporting requirements and site specific information.

TECHNICAL REPORT PREPARATION

Please note the following tips to expedite the NOI preparation and facilitate Central Valley Water Board staff review process:

1. Providing the information in the same order as the listed below for technical report will help to expedite the NOI review process. Staff will use this as a checklist.

2. If any of the information is missing or incomplete, the NOI will be deemed incomplete and the process (and your project) will be delayed until all of the required information is submitted. You will be notified in writing of the NOI status within 30 days of the NOI submittal. If the NOI is incomplete, the additional information that is required to complete the NOI will be specified in the notification.

3. All numerical data presented in tables and calculations performed using spreadsheets should be provided in digital form (MS Excel compatible spreadsheet) as well as hard copy.

4. If some of the information listed below can be found in a previous technical report prepared by a California registered professional, the NOI can incorporate the report as an appendix, but the NOI text must specify where in the report the required information can be found. However, if appended reports contain information that conflicts with the body of the NOI, it may cause further delays.

✓	**A. Facility Information:**
	1. Is this an **existing or new** oil and gas production facility **or expansion** or startup of existing facility with discharges of produced wastewater (effluent) to pond(s)?
	a. If this is an existing facility (began discharge to land prior to 26 November 2014), the Discharger can apply for coverage under the general orders and the facility is exempt from requirements of the California Environmental Quality Act (CEQA)(Pub. Resources Code, § 21000 et seq.). Therefore, the Discharger does not need to produce evidence of compliance with CEQA.
	b. If this is a new facility (did not begin discharge to land **prior to 26 November 2014**) or expansion or startup of an existing facility, the Discharger can apply for individual WDRs instead of coverage under the general orders.
	c. If the Discharger has questions about a. or b. or permitting in general contact Central Valley Water Board staff at (559) 445-5116 for guidance.
	2. Is this **facility** currently regulated under individual or general WDRs issued by the Central Valley Water Board?
	a. If so, provide the WDRs order number and a copy of the WDRs.
	b. If not, provide the name of the local agency that issued the current operating permit and the number of years ponds have been in use as a method of disposal.

	3. Provide a copy of any other permits that reference or relate to the discharge of oil field produced wastewater treatment, storage, disposal, and containment systems. This includes Use Permits and any other relevant permits (e.g., Division of Oil, Gas, and Geothermal Resources (DOGGR) disposal well permits, facility permits, etc.).
	4. Provide the following information for the oil and gas production facility and related treatment, storage, and/or disposal units:
	a. Section, Township, and Range.
	b. Street address of the facility (provide street name and distance from nearest cross street if there is no street number), if applicable.
	c. The approximate latitude and longitude of the facility and its components (treatment, storage tanks or tank battery, ponds, disposal wells, etc.).
	d. County and Assessor's Parcel Numbers, if applicable.
	5. Provide a detailed description of the facilities that generate wastewater, and all wastewater conveyance, treatment, and disposal systems. Use site plans and conceptual drawings as appropriate to illustrate locations and typical construction. Include all treatment processes. Provide the following maps, plans, and illustrations:
	a. A facility location map showing local topography; all wells (including producing, injectors, disposal, monitoring, and domestic/agricultural supply wells, etc.); the production, treatment, and disposal facility locations; and boundaries, streets, and surface water features (including natural drainages, seasonal streams, storm water drainage ditches, irrigation canals, and irrigation/tailwater ditches, etc.).
	b. A process flow schematic for the entire treatment, storage, and disposal system. Include existing and proposed flow monitoring devices and sampling locations proposed to determine compliance with the General Order.
	c. A scaled map for production, treatment, storage, disposal facility site plan and acreage. Identify the locations of all the containment structures.
	d. A scaled map showing the limits of all the production wastewater treatment, storage and disposal areas. If disposal methods include combination use of ponds or disposal wells or other methods, identify all the locations on the scaled map.

	6. For each wastewater treatment, storage, disposal pond, and containment structure, provide the following information:
	a. Identification (name) and function of the structures.
	b. Surface area, depth, and volumetric capacity at two feet of freeboard for the ponds.
	c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee.
	d. Materials used to construct each berm or levee (e.g., containment structures and ponds).
	e. Description of the engineered liner, if any. Include a copy of the Construction Quality Assurance (CQA) Report if one was prepared.
	f. Overflow prevention features for each structure.
	g. Operation and maintenance procedures for each structure.
	h. Storm water runoff management methods, applicable for each structure.
	7. Projected monthly water balances demonstrating adequate containment capacity in storage structures (e.g., ponds and secondary containments) for both the average rainfall year and the 100-year return period total annual precipitation, including consideration of at least the following:
	a. Base line wastewater production to the pond and any inflow sources, if applicable.
	b. A minimum of two feet of freeboard in each pond at all times (unless a registered civil engineer determines that a lower freeboard level will not cause overtopping or berm failure).
	c. Historical local pan evaporation (monthly average values).
	d. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns.
	e. Disposal system hydraulic loading rates distributed monthly in accordance with expected seasonal variations based on evaporation rates.
	f. Projected long-term percolation rates (including consideration of percolation and the effects of solids buildup in unlined ponds or containment structures).

	g. Submittal of a water balance capacity analysis demonstrating that the as-built hydraulic capacity of the facility (i.e., tank battery and pond storage capacity) is consistent with the flow limits based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns.
	B. Wastewater Treatment, Storage, and Disposal Systems For The Facility:
	1. A description of all the sources and types of wastewater flowing into the treatment, storage, and disposal facility, including:
	a. A list of oil leases or individuals or entities that use the wastewater treatment, storage, and disposal system.
	b. The number of permitted active and idle production wells (which produce oil, water, or gas) for each oil lease or individual or entity and the associated total monthly fluid production for each type of fluid (oil, gas, and produced wastewater) for each lease since 2013, broken out into monthly flows.
	c. The method(s) of oil field reservoir drives (e.g., primary or enhanced oil recovery (EOR) drive such as steam flood, water flood, etc.).
	d. A list of wastewater treatment units that treat the produced wastewater that is discharged to ponds or to land.
	2. For any chemicals or additives used in the exploration and production of oil, and the treatment of produced wastewater, provide the following:
	a. A detailed accounting of all the chemicals and additives used that could enter the wastewater, the reservoir, and/or produced wastewater stream (e.g., acids, bases, salts, surfactants, emulsion breakers, etc.), and a description of how and where in the production or wastewater stream they are deployed. Calculate the volumes of each individual chemical and additive used on a quarterly basis and describe any seasonal variability in chemical usage.
	b. Report any hazardous wastes that may be generated at the facility and certify that all hazardous wastes will be disposed of in accordance with State and federal laws and will not be commingled with wastewater.
	3. Characterize each wastewater stream type that discharges to the oil and gas production facility using the constituent list provided in **Table I of Monitoring and Reporting Program R5-2017-0036** including (but not limited to) the following:
	a. Produced wastewater after production facility treatment, but prior to discharge

	to the pond (effluent), and within pond.
	b. If the facility receives produced wastewater from other leases, or individuals, or entities, or properties or from different reservoirs, characterize each produced wastewater stream prior to mixing with other produced wastewaters and prior to treatment.
	c. Identify all other sources of wastes prior to mixing with produced wastewater and characterize each waste stream independently (e.g., reverse osmosis brine streams, steam generator blow down, etc.).
	4. Demonstrate maximum monthly average effluent flow to each pond that occurred between 26 November 2004 and 26 November 2014 and the basis for the effluent flow limits. Consider dry weather flows vs. peak flows and seasonal variations, if applicable. Include the technical basis for the flow limit (e.g., design treatment capacity; hydraulic capacity of system components; and demonstrated (historical) effluent storage/disposal capacity).
	5. A narrative description of treatment and storage system operation and maintenance procedures to be employed, including those associated with effluent storage and disposal.
	6. The names and contact numbers for production treatment facility operators and facility supervisors and the hours that the facility is staffed.
	7. Provide preventive and contingency measures for controlling spills and accidental discharges in production facility:
	a. Provide any spill prevention plans. The spill prevention plan should provide specific measures to effectively control any spills or failures in the production facility with supporting documents, a facility schematic, and flow diagrams that show that a spill to the secondary containment areas could only occur during emergency or catastrophic conditions.
	b. A description of proposed alarm notification systems, emergency wastewater storage facilities, secondary containment system, and other means of preventing treatment system bypass or failure during reasonably foreseeable overload conditions (e.g., peak flows, power failure, pipeline blockage, etc.). Consider both potential problems at the treatment, storage and disposal systems and within the conveyance systems (e.g., flow lines).

	c. Provide description of flood and frost protection measures (structural and operational) employed at the facility.
	8. Describe all solid wastes generated at the facility and discuss how they are handled and disposed of. Volumes, chemical and physical characteristics, and final disposition of each waste stream (e.g., land application, compost, landfill) must be described. If solid wastes are treated or disposed of on-site, a waste management plan for those wastes must be included. The waste management plan shall include the following:
	a. A description of solids generation rates, on-site treatment and handling systems, and short-term storage procedures.
	b. A description of measures to be used to control runoff or percolation from the solids as they are transferred, stored, and/or mixed, and a schedule that shows how and where all the solids will be land applied or removed from the site prior to the onset of the rainy season (1 October).
	c. Confirmation that solids removed for reuse within the lease area would be analyzed to indicate that they are non-hazardous. Handling and application practices that would ensure that solid wastes do not migrate once placed. **Note:** At least 180 days prior to any solid waste removal and disposal, the Discharger must submit a solids management plan for the Executive Officer's approval.
	d. See Provision E.7 of the General Order for additional information.
	9. If the Discharger plans to apply produced wastewater for dust control or construction activities at the facility, the Discharger shall submit a management plan that includes:
	a. Technical justification that the dust control or construction activities are best practicable treatment or control and protective of surface waters and groundwater, and a demonstration that discharges will not create nuisance or pollution conditions.
	b. Provide constituent of concern concentrations and loading rates, frequency of wastewater applications, wastewater runoff control measures in-place, and a detailed aerial map of the field and facility clearly identifying areas of wastewater applications including acreage, nearest water ways, and seasonal drainage courses. **Note:** The Discharger shall submit the management plan 90 days prior to the anticipated discharges and the Executive Officer approval of the plan should be prior to commencement of the wastewater application.

	c. See Provision E.6 of the General Order for additional information.
	10. If the Discharge Prohibition A.5 of the General Order applies to the Discharger for discharge of produced wastewater from wells that have been stimulated as defined by CCR title 14, section 1761; then the Discharger must satisfy the requirements of the General Order Provision E.8 by submitting a draft Work Plan to come into compliance with this prohibition. See Provision E.8 of the General Order for additional information.
	C. Planned Changes in the Existing Facility or Discharge:
	1. Describe in detail any and all planned changes in the facility or discharge, addressing each of items listed in **Section B** above.
	D. Local and Site-Specific Conditions for Surface, Soil, and Groundwater: **(Illustrate with maps as appropriate)**
	1. Neighboring land uses.
	2. Typical crops grown (if agricultural area).
	3. Water supply sources, including agricultural, municipal, and domestic well(s) within one mile radius of where the ponds are located.
	4. Terrain and site drainage features.
	5. Nearest surface water drainage course.
	6. FEMA floodplain designation(s).
	7. Average Annual precipitation (inches).
	8. 100-year 365-day precipitation (inches).
	9. Reference evaporation (monthly and annual total).
	10. Pan evaporation (monthly and annual total).
	11. A description of the types and depths of soil underlying ponds, containment structures, and/or other effluent disposal areas. Include a copy of the geotechnical report and/or Natural Resources Conservation Service (NRCS) soil report. Include at least the following information:
	a. Depth of unsaturated soil when groundwater is closest to the surface.
	b. Soil types based on site-specific information, sampling locations (accurately measured and recorded), description and results of percolation tests or other tests used to estimate soil long-term infiltration and percolation rates. Include depth, thickness, and soil horizons. Soils must be described at a minimum of five feet below the bottom of any disposal unit. Provide information on soil

	types underlying ponds and/or wastewater application areas from the ground surface to the saturated zone. Soils information should include data from on-site borings, logged by a California registered geologist or civil engineer, and may include referenced data from published sources.
	c. Bedrock type and condition encountered in disposal area, if any.
	d. A scaled map depicting soil/rock types and test locations.
	12. Provide the following information about hydrogeology and groundwater:
	a. Stratigraphy, groundwater elevation and gradient, transmissivity, and influence of all recharge and pumping sources (site conceptual model).
	b. Elevation and gradient of first encountered groundwater at the facility.
	c. Depth to highest anticipated groundwater.
	d. Shallow groundwater quality or first encountered groundwater for typical waste constituents.
	e. Information on monitoring well locations, construction details, and locations of any geological features (e.g. aquitards, subterranean channels, faults) and aquifer characteristics.
	f. Summary of historical groundwater monitoring results (last 5 years for existing facilities).
	13. Demonstrate with appropriate technical information that the coverage under this General Order is appropriate and that the Discharger can be successful in obtaining the Basin Plan amendment.
	E. Industrial Storm Water General Permit:
	On 1 April 2014, the State Water Resources Control Board adopted Order 2014-0057-DWQ (NPDES General Permit CAS000001) (Industrial Storm Water General Permit) specifying waste discharge requirements for discharges of storm water associated with industrial activities. Order 2014-0057-DWQ became effective 1 July 2015 and required all applicable industrial dischargers to apply for coverage prior to the effective date. Because storm water at oil and gas production wastewater discharge facilities is captured and contained on-site or comingled with produced wastewater before being discharged to ponds or production containment areas (i.e., secondary containment), storm water will generally contain residual oil or produced wastewater. This General Order prohibits discharge from leaving pond areas or secondary containment areas and entering waters of the United States. See the following link for more information: http://www.waterboards.ca.gov/centralvalley/water_issues/storm_water/industrial_general_permits/

	1. Many industrial facilities are required to obtain coverage under the Industrial Storm Water General Permit. Provide evidence that the facility is exempt from or has applied for coverage under the Industrial Storm Water General Permit.
	F. Department of Water Resources Well Standards:
	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 94-81* (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. 1. Provide information as to whether existing monitoring wells at the facility were constructed in accordance with the Department of Water Resources Well Standards. See the following link for more information: http://wwwdpla.water.ca.gov/sd/groundwater/california_well_standards/well_standards_content.html

EXHIBIT 4

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

-- o0o --

PUBLIC MEETING

CENTRAL VALLEY REGIONAL

WATER QUALITY CONTROL BOARD

AGENDA ITEM 11

-- o0o --

Thursday, April 6, 2017

2:49 p.m.

-- o0o --

Reported By: GRACIE E. BECERRA, CSR License No. 13136

California Reporting, LLC
(510) 313-0610

BE IT REMEMBERED, that on Thursday, the 6th day of April, 2017, commencing at the hour of 2:49 p.m., at the offices of the Clovis Veterans Memorial Hall, 808 4th Street, Clovis, California, before me, Gracie E. Becerra, a Certified Shorthand Reporter, in and for the County of Fresno, State of California, the following proceedings were had:

DR. LONGLEY: We're back in session. This is the time and place for a hearing to consider adoption of three new general waste discharge requirements for oil field discharges to land within the Tulare Lake Basin. This hearing will be conducted in accordance with the Notice of Public Hearing and the meeting procedures published for the meeting agenda.

At this time evidence should be introduced on whether the proposed actions should be taken. All persons expecting to testify please stand at this time, raise your right hand and take the following oath:

(Whereupon all participants took the oath.)

DR. LONGLEY: The total time to allow for testimony are as follows: In the Oil Field Industrial -- excuse me -- the Oil Fields Industry Group, 30 minutes, and the Environmental Group Panel, 30 minutes. All other persons shall limit their testimony to three minutes. And as our -- is our normal practice, a timer will be used.

Please state your name, address and affiliation and whether you've taken the oath before you provide testimony.

Does counsel have any legal issues to discuss at this time?

MS. YU: Yes. We've got a couple of issues arising related to some late comments received.

So on March 14th, 2017, staff received late comments from Kern County Board of Supervisors. No pre-hearing ruling was made with respect to this, but my recommendation would be to accept these into the record. Staff can summarize them if -- if the board is interested in -- in learning a little bit more about the content.

Also, yesterday, April 5th, late comments were received from California State Senators. This letter was actually dated today. State Senators are Jean Fuller and Andy Vidak, and assembly members Vince Fong and Rudy Salas. So with respect to this particular comment, a pre-hearing ruling was made by the board chair to accept them into the administrative record.

So those are two issues that I'd like to address now. I don't know if the board chair would like to rule on the Kern County comments, and then I can discuss the third issue.

DR. LONGLEY: Well, the -- the -- the four legislators, Paul -- Jean -- well, can you tell me who they

are? They're Jean Futey --

MS. YU: Fuller.

DR. LONGLEY: Excuse me. Jean Fuller, Rudy Salas --

MS. YU: Vince Fong and Andy Vidak.

DR. LONGLEY: Right. That's right. And they all strongly supported this -- this agenda item.

The -- can you describe the nature of the one for the Kern County Board of Supervisors.

MR. HARVEY: Chairman Longley, this is Dale Harvey, the supervising engineer out of the Fresno office, and I've taken the oath.

The Cliff Notes version of the Kern County Board of Supervisor's letter is that they are still a little -- they don't necessarily agree with the language in Prohibition A.5 and all three general orders having to do with the discharge of produced waters from wells that have been stimulated. The letter appears to want -- appears that their preference would be that the -- that prohibition would only apply to discharges after the regulation was adopted, which was 1 July 2015. Yeah.

The -- this issue has been raised by the oil companies in almost every letter that we've gotten. We will deal with it in the presentation. So I -- I don't know that there's anything in here that would prejudice any

parties, since it's an issue that's -- we're going to address.

DR. LONGLEY: So this is -- this is in the same vein as -- as other letters we've received. Is that fair?

MR. HARVEY: Yes, sir. Yeah.

DR. LONGLEY: Is -- is there any comments?

I'm inclined to -- to allow this into the -- into the record, but before I make that ruling, are there any comments?

MR. SCHNEIDER: No.

MS. KADARA: No.

DR. LONGLEY: Hearing none, then I'll rule that allowed into the record. Very good.

Does that --

MS. YU: We have one more issue that I just became aware of. Valley Water had actually submitted written comments back on January 16th. Inadvertently, these did not make it into -- to staff's attention, and so we actually have not responded to these particular comments. But because they are timely, I -- I do recommend that they come into the administrative record and as best as we can right now orally we will endeavor to address these.

DR. LONGLEY: Okay. And those comments are just a little bit more --

MS. YU: Well, they -- they seem to be very specific to provisions in the general orders. They actually had some recommended language that they would like the board to consider.

DR. LONGLEY: Okay. I'm having a bit of an issue with these, because with recommended language, I think the others were pretty simple in characterizing the nature and --

Yes, Clay, do you want to address that?

MR. RODGERS: I was just going to say, Dr. Longley, that we, at least I personally, became aware of this e-mail this morning, but evidently this e-mail was sent to Pamela Creedon and myself, so evidently, we somehow did not get it into the record. This, at least based upon what I know right now, appears to be a mistake on staff's part and so, you know, personally I believe the -- the document should be in the record. It was done by no fault of Valley Water, and we should -- we should correct the mistake that we made.

DR. LONGLEY: Is -- is the document lengthy?

MR. RODGERS: It's about four or five pages. I actually had copies printed out for each of the board members if you would like to see it.

DR. LONGLEY: If you could distribute that.

MR. RODGERS: Adam has that, and he'll do that

right now.

DR. LONGLEY: Thank you.

MR. SCHNEIDER: Do we have copies of that for the public too?

MR. RODGERS: I'm sorry, Mr. Schneider?

MR. SCHNEIDER: Do we have copies of that for the public?

MR. RODGERS: Well, the copies that I just -- was the -- the copies of the Valley Water letter.

MR. SCHNEIDER: Right.

MR. RODGERS: I thought there were five there. Are we one short? I have a copy here.

MR. SCHNEIDER: No, I have it. I was just wondering about the general public.

MR. RODGERS: Oh. Well, I have to print them out. We don't have a photocopy machine.

Here, it's on the thumb drive.

We will make copies and have them available for the public in -- in just a few minutes.

MR. SCHNEIDER: Thank you.

MR. RODGERS: But I think a copier is the only -- or a printer is the only method we have to make copies with now, so it will take a few minutes.

DR. LONGLEY: This is comments from Valley Water Management Company, and they are pretty much in line with

comments either they or other folks have made in the past. As you point out, they were -- it was through oversight that they were not made part of the record. In fact, they're dated January 16th.

I guess you were ready to push your button.

MR. RODGERS: No, it's just that, you know, my -- my assumption right now is that, you know, I may have not forwarded them to staff as I should have, so, you know, ultimately this is probably a mistake that I made, you know, and I would strongly recommend that we -- we correct that mistake.

DR. LONGLEY: I'm ready to rule that they be admitted into the record unless I hear an objection.

Very good.

MR. SCHNEIDER: Yeah, I -- I think they should be admitted for sure. I'm just -- in correcting this, I just wanted to make sure that the public had access also.

I -- and I agree, it doesn't look like there's any particularly new information, but it still, as a matter of record and process, the public has to have access.

DR. LONGLEY: Certainly. And -- and staff will make those available as soon as they can find a printer, which will be, I guess, in the next 30 minutes or so.

MR. SCHNEIDER: Yeah. We could start.

MR. LAPUTZ: Oh, no, we'll be -- it will be a

couple minutes.

DR. LONGLEY: A couple minutes?

MR. LAPUTZ: Five minutes or so.

DR. LONGLEY: Five minutes. Okay.

MR. SCHNEIDER: I think we can start with presentations.

DR. LONGLEY: Right.

Very good. Does that fin -- finish up with our legal issues?

MS. YU: That's all, Dr. Longley.

DR. LONGLEY: Thank you very much, Stephanie. We'll now begin with the staff presentation.

MR. HOLCOMB: Chairman Longley, Members of the Board, good afternoon. My name is Ron Holcomb. I'm the senior engineering geologist in the Fresno office, and I have taken the oath. Along with Hossein Aghazeynali, I will present for your consideration three proposed general orders for discharges of oil field waste to land in the Tulare Lake Basin.

During the presentation, we will start by reviewing some background information, and then we will talk about the proposed general orders themselves as a group and individually. I will speak about why we are proposing three orders and look at their differences and similarities. Then we will speak about the application

process and how a discharger can be included under one of of these orders. We will also speak about some issues that were raised during the public comment period and our responses to those comments.

In May of 2014, Central Valley Water Board staff increased our efforts to identify and inspect petroleum wastewater disposal ponds to ascertain compliance with waste discharge requirements, otherwise known as WDRs, and the California Water Code. Staff found that there are approximately 326 facilities equipped with a total of about 1,100 ponds for produced wastewater disposal. A number of of these facilities have been discharging wastewater to ponds without waste discharge requirements. Staff also found that the petroleum production facilities that use ponds for wastewater disposal vary in size and volume of wastewater discharge.

There are very small facilities that each have one pond and discharge what amounts to one barrel of wastewater or less per day. There are also very large facilities with several very large ponds that receive wastewater continuously at rates over 100,000 barrels per day.

Barrel, by the way, is a term that will be used throughout this hearing. It is used in the oil industry to denote a volume of fluid and is equal to 42 gallons.

This table shows a general breakdown of our inventory of oil field wastewater disposal facilities. As you can see, a majority of the disposal ponds currently operate with waste discharge requirements. A significant number, however, do not. You will note that on this table the facilities and their ponds are divided into two groups, actively discharging and inactive. Actively discharging means just that, these facilities are discharging wastewater to their ponds. Inactive means that at the time of our inspection the ponds were not being used for wastewater disposal. If the owner of an inactive facility wants to use the ponds for disposal at any time in the future, that facility will need to be included under one of these general orders. If an owner does not want to use the ponds, we will work with them to take the appropriate actions to close the ponds.

A work plan was prepared by staff in November of 2014 to address oil field wastewater disposal ponds. The plan identified work that needed to be completed to place active ponds under waste discharge requirements. In the interim, cleanup and abatement orders were issued to those facilities that were operating without waste discharge requirements. The cleanup and abatement orders required the operators to monitor their facilities, including wastewater production, and conduct hydrogeologic

investigations. Facilities that are currently covered by waste discharge requirements are being issued updated monitoring and reporting programs that are similar to those that would be included with the proposed general orders.

On August 19, 2016, three tentative general orders were presented to the Central Valley Water Board for its consideration. The board heard testimony from board staff, the petroleum industry, environmental advocacy groups and several individuals. Some significant issues were brought up during the August hearing that needed further refinement. These issues and the resulting revisions to the tentative orders will be discussed later in the presentation. Also, the board did not have a forum, so a decision was not made on adopting the general orders and the hearing was continued to a future meeting.

Now that we have covered some background, I will speak about the tentative orders that are before you.

The three proposed general orders were prepared to provide requirements for discharges of oil field waste to land. The general orders would apply to existing facilities that have been in operation prior to when we began our environmental review. The three general orders would also regulate the discharge of produced wastewater as dust control and for construction activities. In addition, the general orders would regulate the use of solids

generated at each facility as a road surfacing material. Each of these items will be discussed in more detail later in the presentation.

It is important to note at this time that these general orders would not cover the use of produced wastewater for irrigation of crops produced for human consumption. The reuse of produced wastewater for irrigation or other applications will be addressed on a case-by-case basis.

So why three orders? During the development of the proposed orders, the Central Valley Water Board staff determined that there were three basic discharge scenarios for the facilities in our region. The primary differences between each scenario are the quality of the discharge and the quality of the underlying groundwater.

In the eastern portion of the oil-producing area, generally north of Bakersfield, the produced wastewater tends to be good quality water and generally complies with the Basin Plan limits for discharges of oil field wastewater to land, which will be discussed shortly. The first encountered groundwater in this area also tends to be good quality water. General Order One would be used for this scenario.

On the western side of the oil-producing area, groundwater can have naturally high salinity and would not

support beneficial uses designated by the Basin Plan. In these cases, General Order Three would be used.

In the third scenario, the quality of the produced wastewater exceeds the Basin Plan limits and is discharged over groundwater that appears to support beneficial uses. This situation tends to occur in the oil fields on the Valley floor in the central portion of the oil-producing area. General Order Two would be used for these cases.

These scenarios are general characterizations of wastewater quality, groundwater quality and geographic elements. Each discharger would need to submit a demonstration of which order would be appropriate for the discharge in question. The demonstration would need to be submitted with a notice of intent, which will be discussed later in the presentation. It is possible that a discharge would not qualify for any of the proposed general orders.

The Basin Plan for the Tulare Lake Basin sets limits on certain constituents for the discharge of oil field produced wastewater to land. These limits are 1,000 micromohs per centimeter for specific conductivity, or E.C., 200 milligrams per liter for chloride, except for a small area known as the White Wolf Subarea located about 25 miles southeast of Bakersfield where the chloride limit is 175 milligrams per liter, and for boron the Basin Plan

limit is one milligram per liter. General Order One would apply to those discharges of wastewater that do not exceed these limits. Groundwater monitoring would be required.

General Order Two would apply to those discharges of wastewater that cannot meet the salinity limits in the Basin Plan, but is discharged over groundwater that appears to support beneficial uses. The Basin Plan allows an exception for discharges of oil field wastewater that exceeds these limits if the discharger demonstrates that the proposed discharge will not substantially affect water quality nor cause a violation of water quality objectives. In other words, the discharger would need to comply with the Antidegradation Policy. General Order Two would require the dischargers to make that demonstration and to monitor the wastewater quality and the groundwater quality.

General Order Three would apply to dischargers operating oil and gas production facilities that discharge produced wastewater in areas where the first encountered fluid beneath the facility is oil or where it appears that first encountered groundwater is of such poor quality that it does not and could not reasonably be expected to support beneficial uses as identified in the Basin Plan. One of these conditions would need to be demonstrated by the discharger. General Order Three requires the discharger to follow a five-year time schedule to obtain a Basin Plan

amendment that would remove designated beneficial uses from the groundwater at the facility. The discharger would also be required to participate in the Central Valley Salinity Alternatives for Long-term Sustainability group, or CV-SALTS, to facilitate the Basin Plan amendment process. General Order Three would regulate these discharges to confirm the results of the waste characterization. The removal of groundwater monitoring requirements in General Order Three is proposed in the late late revision before you.

All three proposed general orders would comply with Resolution 6816, otherwise known as the Antidegradation Policy.

Discharges that would be covered under General Order One would meet the salinity limits in the Basin Plan. The discharger would need to demonstrate that other constituents in the discharge would not violate that -- the policy.

Discharges that would be covered under General Order Two would comply with the Antidegradation Policy through the demonstration that would be required to show that the discharge, even though it exceeds the Basin Plan limits, would not cause exceedances of water quality objectives and would not adversely affect beneficial uses.

Discharges covered under General Order Three

would comply with the Antidegradation Policy, because the quality of any existing groundwater would not support beneficial uses.

The table on this slide recaps the three general orders and the respective discharge scenarios. General Order One is for wastewater that meets the Basin Plan limits, discharge over good quality groundwater, and requires groundwater monitoring. General Order Two is for wastewater that does not meet the Basin Plan limits, but is discharged over good quality water, groundwater monitoring is required. General Order Three is for wastewater that is discharged over groundwater that will not support beneficial uses, and groundwater monitoring is not required with the late late revision.

I have spoken about the three proposed orders and how each one differs from the others. Now I will speak about the similarities between the orders. The prohibitions, the provisions and the monitoring and reporting programs for the proposed orders are similar.

Each proposed order has the same ten prohibitions. I won't list them all here, but a few bear mentioning. Each order would prohibit the discharge of hazardous waste as defined in the California Code of Regulations, Title 22. Each order would prohibit the creation of a condition of pollution or nuisance. Each

order would also prohibit the discharge of fluids used in well stimulation treatment as defined by the California Code of Regulations, Title 14. Well stimulation treatment includes hydraulic fracturing, acid fracturing, and acid matrix stimulation.

DR. LONGLEY: When you're talking about an acid matrix stimulation, could you define that a bit more? The other two make sense. I know what they are. And I'm wondering if this has to do with some of the materials that are used for corrosion control and so forth.

MR. HOLCOMB: Well --

MR. RODGERS: Dr. Longley, this is Clay Rodgers, assistant executive officer, and I will help with that a little bit. The acid matrix stimulation basically relates to acid treatments of oil wells to remove scaling --

DR. LONGLEY: That's what I thought.

MR. RODGERS: -- and other issues. It's not a -- it's not a hydraulic fracturing process, but it's basically to improve well performance because of activities that have happened within the effects of the -- the casing and -- and if there were gravel pack fracs within the gravel pack.

DR. LONGLEY: It's also a -- that's what I thought it was, but I wasn't sure. Thank you.

MR. RODGERS: Yeah. Very -- very similar to the same thing you would see in a water supply well.

DR. LONGLEY: Okay. Thank you.

MR. HOLCOMB: The proposed orders would also prohibit the discharge of produced wastewater from any well that has had a stimulation treatment unless the discharger can demonstrate that the produced wastewater does not contain stimulation chemicals in concentrations that would adversely affect beneficial uses of groundwater. The general orders include a three-year time schedule for the discharger to follow to -- to follow to demonstrate compliance. This probation -- prohibition has caused some concern that will be discussed later in the presentation.

Each proposed order has similar provisions, including a provision for the use of produced wastewater for dust control and for soil compaction during construction. Produced wastewater would be utilized in this manner in accordance with the plan approved by the executive officer. Using produced wastewater for dust control and for construction purposes would replace the use of valuable freshwater, which is often the current practice.

Another provision common to each of the proposed orders would allow the use of solid wastes generated at each facility as an ingredient in a road mix used to surface roads within the facility boundaries. This practice would also have to be accomplished in accordance

with the plan approved by the executive officer. Roads that are surfaced with this material would be required to be constructed so that the road mix material would not be eroded or washed into any surface water.

Each proposed order includes the monitoring and reporting program that would require the discharger to monitor the facility and the produced wastewater. The monitoring and reporting programs for General Orders One and Two would also require groundwater quality monitoring. Facility monitoring would include water levels in the ponds, regular inspections of facility conditions, and assessment of damage after significant storm events. Each discharger would also be required to report on all chemicals and additives used at all leases and facilities that discharge produced wastewater to the disposal facilities.

Produced wastewater monitoring would include the flow of the effluent to the ponds and chemical analysis of the wastewater on a quarterly basis. Groundwater monitoring would include quarterly sampling and analysis for a comprehensive list of constituents. However, if the discharger demonstrates that the waste discharged to the ponds would not affect the quality of underlying groundwater, the executive officer may rescind all or part of the requirements for groundwater monitoring. With

adequate technical justification, the discharger would be able to request revision of the monitoring and reporting program by the executive officer to reduce monitoring frequency or minimize the list of constituents.

The monitoring and reporting programs for General Orders One and Two require the discharger to submit a Monitoring Well Installation and Sampling Plan for review and approval by the executive officer within 90 days after the notice of applicability is issued. In order to minimize the economic impact on medium and small operators, more time is allowed to comply with this requirement.

Medium operators who discharge more than 250 barrels and up to and including 1,000 barrels of produced wastewater per day, are given nine months to submit the Monitoring Well Installation Incentive Plan. Small operators, those who discharge 250 barrels or less of produced wastewater per day, are given 12 months after the notice of applicability is issued to submit the monitor -- to submit the same plan.

Some significant revisions have been made to the tentative general orders since the August meeting. These revisions were made in response to comments that were received from stakeholders during public comment periods and also in response to issues that were raised during the hearing at the August meeting.

We revised the orders so that they would no longer apply to new or expanding facilities. This revision was made to simplify the application of the orders with regard to compliance with the California Environmental Quality Act. The next revision was to the prohibition on the discharge of produced water from a stimulated well. Each order presented at the August meeting had this prohibition in the five-year time schedule for the discharger to develop an alternative disposal method. The prohibition was revised to allow the discharge if the discharger can demonstrate that the produced wastewater does not contain well stimulation chemicals in concentrations that could adversely affect beneficial uses of groundwater. The revised prohibition has a three-year time schedule to make this demonstration.

Another revision to the general orders gives smaller operators more time to submit a Monitoring Well Installation and Sampling Plan. As mentioned before, operators discharging 250 barrels of wastewater or less are allowed 12 months and operators discharging 250 to 1,000 barrels per month are allowed nine months rather than the 90-day requirement for those discharging more than 1,000 barrels per day.

The last change we would make is proposed in the late late revision. We would remove the groundwater

monitoring requirements from General Order Three. In order to qualify for General Order Three, the discharger must demonstrate that the first fluid beneath the facility is oil or that the groundwater would not support beneficial uses and that there would be a high probability that a Basin Plan amendment would be successful. Under these conditions, groundwater monitoring would not be necessary.

That concludes my portion of the presentation. At this time I'll turn the presentation over to Hoss Aghazeynali.

DR. LONGLEY: Hoss, you're going to have to get pretty close to that microphone.

MR. AGHAZEYNALI: Can you hear me? Testing. Testing. Testing. Testing. Can you hear me?

DR. LONGLEY: She can hear you. I'm thinking more about -- I'm thinking more about the court reporter over here, so that she can hear you.

MR. AGHAZEYNALI: Gotcha. Good afternoon. Good afternoon, Chair Longley and Members of the Board. My name is Hossein Aghazeynali. I'm a -- I'm a water resource control engineer in your Fresno office, and I have taken the oath.

To take coverage under one of the three general orders, the operator will submit a notice of intent, or NOI. The N -- the NOI would include a completed State Form

200, a technical report and an application fee. The fee would be required if the facility is not already covered by waste discharge requirements. The technical report would need to contain discharge characterization data, a hydrogeological characterization of the facility site, a demonstration that dischargers would be protective of beneficial uses of groundwater, and a facility waste management plan. Coverage under the general orders would be confirmed by executive officer issuance of a notice of applicability, or NOA, to the discharger.

Dischargers operating under cleanup and abatement orders are currently required to get coverage under one of the proposed general orders by submitting an NOI within 30 days of the adoption date of the general orders, an obtained NOA or cease discharge by four months after adoption of general orders or obtain individual waste discharge requirements. The schedule allows enough time for dischargers without waste discharge requirements to submit an NOI and obtain an NOA issued by the executive officer, because dischargers were issued cleanup and abatement orders and must have already collected the data required by the order. We also expect facilities that currently have updated waste discharge requirements to get coverage under the proposed general orders.

We received numerous comment letters during the

public comment period. Five were from petroleum industry groups, oil companies and independent producers, the entities shown on this slide.

We received three letters from environmental groups, which included the Center for Biological Diversity, a joint letter from an environmental group with ten signees, and the Citizen Coalition for a Safe Community, which are all listed in this slide. We also received approximately 5,000 form letters by the close of comment period on 27 February from concerned citizens. These letters were in two separate formats, but contained similar comments. We've continue to receive these comment -- these form letters.

Staff's responses to comments received by the comment deadline are included in your agenda packages. I will be discussing some of the more significant comments and our responses in the following slides.

One of the comments received from the oil -- oil industry is that general orders Prohibition A.5, which is based on California Division of Oil and Gas and Geothermal Resources for DOGGR regulations, is too restrictive and the prohibition should only apply to wells stimulated after the effective date of the regulation, 1 July 2015.

I will -- I will first go over what the DOGGR regulations say, present to you the August 2016 version of

Prohibition A.5 and compare it to the current version of the prohibition. I will then explain why staff believes prohibition applies to wells stimulated prior to effective date of regulation, 1 July 2015.

DOGGR regulations in California Code of Regulations, Title 14, Section 1786 state, "Operator shall adhere to the following requirements for the storage and handling of well stimulation treatment fluid, additives, and produced water from a well that has had a well stimulation treatment." The regulation then lists eight requirements. Requirement No. 4 states that, "Fluids shall be stored in containers and shall not be stored in sumps or pits." Prohibition A.5 in the August 2016 version of the general orders state that, "The discharge of produced wastewater from wells that have been stimulated as defined by California Code of Regulation, Title 14, Section 1761 is prohibited." The current version of Prohibition A.5 in the general orders has been revised to state that, "The discharge of produced wastewater from wells containing well stimulation treatment fluids and/or related waste is prohibited in accordance with the requirements of Provision E.7."

Provision E.7 is a time schedule complying with the prohibition. Provision E.7 includes a three-year time schedule for operators to come into compliance with

Prohibition A.5 under two options. Under option one, the dischargers can continue to discharge produced wastewater from wells that have been stimulated if they can demonstrate that the produced wastewater does not contain well stimulation treatment fluids or related waste in concentrations that could adversely affect beneficial uses of groundwater. Under option two, dischargers could develop an alternate disposal method for wastewater discharges from wells with a history of well stimulation treatment.

Regarding whether Prohibition A.5 should be limited to those well -- wells stimulated after 1 July 2015 is a legal question. The regulation went into effect on 1 July 2015, but does not indicate that it applies only to wells stimulated after this date. As described earlier, the -- the regulation does speak of produced water from a well that has had, in past tense, a well stimulation treatment. We have consulted with the State Water Board Office of Chief Counsel and representatives from DOGGR and believe that the prohibition accurately reflects a plain English reading of the regulation and DOGGR's intent. Given the potential impacts associated with this prohibition, we have requested from DOGGR written clarification of the regulation and our interpretation of it. No return clarification has been provided. Should

DOGGR provide such clarification, we would be -- we would bring the issue back to the board for reconsideration.

The oil industry has also stated that the cost of compliance with the general orders is too high and will drive some operators out of business. We agree that there are significant costs associated with compliance. There are many questions about produced wastewater characteristics that need to be answered. Monitoring and compliance -- monitoring -- excuse me -- monitoring and comprehensive analysis and characterization of the discharge is necessary to evaluate the effects of discharges of produced wastewater on receiving waters. After monitoring requirements are initiated and we have reviewed the data received, we anticipate that dischargers would request reductions in monitoring and the cost of compliance can be reduced.

For General Orders One and Two, some economic relief is provided for small and medium size operer -- operators by giving those operations an extended time to comply with groundwater monitoring requirements. As presented earlier, removal of groundwater monitoring requirements from proposed General Order Three will result in a lower cost of monitoring. As discussed previously, once appropriate data has been -- has been submitted, dischargers can request reduction in monitoring that would

result in lower costs.

Your agenda package includes a staff report that presents staff estimated and some industry estimated monitoring and compliance costs. In the next three slides I will discuss these costs for all the three general orders and show examples of general orders compliance costs. Also, note that the general orders encourage regional or group monitoring proposals. This has the -- this has the potential to -- to greatly reduce the cost of monitoring and compliance for individual operators.

The costs presented in this table include one-time cost and annual monitoring cost for all three general orders based on the proposed monitoring and reporting programs. These cost estimates were generated using information from -- from the oil industry consultants and our contract laboratory. One-time costs include the purchase of equipment, such as water level and rain gauges, flow meters, and the cost of installing three groundwater monitoring wells. Costs shown in this table for groundwater monitoring well -- well installation include minimum -- a minimum of three monitoring wells with well survey, construction labor, monitoring well installation, and a well installation report.

Some of the one-time costs were required by 13267 orders and cleanup and abatement orders and may have

already been incurred. The annual monitoring cost includes the cost of labor for sampling two wastewater ponds and three monitoring wells on a quarterly basis, chemical analysis and quarterly and annual reports. The cost of monitoring compliance for larger facilities may be higher and may require more -- more than three monitoring wells. The cost of monitoring compliance in general is going to vary for the three general orders.

For General Orders One and Two with good quality groundwater, the cost of monitoring compliance will be higher than the cost for the General Order Three with -- with poor quality groundwater. The executive officer can change the monitoring frequency and constituent list if the discharger can provide supporting data to justify such an action. The executive officer can also change the groundwater monitoring requirements based on the hydrogeological study results submitted during the NOI process or thereafter.

Other potential monitoring costs associated with the proposed general orders include costs associated with storm event monitoring and develop a management plan for the use -- for use of produced wastewater for dust control and the use of solids generated at the facility. These costs are going to be different for each facility and will vary depending on the size of the production facility and

the amount of produced wastewater generated.

In addition to monitoring costs, some of the examples of compliance costs are listed here. These costs include costs for complying with prohibitions, discharge specifications and provisions. Some of these costs, such as fencing and netting, also are required under other agency regulations. Not all the list of costs in this table would apply to all dischargers and, therefore, the compliance -- the compliance cost could be much lower than presented.

The letters from the environmental groups state that the dischargers threaten water quality, human health, wildlife, and the environment. This is based primarily on their contention that hazardous chemicals used in the oil field operations could be found in the produced wastewater. Based on the above, the environmental groups state that the discharge of produced wastewater should be prohibited.

All three general orders include ten discharge prohibitions, including prohibitions of the discharge of hazardous waste, the discharge of well stimulation treatment fluids, and discharges of waste other than produced wastewater. The general orders also include discharge specifications, groundwater limitations, solid disposal specifications, provisions, and monitoring requirements to ensure water quality is protected.

Dischargers in violation of the general order requirements would be subject to enforcement actions, including, but not limited to, cleanup and abatement orders and cease and desist orders. Therefore, discharges of produced wastewater to land will only be permitted -- permitted where it is appropriate to do so.

The letters from the environmental groups state that the general orders allow the discharges of produced wastewater to land from wells that have undergone a stimulation, which is dangerous and illegal. Therefore, the discharge -- discharge from stimulated wells for three years of a stated period is not justified.

Staff recognizes stimulated wells may contain residual chemicals in produced wastewater. All three general orders require a three-year time schedule for dischargers to investigate and demonstrate that if residual chemical remains in produced wastewater. Prohibition A.5 requires dischargers cease discharge immediately or propose alternate disposal method if produced water, wastewater, contained well stimulation treatment, fluids, or related waste in concentrations that could adversely affect beneficial uses of -- uses of groundwater.

Given the large number of wells that have received a well stimulation treatment over time and the large number of stimulated wells that discharge produced

wastewater to land, a time schedule is necessary to allow the discharger to fund, study, and implement appropriate compliance options.

The letter from -- the letter from the environmental group states that General Order Three must not allow the dischargers to continue discharge of produced wastewater to land while de-designation of beneficial uses of groundwater in the Basin Plan occurs.

General Order Three applies to areas where first encounter fluid is not groundwater or if it is groundwater, it is in such a poor quality that cannot support beneficial uses of groundwater, and the Basin Plan amendment is necessary. Given this, it is unnecessary to require dischargers to cease discharge while de-designation of beneficial uses of groundwater is in process. The de-designation process is lengthy, will need to go through CV-SALTS, and can take up to five years or more.

The environmental groups state that the use of the existing facilities exemption for the proposed general orders is inappropriate to satisfy the requirements of CEQA. All three general orders employ an existing facility exemption for those facilities in operation prior to the start date of our environmental review. The general orders do not authorize wastewater discharge flows in excess of the facility baseline and, therefore, do not result in

adverse changes in the environment. The general order requirements also reduce the environmental threat of the existing facilities and it has protection of surface and groundwater resources. Therefore, we believe the existing facilities exemption or categorical exemption authorized under CEQA is appropriate where only existing facility discharges are eligible for the coverage.

Staff has provided you with hard copies of the proposed late and late late revisions. The late revision contained minor typographical corrections and, therefore, I will not talk about it. The late late revisions only apply to General Order Three and revise the general order to remove groundwater monitoring requirements. General Order Three will only be applied to areas where first encounter fluid is not groundwater, or if it is groundwater, cannot support beneficial uses. Dischargers must provide staff enough -- enough information to make this demonstration during the NOI process and will be required through the Basin Plan amendment process to provide confirming information.

And with that, staff recommends adoption of the three proposed general orders with the late and the late late revisions.

This concludes our presentation, and I would like to enter this presentation, the case files, and the late

late -- I'm sorry -- and the late and the late late revisions into the record. Thank you.

DR. LONGLEY: Thank you very much.

Are there any questions or comments from board members?

Yes, Dan? Go ahead.

MR. MARCUM: Looks like the discharger is going to have to provide quite a bit of data. About how long from when you receive that data to when it gets posted publicly? What's the timeline for that sort of thing?

MR. RODGERS: Dr. Marcum, this is Clay Rodgers, assistant executive officer. I mean, that really depends upon what it is. All of the individual data doesn't all get posted to our website. We are requiring -- correct me if I'm wrong, Dale -- but we are requiring that the reports get submitted to the Geotracker database, and that's done by the dischargers, which makes the data available to the public through Geotracker. So it doesn't get posted on our website, but it does go to the State Water Resources Control Board Geotracker database and becomes available there.

DR. LONGLEY: Any further questions or comments?

Thank you very much.

At this -- at this point we're ready for the Oil Field Industry Group. Go ahead. You could intro --

introduce your panels.

MS. PITCHER: Good afternoon, Chair Longley and Members of the Board. My name is Jenifer Pitcher and I'm with the Western States Petroleum Association, and I -- sorry.

Good afternoon, Chair Longley and Members of the Board. My name is Jenifer Pitcher, and I represent the Western States Petroleum Association, and I have taken the oath.

Up here with our panel is Bob Gore, representing the California Independent Petroleum Association, or CIPA; Meg Rosegay, who is representing all three trade associations of our legal counsel; and Les Clark, representing the Independent Oil Producer's Agency.

WSPA is a non-profit trade association representing companies that work for, produce, explore for, refine, and transport, and market petroleum and petroleum products in California and four other western states. Collectively, WSPA, CIPA and IOPA represent 98 percent of California's oil production. WSPA and WSPA member companies as key stakeholders have worked closely with the Regional Water Board staff for well over two years in the development of the general orders that are before you today.

On Monday, February 27th, we provided extensive

comments to the State Board, you and your staff. WSPA's concerns with the rules as currently written are centered on the well stimulation treatment prohibition language as well as the monitoring and reporting of all oil field chemicals. As we have multiple speakers here today, my comments will pertain specifically to the monitoring and reporting of all oil field chemicals.

The monitoring and reporting found in two of the general orders require that the discharger submit information on all chemicals that have been used in the drilling or production of the well before the produced water from the well can be discharged into a pond. We believe this requirement is impractical, overreaching and not necessary to ensure that groundwater is not adversely affected as a result of the discharges of produced water into a surface pond. We believe this requirement was incorporated due to the pressure from outside organizations and not because of any specific scientific evidence that the produced water posed an actual threat to groundwater.

The analyses conducted for the recent industry-wide Central Valley Regional Water Board Section 13267 data request should be used to determine the need, if any, for groundwater monitoring requirements. Any monitoring should be tailored to the compounds in the effluent that would be reasonably expected to affect the

quality of underlying useable groundwater in areas where it exists and should only apply EPA test methods. Unnecessary monitoring and testing adds significant costs and reporting time, has little to no environmental benefit, and seems to go beyond the Regional Water Board's authority.

There are several studies currently underway and a lot of data is being collected and tested. The water board will encounter issues of trade secrets as well, much like the State Board and the industry encountered during the formation of the final SB-4 regulations. Vendors who make the chemical mixtures for oil producers are not legally obligated to disclose to the operators the specific additives for the formulation. To require extensive monitoring and reporting of chemical constituents that have no established EPA test methods for this type of general order is unnecessary. Vendors already supply safety information on the chemicals and the formulations. If a vendor does not give information to the operator, the operator cannot legally do anything. If this were to move forward, it would have to be between the vendor companies and the Regional Water Board staff.

WSPA recommends to your board to, A, use the information collected via the 13267 letters to determine the chemicals that would necessitate monitoring, B, add a step-down provision that would allow the water board staff

to analyze the data collected and make a determination on which chemicals do not require further monitoring, and C, allow staff the ability to reduce the frequency of reporting to annual reports after an operator submits two years' worth of quarterly reports.

WSPA and our member companies thank you for the opportunity to comment today. I urge you to review our comments that were submitted on the technical justification for our arguments, and we look forward to continue working with your staff and management on the implementation of these orders.

And I'm available for any questions as are our technical experts.

MR. GORE: Chair and Vice Chair, Members of the Board and -- and staff, good afternoon. I'm Robert J. Gore for The Gualco Group on behalf of the California Independent Petroleum Association, and I have taken the oath. As my children would testify, I swear every chance I get.

We -- we wish to express our appreciation to the board and -- and staff members who engaged in lengthy, technical considerations to develop general orders that protect groundwater and employment, both recognized benefits to the people of California. We look forward to continuing to work with staff.

CIPA's 550 members are primarily medium and small employers who live and work in the Southern San Joaquin Valley. They fully grasp the realities of these general orders. And in complying with regulations from the water boards, Department of Conservation, Department of Fish and Wildlife and numerous other state and federal agencies, CIPA members retain a considerable permanent expense in specialized professional consultants. Based upon this aggregated expertise, we ask to respectfully offer our comments.

First, CIPA joins and strongly supports the testimony from our WSPA and IOPA colleagues as well as counsel and Meg Rosegay.

Second, a few observations. CIPA respects and concurs with the significant program rationalization in GO-3 as revised. We agree with staff in the response document which finds appropriate CIPA's requests to use USGS data and to submit group work plans as approved. Regarding the stated responsibilities of producers to test water wells on adjacent private property, we also appreciate the statement from staff that the water board will accept notification of a neighbor's denial in lieu of testing.

Third, assuming no edits today in the docs you're receiving, we suggest future operational adjustments. In

the definition of existing operations, please strike the term e.g. pond as discussed. In monitoring and reporting requirements, clarify that routine operational and maintenance chemicals are sufficiently regulated and not subject to the orders. As expected, regulators and the regulated community do not yet fully grasp all operational aspects of these orders. In particular, we believe there must be a more detailed understanding of the universe of impacted wells based upon the DOGGR database. Implementation of these orders will be an ongoing project among all parties. Likewise, the estimated, as staff acknowledged earlier, significant costs merits recalibration. For example, the cost to construct and maintain additional holding tanks and UIC wells in larger fields could double the $200,000 estimate. Also, to reduce costs and expedite compliance, we strongly urge the state water boards and Department of Conservation to coordinate compliance regulations, testing, reporting all methodologies and -- and data, especially the use of existing data.

As aside, in my 33 years of working for and with state agencies, the effort of Central Valley Water Board members and staff on multiple complex matters is unsurpassed. There are numerous people with callused hands in the audience today to answer your questions. And,

again, thank you.

MS. ROSEGAY: Good afternoon, Dr. Longley and Members of the Board. My name is Meg Rosegay. I'm a partner in the law firm of Pillsbury, Winthrop, Shaw and Pittman in San Francisco, and I represent the Western States Petroleum Association, and I have taken the oath.

WSPA appreciates the opportunity to provide testimony this afternoon on the general orders for oil field discharges to land. My testimony focuses mainly on the prohibition against discharge of produced water from wells that have undergone well stimulation treatment, which is based on section 1786(a)(4) of DOGGR's WST regulations. My testimony references various provisions of General Order Number Three, though our comments are equally applicable to General Orders Numbers One and Two.

So at the hearing in August of last year, I outlined a detailed timeline of administrative and other events supported by citations to the administrative record and other legal authority, which in industry's view clearly supported a limited temporal application of the WST discharge prohibition. As we read section 1786(a)(4), the prohibition applies only to produced water emanating from a stimulated well at the end of a WST operation, but before the WST equipment is disconnected and the well is returned to normal production.

We appreciate the board's consideration of that testimony and staff's willingness to continue working with DOGGR to identify a mechanism that would avoid the severe and unwarranted economic impact -- impacts and other adverse consequences on production operations that would result from the immediate imposition of an absolute and unqualified discharge prohibition.

We are pleased that staff has revised the general orders to include a three-year period in which operators may conduct an evaluation of their produced water discharges for the purpose of demonstrating that WST chemicals are not present in the discharge in concentrations that will adversely affect beneficial uses. This approach is consistent with the Regional Board's authority under the Porter-Cologne Act, and it is both reasonable and defensible given the absence of any evidence indicating that produced water discharges from hydraulically-fractured wells currently pose a threat to water quality. This is particularly true in the case of General Order Number Three, which applies where there is no groundwater or where groundwater is of such poor quality that it cannot support beneficial uses designated in the Basin Plan.

We understand that Regional Board staff has conferred with DOGGR regarding the implementation of the

discharge prohibition and that DOGGR has no objection to the approach taken in the general orders. It was our hope that DOGGR would confirm its support in written comments to the board. Failing that, we are requesting staff's confirmation on the record today that this issue has been discussed with DOGGR or other members of the administration and that they concur with the approach. Operators cannot be left in a position where compliance with the general orders still leaves them vulnerable to enforcement by DOGGR. While we are fully --

DR. LONGLEY: Before you -- before you go on, I'm going to ask staff to reply to that.

MS. CREEDON: I've been in communication with Pam Harris, who is the supervisor for DOGGR, and they're aware of what we're doing and I provided it to them and they do not object.

DR. LONGLEY: They had -- we've had some long dialogue, as I understand, with -- with DOGGR in attempting to get --

MS. CREEDON: Yes. We've had a long --

DR. LONGLEY: -- their comments back and so forth?

MS. CREEDON: Yes. And they're aware of this recent change that we've had with the permits, and they're aware of them, they've read them, and they did not provide

any comments to the contrary saying that we shouldn't do it. So I take that as agreement with our approach.

DR. LONGLEY: And we've also discussed this with the State Water Resources Control Board?

MS. CREEDON: Yes, we have.

DR. LONGLEY: Good. Thank you.

And with that, that gives me a segue. Jonathan Bishop is in the audience. Jonathan is the Chief Deputy Director of the State Water Resources Control Board and very much involved in the oil program.

And, Jonathan, I'm sorry, I should've introduced you earlier.

MR. BISHOP: No worries. I'll be talking to you later.

DR. LONGLEY: Thank you. Continue, please.

MS. ROSEGAY: Thank you very much. And I -- I appreciate that confirmation.

So while we are fully supportive of the revisions to the general order which provide operators with an opportunity to make the necessary water quality demonstration or to identify an alternate disposal method for their produced water, we do have several lingering concerns with the tentative orders.

First and most importantly, we are seeking confirmation from staff and the board regarding our

understanding of the standard that will be applied in determining the applicability of the prohibition. Finding 4 -- Finding 46 of General Order Number Three was revised in response to WSPA comments to state expressly that, quote, "A three-year compliance schedule is provided for the discharger to either develop an alternative disposal method or to demonstrate the produced wastewater does not contain well stimulation treatment fluids or related waste in concentrations that could adversely affect beneficial uses of water." This last clause relating to concentrations of WST fluids was missing from this finding in the tentative orders issued earlier this year. The standard is reiterated in several of the responses to written comments and does seem very clear. However, there are still a few statements in the responses to comments that state, quote, "This demonstration is required to show that produced wastewater does not contain residual chemicals, if any, from well stimulation activities." For example, I'll refer you to the staff's response to comment number one submitted by CIPA. This statement may be just unartful drafting, but it could be taken out of context and read in isolation to suggest that the presence of any WST chemical, however benign and in any detectable amount, might be considered an adverse impact of beneficial uses. We do not believe this is staff's intent given the

expressed language of the order and numerous other statements in responses to comments, but we do not believe there should be any ambiguity on this point. Again, this is especially true for areas covered by General Order Number Three where the groundwater, if present at all, is of such poor quality that it cannot support beneficial uses.

Second, WSPA also objected to the broadening of the prohibition to include undefined, quote --

Did you have a question, Dr. Longley?

DR. LONGLEY: Yes.

You have a question?

MS. BRAR: I was just going to ask staff for clarification on that.

MR. RODGERS: Yeah, I'll verify that the standard -- this is Clay Rodgers again. I'll verify that the standard is we're looking to protect the beneficial uses of groundwater, so she is correct with the standard, and I will verify that that is the intent of the order.

MS. BRAR: Thank you.

MS. ROSEGAY: Thank you very much.

So, second, WSPA also objected to the broadening of the prohibition to include undefined, quote, "related wastes," which are not mentioned in 7 -- section 1786. That section lists only WST fluids, additives and produced

water. Staff rejected this comment and indicated in the response to comments that this term is intended to capture wastes that may be generated as a result of well stimulation, but that are not necessarily used in well stimulation directly. They site as an example wastes that may be generated as a result of interactions between WST chemicals and formation fluids.

To the extent that these quote, unquote, "related wastes" would be produced from a well that was stimulated, then that definition would make sense to me. However, the term is inherently ambiguous and we do believe that it should be defined in Attachment A to avoid confusion.

Third, WSPA requested several revisions to the order that would clarify that operators who comply with the requirements of Provision E.7, i.e., the three-year time schedule, are considered in compliance during this three-year study period. For example, we asked that Prohibition A.5 be modified slightly to state the discharge of produced water, wastewater, from wells containing well stimulation treatment fluids is prohibited except as otherwise provided by Provision E.7 rather than the way it's currently worded, which is that the discharge of produced water is prohibited except in accordance with the requirements of Provision E.7.

This may seem like an inconsequential difference,

but in the first case the prohibition comes into effect at the end of the three-year period if the operator is unable to demonstrate the discharge will not adversely affect beneficial uses and has not identified an alternate disposal method. In the second case, as the order is now worded, the prohibition arguably takes effect upon adoption of the order subject to a three-year implementation schedule.

Revisions to the introductory sentence to E.7 were also recommended in our written comments on the tentative orders, most notably that the discharger who demonstrates that the discharged or produced water from stimulated wells does not contain stimulation fluids and concentrations, et cetera, or who develops an alternate disposal method would be deemed in compliance with Prohibition A.5. Many of the operators that are subject to the general orders are public corporations that have very strict policies on environmental compliance. The obligation to operate in full compliance with the law is taken very seriously and words do matter. So while we believe the order clearly contemplates the discharges of produced water into ponds may lawfully continue during the three-year period and that compliance with the prohibition can be achieved by making a successful demonstration, we believe these points could be more explicit in the order.

I'm almost done.

Fourth, we believe that the water quality study required by Provision E.7 should be able to be conducted on an industry-wide basis or at least by groups of operators that operate in the same fields or locations with similar hydrological conditions and that employ similar WST methods and chemicals. The study should also be able to utilize data collected by USGS and other agencies that are currently studying the quality of produced water from wells that have undergone stimulation as part of CCST's interagency task force.

WSPA members have already submitted a draft work plan to the Regional Board for a two-step recognizance study that incorporates these efficiencies and cost-saving measures. We believe staff is supportive of the approach outlined in the draft work plan and look forward to their input on the plan once the orders are adopted.

One final point unrelated to the discharge prohibitions, the general orders apply to existing facilities defined in Attachment A as the, quote, "Actual maximum monthly average produced wastewater discharge to land during the ten-year period from November 2004 to November of 2014, so long as the amount does not exceed the maximum design flow of a facility approved during the NOI process." WSPA has no objection to this definition as it

establishes a long enough period of time to account for significant fluctuations in production levels due to changes and the price of crude oil and other economic factors.

We also understand that the maximum design flow applies to the entire facility and not to an individual unit that may -- and not to the individual units that may comprise the facility. We agree with staff's legal analysis and conclusion that adoption of the general orders is categorically exempt from CEQA on the ground that the orders are fundamentally actions taken by an agency to reduce potential environmental impacts at existing facilities.

That concludes my testimony. Thank you for your consideration, and I'm happy to answer any questions.

DR. LONGLEY: Any questions at this time?

Thank you.

MS. ROSEGAY: Thank you.

MR. CLARK: Good afternoon, Dr. Longley, and Members of the Board. My name is Les Clark. There you go. My name is Les Clark. I've taken the oath. You know why I'm wearing red today, don't you? Anybody know?

DR. LONGLEY: Not I.

MR. CLARK: Rough crowd. Fresno State, home of the Bulldogs. Come on.

DR. LONGLEY: I should've known that. I apologize.

MR. CLARK: Yeah. Yeah. Wait until I turn you in.

You know, it's like history here today, just -- I got ten minutes, so I'm not going to spend it all on my history. But when I was going to Fresno State I actually lived in Clovis, and I go down main street today and it looks pretty well the same. And I think where you're sitting here, this used to be a racetrack way back when. It was -- you know, they had rodeo grounds here and everything else, so some of you might already know that, maybe not.

MR. BISHOP: I did.

MR. CLARK: I represent the mom and pops, the little guys. We've been in business since 1904, trying to make sure we keep them in business. And as you know -- you're involved in a lot of other organizations, rules, regulations, whether it's waterways, air -- there's a lot of demands now that we're facing, and, of course, this is one. My -- my representation includes about 50 leases or 50 operators, and a lot of them I like to say mom and pop.

If you remember the last time I gave testimony -- and which I appreciate the time by the way, and we've had several meetings to discuss this, I appreciate staff's

patience also -- but I told you about my producer that was producing a barrel and a half a day, but because of the regulation he faced, and number one was the regulation that was put out by the Regional Water Control Board, he no -- he's not producing anything now. In fact, he's facing bankruptcy. So that's how serious it is when you're talking about, you know, these folks. That's their livelihood. That's all they've done. And you say, well, how can you make a living on a barrel and a half a day? Well, you can do it. Like anybody else's paycheck, you got to pay attention to business. And they've done that. Well, I tried to talk to her the other day and her husband's had a stroke, like two or three of them now. And I'm not trying to do the sympathy thing, but these are facts. And I can give you other examples of when you're dealing with mom and pops.

So, you know, as you make these decisions and you throw out these threatening letters, remember there are people out there that it drastically affects. And I'm hoping because I didn't bring this gentleman's problem up the last time that he didn't -- he didn't receive that letter because of that. I know he didn't. I know it's probably just a coincidence, but he did, so I'm real concerned about that.

Let's go back to the history a little bit. I --

this is about my fifth time that I've talked about this. But we've -- on the west side in Midway-Sunset Field we all know that the water out there is not good. We know that. We've had several studies that indicate that, whether it's the Bean-Logan, the Rector study, what, the WZI study and we have another one, a study that's out there too. And I've always asked every time, and I'm going to ask again. On General Orders Number Three, which I support, I understand it, but you're asking us to go out and get a lot of information. A lot of that information is already available. You need to dig into your files. Geology doesn't change that much unless we've got a -- San Andreas has done some bad things since we did some of those studies, and you all know that. So I would suggest you do that instead of saying, hey, we need more of it down, we need more information.

In the early days also, we were and we still are considered a part of the Tulare Lake Basin Plan. In those days we went through and I said, well, a waste discharge permit and I drew maps from -- you know, with all the ponds and everything else. And they said, well, you don't have to get a waste discharge permit, because you -- we just adopted the Tulare Lake Basin Plan, so you're part of it.

Well, that's before Clay, of course. We all go back a long way. I'm just giving you a bad time, Clay. I

could go back into the history of Clovis if you want.

But I would think that that's something we need to look at. I seriously mean that. And we could get a copy of the study. But in those days we also considered on the Midway-Sunset area -- which that's where most of my memories are. Highway 33, you've all been down Highway 33 only trying to get to Blackwell's Corner and get out of town, but... 33 going through the Midway-Sunset, that was considered in those days sort of a D line. Anything east of that, we had some concern. Anything west of that, no, everything's okay. And I would like to, you know, make sure that as we go through this General Order Number Three that that's still impressed, you know, with regards to your decisions.

The 250 barrels a day, okay, 250 barrels a day, you talk about that as a -- as a -- as a given, which, okay, well, we understand that, but we think that for some areas that 250 barrels a day, that should be a de minimis level, not say you're done. And now I'm see -- I'm hearing or I read that you're done in 275 days. I don't get that one. I think it should be a year from the time that the -- that you adopt the regulation. That sounds like it should -- it's the legal thing to do. Counsel is over here looking at me, giving me...

But with that, I would, you know, just let you

know that I support the prior comments from my colleagues. Well done. They always let me be last in case they chase us out of town. So, anyway, thank you very much, Dr. Longley.

Any questions, comments?

DR. LONGLEY: Any questions from the members of the board?

MR. MARCUM: Yeah, I've got a question. I'll directly relate it to the -- all of the speakers.

Why all the secrecy of what's in the well stimulation products?

MR. CLARK: Yeah, well stimulation products. I have to tell you something. I'm not real happy with the whole definition of well stimulation products. This was put together, you know, for the -- when we went through the fracturing, hydraulic fracturing. Do you remember that? And in that I said at the time, and if you look down the regulations, I had in the regulation where it says steam -- steam drive cyclic wells are not a part of that. But as soon as I saw the word "stimulation," I knew we were going to have some problems down the road. So, I mean, I could do that. I can turn it back over to the experts too if they want to talk about chemicals. I'm talking about production, keeping people in business.

Anybody want to comment on well stimulation?

DR. LONGLEY: I think --

MR. CLARK: There's no secrets from me.

DR. LONGLEY: Well, I think -- and I could be wrong and I don't want to misrepresent you, but there are certain compounds that are used in well stimulation that are proprietary -- a third-party proprietary compound. Is that what you're speaking about?

MR. CLARK: Well, I think in the fracking, but, I mean, let's not get confused between --

DR. LONGLEY: I understand.

MR. CLARK: Okay.

DR. LONGLEY: I understand. I think -- I -- I'm not quite sure, but is that what your reference was to?

MR. MARCUM: Well, I think our responsibility is for public safety, and it's -- to me it's coming from a background of pesticides. I think the public needs to know what pesticides are being used on our food -- food crops, and I think we're the environmental people, and I think we need to know at least what the components are of the well stimulation.

MR. CLARK: I don't have a problem with that.

MS. PITCHER: I just have --

DR. LONGLEY: Okay. Yes? Yes?

MS. PITCHER: We have experts in the audience that can probably do a better job of answering than I can,

but one of our recommendations in our WSPA comment letter was to model the monitoring and reporting program similar to the irrigated lands and kind of looking more at types and families of chemicals versus, like, the actual specific in individual chemicals, so similar to the irrigated land program.

MR. CLARK: Well, where is he? Get up here yellow shirt. Come on.

MR. CHAMBERS: Chairman Longley, Members of the Board, my name is Ron Chambers. I work for Aera Energy, one of the larger practitioners of well stimulation treatment in the state.

DR. LONGLEY: Did you take the oath?

MR. CHAMBERS: Can I?

(Chairman Longley swears in Mr. Chambers.)

MR. CHAMBERS: Yes. To specifically address your question, actually, as part of SB-4, Senator Pavley's bill, each and every chemical that we use in well stimulation treatment must be disclosed prior to the job and any variation that occurs during the job has to be reported in a disclosure document due within 60 days after.

The point that Jenifer was making earlier is currently under state law the vendors have to tell us so that we can tell the Department of Conservation Division of Oil and Gas Geothermal Resources. As of right now, there's

no analogous bill compelling the vendors for other common oil field treatment chemicals to disclose to the operators or to anyone else the precise formulations of those. We do get information on safety data sheets about some of the more hazardous constituents, but we do not know and have no mechanism to obtain from the vendors, as it stands right now, each and every chemical that goes into emulsion breakers, general treatment, scale and corrosion controlled chem -- chemicals, additives.

I hope that was helpful.

DR. LONGLEY: Did you have any follow-up to that, Dan?

MR. MARCUM: No. That's fine.

DR. LONGLEY: Fine. Thank you very much.

Yes? Go ahead.

MS. BRAR: I just wanted to piggyback on Mr. Les Clark's comments about the effect that the oil industry is going through right now in Kern County. And for my fellow board members, if you're not from Kern County, you don't realize the huge impact that is happening right now with the loss of jobs and the downturn in the oil industry. It's -- what Les mentioned earlier, that is the story you hear many times over. The impact is really significant right now and we have a lot of jobs that are down. Our county's budget is slashed. It is one of the -- I think

the -- a crisis right now that's happening in the county is people are scrambling to figure out what to do with this downturn in the economy.

And I just wanted to share that comment to let you know this is something that in Kern County is top of mind every day at this moment, and this industry is trying, you know, to keep its head above water, but it gets tougher and tougher as, you know, more regulations come down the pike. But I just wanted to share those comments so everyone's aware of what's happening down there.

DR. LONGLEY: Thank you much, from somebody from Kern County. Thank you.

Clay, could you address Les's comments about a lot of the data is already in the file, referring I think primarily to the geological data.

MR. RODGERS: Well, there may be data that's in a report that we have in our files. I think the issue is is that where we're looking at individual sites. And certainly if, you know, it's the same -- it is consistent with basically how we treat all dischargers is -- is that if you're going to make a demonstration, we're certainly all in favor of using existing information from reports, but a lot of these sites we don't know. You know, to go out and use staff time to locate individual sites, to identify all of the geologic information, to make all the

critical assessments, that really becomes labor-intensive on staff's part and historically has been done by the dischargers, you know, as part of a work plan or presentation, with that work then submitted to us under the -- the stamps of either registered geologists or registered engineers as -- as appropriate to make those demonstrations for an individual site, you know, if we're talking about whether it belongs under General Order Number Three or General Order Number Two or if you're making a demonstration that in fact, you know, you can't -- you don't have the ability or the quality of your wastewater is such that there is no potential for impact to groundwater and then it allows the determination then to be made by staff with the executive officer approval to waive things like groundwater monitoring, even under General Order Number One and Two where that demonstration can be made. But those demonstrations have typically not been made by staff, because we do not typically have the resources to do that. And we've asked the dischargers to pull that information together for their specific site and make the demonstration to us in the form of typically a work plan.

DR. LONGLEY: Thank you very much.

MR. SCHNEIDER: I have another comment. I just wanted to say we -- we heard an implication that our board responds to outside pressure, and I really just wanted to

comment on that, because we're certainly happy and do listen to the public, whether it's letters that we receive, whether it's comments during the three-min -- minute comment period, whether it's presentations at board meetings, but our staff and this board makes decisions based on our best judgment and the science that's available to us. And it is not a matter of responding to outside pressure in any other shape, form or whatever other than we try and integrate everybody's opinion, especially through the workshops and the other work we do to come to the best judgments we can. I just want to make that clear.

DR. LONGLEY: Clearly, and we have to do this within the context of regulations pertaining to public health and other regulations that are applicable, together with, of course, CEQA and -- which requires us to look at the economic impact and so forth. So, you know, it's a complicated task, but Bob is -- is right on, in my opinion, in the comments he just made.

Any further questions of -- of the presenters? If not, thank you very much.

And we'll call -- I've been told that we better have a restroom break. So let's do a five-minute restroom break, and then we'll be ready to take testimony from -- from environmental group now.

(Short recess taken.)

DR. LONGLEY: We're back in session, please.

Okay. Bill, you're sitting on the edge of your chair. Looks like you're getting ready to stand. Go ahead.

MR. ALLAYAUD: Hi. My name is -- my name is Bill Allayaud. I'm California Director of Government Affairs for the Environmental Working Group. I have taken the oath.

We sent a letter in a couple times here representing ten groups. We did a group sign-on letter, and we've -- so we've been involved in this. I want to step back a little further. We've been involved with the issue of oil and gas drilling in Kern County and elsewhere for a couple years now. It started in 2011 when we realized that fracking wasn't being regulated by DOGGR. And a lot of this was about DOGGR and basically turning a blind eye to a lot of what was happening in Kern County. And the regional board got involved, because they had an MOU with DOGGR from many years ago that was on paper, and so we're really glad to see the regional board involved in the irrigation of crops with wastewater and the regulation of ponds and everything else that -- because DOGGR always told us we don't do water quality, we don't do air quality, we just do downhole activities, so we're glad to see a unifying of the state agencies that have an overall ability

to assess what's going on in the oil industry.

As far as overregulation of the industry, they've had some hard times recently, but I've been involved in fights in Sacramento where, say, the building industry comes to the legislature and tries to get laws changed when building's really down. And I -- specific cite cases were about CEQA. And what was happening were high interest rates. No one wanted to buy a house in a housing market that was crashing, so they were trying to use CEQA, saying now is the time to change the law and build houses, but that wasn't the real underlying force. So when OPEC or other worldwide forces drive the price of oil to below $50 a barrel, it does hurt this county. But is that because of overregulation? I don't think so. I think a strong case can be made that this industry has been underregulated in Kern County and elsewhere. There's been a lot of focus on offshore drilling in California, less so on onshore drilling. So it's a new era for the oil companies, but with Bakken shale being oil -- oil coming out of the Bakken shale being fracked, worldwide market forces, I don't think it's fair to say, oh, we should be really careful. We should be careful, because all rules and regulations have to have an economic analysis and live in the real world. But I appreciate that the board has to step back and make decisions not just based on how many jobs there are, even

though that's part of your analysis, the economic analysis. But I just want to put that in so we have a perspective on -- on regulation in California, which citizens of California, including people of color, overwhelming support environmental regulation open space reduction of pollution more than the Caucasian people who dominated this state for so long in politics and in regulatory environment.

With that introduction, since that's the world I work in, in politics, I'll go to our comments on the general orders.

I'm specifically going to talk about the California Environmental Quality Act, or CEQA. First I want to say that we're pleased with several aspects of the three orders. I'm taking them as a whole other order. One is that your regulating those -- those ponds that never had a permit, and you found out later there were many of those. Two, you are working to protect good groundwater, something that wasn't very clear for a long time as it relates to these pits. Three is you're requiring monitoring, monitoring scheme, which is essential and will answer a lot of questions and let people be free to discharge or not. It's very good. Fourth is we saw in response to our comments you did strike a phrase about where appropriate in terms of protecting beneficial uses and just say they shall be protected as necessary.

So CEQA involves when there is a project. I think no one's arguing whether this is a project or not. Everyone says it is, but then do you apply CEQA in this case? And why do you apply CEQA? To mitigate impacts among -- mostly, but it's also to consider alternatives to the project and to address long and short-term impacts, whether avoidable or not. So if you don't use CEQA in this case, you're not going to assess alternatives to the project, such as no project alternative or doing something different like injection in the ground rather than disposal onto surface ponds.

So the board has relied upon the -- the assumption that these are existing facilities and therefore categorically exempt, and we strongly disagreed with that all along. The categorical exemption for existing facilities is meant in CEQA to be such as maintenance of existing facilities so that you're not doing onerous reapplication or new application of environmental review to things that just don't need it. In this case we say having about 900 ponds in Kern County, many of which were unregulated for half -- basically a century should be subject to a complete environmental review and get clear answers.

And the board has known for years that these -- there are significant impacts. Most recently, the board

acted prudently to ask Chevron to shut down some open ponds on the east side that were overflowed with groundwater, maybe 2 -- 2010, I think. And then also we have the -- the case of the Fred Starrh Farms where Aera resources percolation ponds polluted his orchard and he won over 8 million dollars in damages. So we know the ponds can have significant impacts and so that wasn't a question either we don't think. But this question of whether there are unusual circumstances that therefore trigger the exception to the exemption, it gets complicated, and your attorneys know that, is -- is one thing at stake here --

MR. SCHNEIDER: Bill?

MR. ALLAYAUD: Yes.

MR. SCHNEIDER: Would you hang on a second? This is Bob.

MR. ALLAYAUD: Yup.

MR. SCHNEIDER: Karl, I'd like to ask Patrick I think to -- to address this question of CEQA right away. I mean, the bars for challenging a categorical exemption are fairly low. The bars for challenging a CEQA document are much, much higher in terms of how this moves forward, and I'm wondering just strategically what makes sense for the board and -- and are we defensible with this categorical exemption at this point in time.

MR. PULUPA: I -- I certainly think perhaps

Stephanie could elaborate on that. But, I mean, the principle stands that when you look at these ponds, they're existing, they're there. They got sited there. They've been in operation for many, many years. And when the board is -- I mean, it's not just maintenance. The regulation itself says more than maintenance. It's -- it's also the permitting of the existing facilities fall within the existing facility categorical exemption, so it's -- you can't just quote the language that suits your argument. It's more than that.

MR. SCHNEIDER: If I --

MR. PULUPA: So I do think -- I do think the -- the existing facility exemption is appropriately used here. I -- I -- I would also comment that the -- the -- the -- although there have been objections being made from day one, I do think that the scope of these orders was significantly narrowed based on this -- the objections from the environmental folks to the use of categorical exemption. They pointed out that new ponds, expanding ponds, shouldn't be subject to the exempt facility and the draft orders that are in front of you right now are -- agree with that and say if you're going to site a new major pond in Kern County or anywhere in the -- and you have to go through the full CEQA process, the board will not admit those into these regulations perspectively. We'll consider

those on a case-by-case basis, but -- so I don't think that this is -- that this existing facility exemption is being abused in this context. I think it's being appropriately applied by the board.

MR. SCHNEIDER: I -- I wasn't looking for the word abused or not, but appropriate use I appreciate.

Thank you very much. I appreciate that.

MR. ALLAYAUD: Well, we disagree with your counsel's answer about there are no unusual circumstances that -- therefore, you can't override the use of the categorical exemption. We think there's no rational basis. Clearly, some existing facilities have impacts on degraded air quality in Kern County and the cumulative impact of the dischargers aren't addressed. Also, water from some of the ponds is already reaching groundwater or will as we know. Indeed, whether or not activity may have a significant effect due to unusual circumstances requires a case-by-case evaluation. That's appropriate for a general order. We think it's -- you're piecemealing it by saying, well, someone else will do this. I did look at the Kern County EIR that specifically said we are not going to address the percolation ponds as opposed to the sumps and pits that are small and near the operation. They said that will be the Regional Board's job, and that's what you're doing. So I looked there, I thought, well, maybe they covered it,

because DOGGR's relying upon the Kern County environmental document today and approving wells in -- in Kern County. You are not, and they didn't want you to, so it's up to you whether you're going to do it or not. In this case you're saying you're not going to.

And as far as whether there -- there's a bunch of case law on both sides it turns out. What Mr. Pulupa said is true if you look at from his standpoint. There's case law that says you can't use it in this case and case law that would argue that you can, and so the legal minds are going to argue about that or disagree. I'm not a lawyer. It turns out that we have a couple lawyers advising us who know the law better than I do.

In sum, we think the lead agency must review the particular facts of each project to determine whether any unusual circumstances exist, and we think since the board was well aware that these ponds were unpermitted, it's not like we suddenly go, oh, look there's a bunch of ponds, where did they come from, we feel like just to sweep them into an existing use category is not acceptable.

Get back to my notes. So I have two lawyers, two responses to comments and a lot of complicated stuff here.

Okay. So on CEQA, your attorneys are telling you that the CEQA exceptions to the categorical exemption don't

apply because the -- your actions would not result in any physical change, since the general orders do not authorize wastewater discharge flow in excess of the baseline. We disagree. We think that the baseline could be exceeded. First of all, in the cleanup and abatement orders a higher rate of discharge was currently permitted under those than under the current ones, so it's switched here. What would also switch from last summer to now is the board staff is openly admitting in response to comments these do have significant impact, they do have a cumulative impact, and now that is morphed into saying, yeah, they do, but we're going to fix it by doing these general orders. So I think the fact on the whole is that you have to look at everything and say we know they exist, we know there's cumulative impacts, we know there's significant impacts and we can find a legal way to say ah-ha, but there was a case that said in this case the judge said, well, but so what if it was a violation, it can be considered an existing facility. We can find ones that will say we need to still analyze these on a case-by-case basis.

Two things that are not covered by not doing CEQA, the air quality and greenhouse gas emissions. GHGs, or greenhouse gases, were brought into CEQA by Attorney General Jerry Brown, now governor, and his advisor, Cliff Rechtschaffen, you probably know, helped do that. And so

we see no analysis of whether these ponds will contribute to greenhouse gases or to air quality. When we raised them with DOGGR they said we don't know anything about air quality, and now you folks are saying we're not the -- ask the air quality board. Kern County EIR didn't address them. You're not going to address it. So who's going to look at air quality?

If you drive up or walk up to these ponds, they don't pass the smell test, and I'm using the pun here, because you see -- and look test. You see shimmering things coming off. They smell like hydrocarbons. Where is that going? Into the already degraded air basin of Kern County. So we think there is a significant impact on air quality, and who's addressing that? It's not addressed by the factors in here, a well thought out monitoring plan. And we know there's, you know, details to be figured out in, you know, who does what in the monitoring and where, but there's nothing on air quality being monitored either. That's being bypassed by declaring these categorically exempt.

I think that's it for me. I'll turn it over to Keith. That's it.

Thank you very much.

DR. LONGLEY: Thank you, Bill.

MR. NAKATANI: Good afternoon, Board Members.

Keith Nakatani, Clean Water Action. I have taken the oath as well.

So as Bill just said, there are some good things in the order. He listed them, and we appreciate the board undertaking this arduous effort. So there will be some benefit from -- from your efforts. I'm going to comment on four general order issues, the Antidegradation Policy, trade secrets, the three-year compliance schedule, and then also you just now removed the groundwater monitoring requirements for Order Number Three.

So the first issue is the antidegradation. So we strongly oppose that, as you know, in our comments let -- in our comment letters. So you intend to allow degradation up to the water quality objectives in the Basin Plans. We oppose this for several reasons. The water board has not supported its finding that continuing this practice indefinitely into the future will generally serve the maximum benefit of the people of the State of California as is required.

DR. LONGLEY: Keith, just a second.

Clay, could you respond to that, please, either you or Patrick.

MR. PULUPA: Or Stephanie.

DR. LONGLEY: Or Stephanie.

MR. RODGERS: Well, I guess -- I guess I will

respond. Certainly, the intent of all three orders is to comply with the Antidegradation Policy. I believe we do have the findings in here. We've looked at -- at economics, you know, at least in some degree, to find that we believe that it is in the best interest of the citizens of the State to allow some degradation as long as it's not pollution, because of issues associated with employment, because of issues associated with the need for a reliable energy supply, and I forget all the specifics, Dale, that we included, but we did have that -- that finding in there and then also best practicable treatment or con -- or control. So we do believe we have complied with the Antidegradation Policy.

MR. HARVEY: What -- what was the question again?

MR. RODGERS: You can -- you can go now. Sorry.

DR. LONGLEY: Thank -- thank you, Clay.

MR. PULUPA: And -- and I guess I'm curious. Given that those findings are in the order, which aspect of those findings are you opposing?

MR. NAKATANI: So that's the rest of my testimony on this subject.

So -- so we understand that the board believes that it is in the best interest of the people of California, but we don't believe that you have demonstrated it. So the water board mentions the local and regional

revenues of the industry, but it fails to consider quantitatively and qualitatively the many externalized costs of oil production, such as degraded air quality, as Bill just mentioned. And just an aside on that is that I don't know if you're aware of a recent ARD research that -- it was admittedly small, so they're saying, you know, you can't draw any conclusions from this. I believe they tested three ponds. But from one of the ponds, I believe it was point 2 tons of BTEX were being emitted on a daily basis. So, I mean, that in itself is an indicator that more research needs to be done and that, as Bill said, anecdotally just going to the ponds you know there's some nasty stuff coming off of it.

Other examples are water quality, human health impacts and associated medical costs, destruction of farmland, nuisance to neighbors, and contribution to the climate change. Now, we're not saying that these are easy things to figure out, but these are issues that should be factored in.

DR. LONGLEY: Keith -- Keith, you raised some very interesting, important issues.

Clay, I guess you're the one, or Pamela, is not the San Joaquin County Air Pollution Control District regulating air quality in this area or are they not?

MR. PULUPA: I -- I would -- I would say that

we've got two -- two distinct discussions. With respect to antidegradation, it's the water quality that's linked to the max -- water quality degradation that's linked to the maximum benefit of the state, not every ancillary impact. I haven't heard a water quality impact in that litany of things that you're talking about.

MR. NAKATANI: So there -- there are ponds that you're aware of, such as McKittrick that has a plume that's now well over a mile that's heading toward the water source. There's the Race Track Hills and Fee 34 sites that have been -- evidence has shown that have impacted groundwater quality.

MR. PULUPA: But that -- but that's not antidegradation, right? That's -- that's the cleanup, the regulation to the water quality objective. You're talking pollution here.

MR. NAKATANI: Okay. Well, let me -- let me continue. Point taken.

I would also say the water board has not demonstrated that dischargers will implement the best practical treatment or control. The orders require, quote, "Discharges to submit a detailed technical report describing how the proposed discharge will meet BPTC requirements," unquote. But the orders do not specify what those BPTC requirements are. So with no guiding standards

and no opportunity to review and comment upon the water board's approval of any discharger's proposal, it can't be claimed that BPTC will be achieved at every location.

Thirdly, the water board has not -- has also not demonstrated that monitoring will avoid groundwater degradation. Again, monitoring plans will be submitted on a site by site basis, reviewed and approved outside of public purview and with no clear guiding -- with no clear guiding standards and may be terminated upon the broad discretion of the executive officer. The board also proposes keeping certain chemical constituents confidential. These loopholes and shortfalls are insufficient to support a determination that no groundwater degradation will occur.

So the second general order issue is trade secrets. You heard previously under SB-4 the identities of the chemical constituents of additives, the concentration of the additives in the well stim treatment fluids, and the chemical composition of the flowback fluid shall not be protected as a trade secret. Once a discharge occurs, the claim of trade secret is invalid as that product is entering the environment and part of the public domain.

The recent superior court ruling, Zamora v. Central Coast Water Board, required the release of private records where water quality impacts occurred. The court

stated that, quote, "The public is entitled to know whether the Regional Board is doing enough to enforce the law and protect the public's water supplies," unquote. As the water code says, quote, "All discharges of waste into waters of the state are privileges, not rights," unquote. So the water board clearly has the authority and mandate to require the disclosure of materials affecting public water supplies. Since this is the case, our position is that the water board must require the disclosure of trade secrets. And as the Council on Science -- California Council on Science and Technology says, in order to properly regulate oil and gas activities, it is necessary to know what chemicals are being used and in what amounts and frequencies.

The third general order issue is giving operators a three-year compliance period which will allow them to continue to dump well stim fluids so that alternate -- alternate disposal methods can be determined or that a determination is made whether the raised water contains well stim fluids. We also oppose this. This three-year period would illegally undermine the requirements of California Code Regulation 1786(a), which says well stim fluids, quote, "shall not be stored in sumps or ponds or pits," unquote.

Specifically, firstly, the water board wants to

adopt this three-year time schedule under Water Code Section 13300, but this section applies only to actions that will, quote, "will violate requirements prescribed by the Regional Board or the State Board," unquote. The prohibition on disposal of well stim fluids in open pits was adopted by DOGGR, as we've heard several times today. Water Code Section, as I just mentioned, 13300 does not provide authority to the water board to override requirements set by other state agencies. So the water board's action would be illegal. Now, I've read the responses, so I understand that you guys have a different perspective on this.

Secondly, the orders do not ensure well stim fluids will not be discharged. Instead, the revised general orders give the responsibility to the dischargers to demonstrate that waters, quote, "do not contain well stim treatment fluids or related waste in concentrations that could adversely affect beneficial uses of water," unquote. This stops short of demonstrating that no well stim fluids are present at all.

Thirdly, the water board provides no evidence to support its conclusion that, quote, "a time schedule is necessary to allow the dischargers to fund, study and implement appropriate compliance options," unquote. This conclusion is contrary to the previous determination by

DOGGR to adopt this prohibition and -- which has already been in place for nearly two years.

Fourthly, with no guiding standards or public review, the general orders would allow these violations to continue indefinitely, since, quote, "the executive officer may at its discretion" -- it probably should say his discre -- his or her discretion -- "modify this time schedule based on evidence that meeting the compliance date is infeasible through no fault of the discharger," unquote. Given that the board has failed to provide any evidence to support the necessity of this compliance -- compliance extension now, it is equally unclear on what basis future extension would be granted.

DR. LONGLEY: Keith -- Keith, you make a strong comment there.

Clay, could you address that, please?

MR. RODGERS: Well, I mean, we believe that a time schedule is appropriate to address this, so I'll kind of address a couple of questions.

We believe a time schedule is appropriate, because you can't have just a -- a drop-off-the-cliff point where all of a something -- all of a sudden something comes into effect and -- and insufficient time is given to dischargers to address the issue. And that's the whole reason for a time schedule order. And so we believe that

three years was an appropriate amount of time to allow demonstrations to be made, that they could comply with the order or get additional, you know, whether it's injection capacity, because, again, it may require drilling of new injection wells, you know, as these things take time to permit, to install, and therefore we felt that three years was an appropriate amount of time. We believe we adequately justified that.

You know, there's also the discussion about the prohibition itself and that, you know, we have an obligation to -- to enforce the DOGGR regulation. And I believe -- and Patrick can correct me if I'm wrong -- that our responsibilities are to protect water quality. And there's actually some issues if we were to go and enforce the DOGGR regulation strictly the way it is that -- that we could actually get ourselves in trouble. This may not be the absolute --

DR. LONGLEY: In what respect could we get ourselves in trouble?

MR. RODGERS: Well, I'll let -- I'll let --

MR. PULUPA: I wouldn't say necessarily get ourselves in trouble, but. There -- there's a whole universe of regulations that apply to the entities that we regulate with waste discharge requirements from waiver standards to air standards, all sorts of rules and

regulations. Our enabling statute pertains to the water quality aspects and those related aspects of their operations. If we were to go into a facility with our inspectors and, you know, and say to you your workers are working overtime and then try and force some fair labor standards on their property, that would -- we'd be acting in excess of jurisdiction, much the same way that, you know -- I think it cuts closer when we're talking about DOGGR's regulations, specifically those regulations relating to activities that we do regulate. But, there is a line. There is a line in between where DOGGR regulations apply solely to issues that are not related to water quality and then those issues that are related to water quality. Where a discharger can make a demonstration adequate to the executive officer, adequate to the board that the compliance with a particular regulation has no water quality nexus, there is ample legal support for not enforcing that. I mean, if -- if there's no water quality problem and if there's no water quality risks and that's demonstrated to the board, then the board generally does not regulate that.

DR. LONGLEY: Keith, you -- your -- very good presentation. I know you're not quite done yet, but you raise -- well, among the presentations that I've heard over my time on the board, you're dealing with some very, very,

from the standpoint of law statutes, some very, very complicated issues, and I just wanted to thank you for raising those. And certainly, that's why I'm having staff give us their feedback as to what their perception is, because I think it's important that we take these one by one as we -- as we go through them. So I want to thank you for that.

But go ahead with your presentation.

MR. NAKATANI: Sure. I understand. Thank you, Dr. Longley.

I would just say that in general that the three-year compliance schedule, one of the ways we see it is that it just gives the dischargers an additional three years to dump well stim fluids. Why is it three years? So that's what we see. It's just a -- it's mainly a grace period. We understand that they need to figure it out, but, anyway, that's our perspective.

So lastly on this issue, the board's permitting of disposal of well stim fluids to land for at least three years, if not indefinitely, is not in the maximum interest of the people of the State, since this practice has been banned for nearly two years already.

And then the last issue, the fourth general order issue is removing groundwater monitoring requirements in General Order Three. So we would say that the McKittrick

site could very well be categorized under General Order Three. And as I just said, there's a plume of wastewater migrating from it. If this order was enforced before that was known, then we would have never known about this plume. So there is some utility, we would say, strong utility, in monitoring for General Order Three sites. The board decided that monitoring was important for McKittrick, but now you're saying basically that it's not needed for other sites similar to McKittrick. So that's an inconsistency that we don't understand. So our position is that groundwater monitoring is needed at General Order Three sites.

And that concludes my testimony. Thank you for the opportunity.

DR. LONGLEY: Thank you very much. And I -- you also mentioned this issue with the third-party compounds that are used in well stimulation. It's also used in well rehabilitation for corrosion compounds. I didn't interrupt you there. I -- I concur with your concern. It's been a frustration to me and I know to staff as we go through this -- I'll let individual board members speak for themselves -- but as we go through addressing the issues out there and not knowing what -- what these chemicals are. And I'm hoping that we find a mechanism to resolve that situation.

MR. NAKATANI: Thanks for saying that.

MS. KADARA: I'd like to ask -- or question for the staff to respond to the -- his last issue regarding the inconsistency.

MR. RODGERS: Certainly, Ms. Kadara. I can respond to that.

I mean, everything he said about the McKittrick problems is true, and we're taking a very serious hard look in -- in -- in what the options are associated with that. But also during our presentation one we're certainly not convinced that those ponds will fall under general Order Number Three, because water is migrating in toward the Valley in areas where there are supply wells that could be affected, primarily irrigation supply wells, very similar to what was seen at some ponds a little further to the north, an issue that was referred to earlier in association with Starrh ponds. So that site is a particular concern to us. It is under existing waste discharge requirements. And I don't personally anticipate that that site can come under these general orders, and so that is something that staff is working on addressing, but that discussion is better left for another day. And I really can't talk about ongoing activities now that -- that may show up at this board in the future.

MS. CREEDON: So in -- or in order three, General Order Three, staff know these areas in the Valley where

there's either first encountered oil or no groundwater or the ground -- or they have a pretty good idea that the ground -- underlying groundwater is really of poor quality. And we have a pretty good idea where those are located, and we're not going to allow a discharger to even begin to enroll in that program unless they fall under that -- that staff's pretty confident that a Basin Plan amendment would apply.

MR. RODGERS: And I'll add just a little bit to that. There are certainly some fairly significant areas on the west side of the San Joaquin Valley where it does not appear that the groundwater will support the beneficial uses that are identified in the Basin Plan. And we have a good idea. Les Clark, during his testimony earlier, talked about some of those areas west of Highway 33. Certainly, that probably falls within the area that's there. We do require that -- you know, it's not -- saying it doesn't make it so. We do want some actual data to indicate that, you know, it is probable that a Basin Plan amendment can be done. They must participate in the Central Valley -- in the CV-SALTS process to get a Basin Plan amendment and they must make progress over that five years or the executive officer has the authority to take steps if information becomes available that they can't get a Basin Plan amendment or they aren't proceeding with the effort to get

that Basin Plan amendment.

So the reason the -- the monitoring requirements were taken out is we basically have a clause in there now that if you can demonstrate that there really aren't detrimental effects caused by the discharge from your pond, that we would waive the groundwater monitoring requirements. When we look at an area that we thoroughly believe is suitable for a Basin Plan amendment, the groundwater will not support the beneficial uses, we have no anticipation that the water is going to be used for those purposes in the future, it doesn't make sense to us to require a very expensive groundwater monitoring to go through and -- in order to collect that data when in fact that water doesn't have the beneficial use. That -- that's the reason it was taken out is that, you know, they can make the argument the fact that it's suitable for a Basin Plan amendment. I certainly would recommend to the executive officer that we waive the requirement to do groundwater monitoring in that circumstance. And so we basically just simplified the process to get through that.

I apologize for coming through in a -- in a late revision. In reality, it probably should have come out a little bit sooner. And in honesty, the demonstration's already been made in several places, because we've been dealing with this issue through our cleanup and abatement

orders and that demonstration's already been made for a number of those folks.

MS. KADARA: Thank you, Clay.

DR. LONGLEY: Go ahead, Bill.

MR. ALLAYAUD: Bill Allayaud again, just in conclusion of our time.

That was -- a lot of what Mr. Rodgers says we -- we agree with. I harken back to the former director of the Department of Conservation, oversees DOGGR, was on a site visit on the west side, and he said he saw an oil company pumping up really good groundwater on the west side, so you just don't write off the whole west side, whether it's west of 33 or whatever. So how do you find out is through good monitoring and maybe there will be places you can so-call write off where it doesn't matter anymore what type of carbon is mixed with groundwater.

But we want to finally acknowledge and appreciate the -- the work of Executive Officer Creedon and her really good staff and also the board for thanking us. You thanked us a couple years ago when Keith's predecessor was here to -- helping to bring your attention to the oil industry more. And we think the industry is -- they're flexible and innovative and we'll -- I think one day we'll all look back and go this is a good thing. We got rid of some ponds where they shouldn't have been that we didn't know about

and other ones are okay. We still have the problem with the air quality, and -- and I think it will all get worked out at hopefully a reasonable cost for all parties. Thanks.

DR. LONGLEY: Thank you very much for your testimony.

We have interested persons now. And the first card is -- just a moment.

MR. SCHNEIDER: Go ahead. Well, I was going to let you call him up and while he was coming up, I'll --

DR. LONGLEY: Good. Jim Walden, do you want to come to the mic, please?

MR. SCHNEIDER: And I was just going to say that --

MR. WALDEN: There's no need to.

DR. LONGLEY: Excuse me?

MR. WALDEN: I don't need to.

DR. LONGLEY: Good. Chris Hall?

MR. SCHNEIDER: That game comes pretty quick after 5 o'clock.

DR. LONGLEY: That didn't come out like it was supposed to. I should've said thank you.

Chris Hall?

MR. SCHNEIDER. And -- and I just wanted to -- I've been mulling over Patrick's defensibility of our

categorical exemption, which I appreciated. And the other side of that is this gets us moving forward right away on this, and I think that has a high priority in my book also, so with that defensibility and -- and the need to really begin this process.

MR. PULUPA: And I -- I -- I will say that reasonable minds differ on -- on the application of CEQA in this context. I think the board is -- the proposed findings are legally supportable. I think the conditions that are out there represent an improvement over the baseline and that there is not an exception to the exemptions that would apply in this circumstance. But, again, I -- I respect individuals who disagree with that conclusion. We may work that out in court. And --

MR. SCHNEIDER: Then we'll be more delayed.

MR. PULUPA: Well, and -- and, you know, I respect the difference of opinion there. But -- but, like I said, I do believe that the findings in the proposed order are justified.

DR. LONGLEY: Go ahead, sir.

MR. HALL: Dr. Longley, board and staff. Thank you --

Microphone? Push the button?

Thank you for the opportunity to --

DR. LONGLEY: Frankly, I think a lot of people

come up and they see the green, they think it's on.

MR. HALL: Well, it's all a matter of perspective.

Before I comment on the comments I've got here, which are short, let me answer one of the issues that came up on the prior testimony. The observation was made that agencies are working together and thus overlapping and providing better regulation and enforcement. And from the field I can tell you that that is the case, whether it be a water board inspector, a division of oil and gas inspector, or an air quality inspector, all three or even, say, the Kern County Environmental Health Department, they're all looking at the ponds, they're all looking to see what is on them, and they are evaluating whether or not they are in compliance. Air quality does look at it. There is a coverage limit that you're allowed to have, and there have also been air quality tests of emissions. I don't understand the shimmering bit. I haven't seen those, seen a lot of wildlife on our own ponds, but I -- I just provide that as a comment and relevant.

I want to thank all of you for having been open to the input and discussion during the past 25 months when Les Clark dragged -- dragged some of us up to meet with Clay for the first time, and we were talking about the inventory of the ponds, active and inactive. We've come a

long way towards a better understanding of your requirements as well as your understanding of our operations.

Now, while many of the issues and concerns have been resolved, others have been left to be addressed during the implementation of the orders. Many of these were recommendations on how steps could be taken to lessen the onerous economic impact of the implementation of the orders. And I appeal to the staff, please, to work with the companies to implement the regulations while being mindful of the costs and the measures that could be reasonably taken to reduce costs during their implementation, and for the board, in your oversight capacity that you oversee that the staff does in fact do this.

I have two items of concern that are worth noting at this time. First, the extension of the well stimulation fluids that have been discussed to include all wells that were frac-packed in addition to hydraulic fracturing in the 1940s through the 1960s is questionable, although the methods and fluids used were not what was of concern in the SB-4 legislation. Now, this is analogous to saying that cars using hydrocarbon fuel sources should be eliminated, so therefore the use of the wheel should also be eliminated since its technology was -- enabled the development of the

automobile. The two just are not analogous. And yet, by our count and other producers I've talked to, about one-third of producing wells in Kern County would be impacted by including frac-packed wells in the well stimulation technology regulation. DOGGR needs to take immediate action to respond to your request for clarification while being mindful of their responsibility to ensure the efficient development and production of this valuable resource.

And, finally, the discharge of produced water to existing ponds is to be based on the rate determined over a ten-year period for an oil lease facility and that is too limited. It does not take into account that the existing ponds have been designed to handle the increased water production that will occur over the life of the field as oil production declines. Now, I know that -- understand that the board bases its criteria on what is imposed on other industries, such as the dairy industry, and if I were to make the analogy here, if you increase the number of cows and have greater discharge, a permit revision must be applied for it. But a well's production characteristics are different from what a cow discharges and that needs to be taken into account, the increasing water production over the life of the field, the ponds were designed to handle that.

So if you'd look at it and discuss it during the permitting phase, I appreciate it. Thank you very much.

DR. LONGLEY: Chris, you make an interesting point. Clay?

MR. RODGERS: Well, the first -- the first part of that question, if I get them all correctly, was -- well, I mean, let me back up. I lost my train of thought there for a second, so maybe it will --

MR. HALL: Was it the wheels or the cows?

MR. RODGERS: Well, I'm -- I'm involved in the dairy stuff, so I was -- I was interested on how that analogy was going to work out. Now I'm at a stupor.

MR. HALL: I -- I guess the main point was that the ponds were designed to handle the production during the life of the field. As long as you're not drilling a new well or adding what would be the equivalent of a cow, then you ought to be able to base the discharge limit through the pond as it was designed, because the field's production, because you're a geologist, the -- the mobility of the fluids and the reservoirs are eventually going to preferentially produce water to get even a little bit of oil you're going to get. That's the problem.

MR. RODGERS: I understand your concern and fully agree that, you know, the water -- the water cap will probably increase over time during the field, but I'll tell

you that basically what will happen here is I'll have to refer to the Office of Chief Counsel and our legal attorneys, because that baseline sat upon a certain flow in the environmental impact that -- that was potentially caused in the past and -- and even though it may be recognized that that flow will increase over time, I would have to ask our legal staff whether that puts us in an issue where it would be described as an expansion of the discharge even though it's an not expansion of the number of wells, and is that in compliance with the existing facility exemption. So I'm going to have to let Patrick weigh in on that, because he and Stephanie would be the ones that I would ask.

MR. PULUPA: Yeah. No, I -- I certainly see your point. I think that from a pragmatic perspective drawing a baseline as perspectively increasing even the volatility of this -- of this industry as we all recognize will be problematic from a CEQA perspective, because these ponds haven't received CEQA review that would characterize the environmental baseline based on projected increase in flow. So, you know, CEQA really is, you know, for better or for worse, a play it as it lies type of law and we -- in terms of defining what the existing facilities are, what the baseline is, we look back to a reasonable range as we're classifying the flows into that basin as they existed over

the past. It's tough to kind of draw that line as an increasing line in the future. We probably could do it, but that would entail putting together an environmental impact report. I think that would fall outside the existing facility exemption. I respect your -- your point there and I think practically speaking that that may be accurate, but those increased flows will be tough to justify under CEQA.

MR. HALL: And as far as the wheel, we can leave it up to DOGGR hopefully to resolve that, but --

DR. LONGLEY: Well, that brings a question in my mind that it would be difficult to resolve under the existing CEQA, am I correct? But you -- as I heard you say, there would have to be additional -- a CEQA review to be able to address that issue one way or the other. Am I correct on that?

MR. PULUPA: I -- I -- I tend to agree, I mean, without seeing a -- the proposed resolution in front of me, it's tough to -- to see what that would be. I will say that state agencies across the board in a variety of context have been more receptive to engaging in joint CEQA processes. So if one is amending a resolution -- or regulations or doing something that has CEQA ramifications, we can partner, find any common scale so to speak and -- and try and address these issues perspectively. It just --

the question really becomes does the board -- is the board fully aware of the universe of potential environmental effects of -- of redefining the baseline or of allowing future expansions in new facilities or expansions of existing facilities to be regulated under the standards that we're setting in WDRs. I think that question at this point isn't answered. I think we would -- we would need to answer that in a CEQA document. I -- well, so while I'm comfortable saying that the existing facilities with the baseline that were defined past muster under CEQA, again drawing that projective line upwards would entail another CEQA document.

MR. HALL: It's certainly something to look at and consider. We've been looking at -- not just me, but other people in the industry -- other agency permitting, such as air permits, under water slightly -- I understand water is slightly different, but, I mean, as far as an allowable emission level, a permitted piece of equipment that has a certain capacity and then which are actually generating something less than that, but it gives you that room for some variance to -- to be adopted. So the baseline they design based on the equipment design, which would be what those ponds now could handle, but...

DR. LONGLEY: Well, what I heard from counsel is partnering with another agency, particularly is -- and I

take that to mean, for instance, you're talking about DOGGR or air district if -- if they are taking an action requiring CEQA, it would be worthwhile looking to see if this issue could be addressed also?

MR. PULUPA: And -- and it's a tricky thing to be sure. And, I mean, we -- I work in the same building as air board attorneys, and they struggle with this issue as they revise their regulations. And -- and, frankly, much as the folks who are up here talking about environmental concerns, even though everybody here I think is talking about environmental concerns one way or the other, but the -- the folks who were raising the CEQA arguments just -- just ahead of time mentioned that reasonable minds differ and courts differ on that. I think with respect to, you know, say, emissions from stationary sources, there's been a series of different opinions about what the baseline is with respect to those -- to that equipment and I -- I think that, again off the top my head, most of the cases that have allowed for those increased projections based on, you know, equipment running at its full capacity to continue in the future, most of those tier off of environmental work that has already been completed. We're -- we're really dealing with existing ponds that had never undergone that thorough of a CEQA analysis. And I think we got Southwest Air Management District, there's a couple cases down there.

There's a couple cases involving other type of regulatory standards for -- for stationary sources. But, again, I think in this case, you know, we've got the ponds as they are discharging relatively speaking at the rates that they are discharging. Allowing an expansion beyond those rates would probably need -- need -- need to be addressed under CEQA. But I -- I certainly appreciate your concern. I do know there -- there are instances where existing air pollution control technologies have been allowed to not undergo additional CEQA based on their capacity. But, again, I believe those cases are rare, that operating at full capacity has already been analyzed from the environmental perspective.

MR. HALL: Thank you very much.

DR. LONGLEY: Thank you, Chris.

Melissa Thorme. And then Brittany Watson.

MS. THORME: Good evening, Board Members. Melissa Thorme from Downey Brand. I'm putting on a different hat now. I'm talking on behalf of Valley Water Management Company. And I want to say thank you for the changes that were made in response to earlier comments that we provided. And we were surprised to see that our letter wasn't in the comment letters.

DR. LONGLEY: Excuse me. Melissa, you took the -- you took the oath; is that correct?

MS. THORME: Yeah, through the oath earlier.

DR. LONGLEY: Thank you. I'm sorry. Go ahead.

MS. THORME: So we thank you for adding our January letter to the record. There were several requests that we made for wording changes. One was in General Order One, Provision B.18, and General Order Two, Provision B.16. And that section is about best practical treatment and control, or BPTC, which is a requirement of the Antidegradation Policy. And the language in here talks about protecting water quality, but really that only applies to protecting high quality water, so we just wanted the -- the words to be changed from protecting water quality to protecting high quality water for those sections.

The second issue we raised was there was duplicative provisions in all of the general orders in sections D3 and 5 about road mix being nonhazardous, and we propose removing one. And the reason is if there's duplicative provisions and permits, if you happen to violate that, you could violate it twice and get penalties for two violations, so we really try to make sure that permits only have a requirement once.

And then the biggest concern that Valley has is about the MUN de-designation under General Order Three, which we're hoping that some of their facilities can be

covered under General Order Three. And we provided extensive comments along the way on municipal designation under the Sources of Drinking Water Policy. And the permits cite State Board Resolution 88-63 when it really should be citing your own resolution, which is 8908 -- 89098 -- sorry -- which is what you -- your board adopted the Sources of Drinking Water Policy into your own Basin Plan under that resolution. And if you read that resolution carefully, and the language is included in our comment letter, it says that you're designating municipal drinking water supply as a use with the exception of groundwater where the TDS exceeds 3,000 and is not reasonably expected by the regional boards to supply a public water supply system or there's contamination either by natural processes or by human activity that cannot reasonably be treated for domestic use using either BMTs or best economically achievable treatment practices or it's not sufficient to supply a single well capable of producing an average sustained yield of 200 gallons per day.

So the argument is if it wasn't meet -- if you met these criteria in 1989 when you adopted the resolution, it shouldn't have been designated in the first place, but now you're putting the onus on people to de-designate it when it shouldn't have been designated.

So one of the -- the problems is the cost of

de-designation is not one of the costs that was considered in the presentation. I didn't see those costs in the itemized cost presentation. And under Water Code Section 13263, which incorporates Water Code Section 241, you have to consider economic considerations and the quality of the water available thereto that's being regulated.

So we would hope that we could get a streamlined approach for this designation review to say if you can show that in 1989 you met those exception criteria, you shouldn't have to go through a whole de-designation process, because it shouldn't have been designated in the first place.

We're hoping that we can work with you to try to work on this. I know, I've had these conversations with Patrick numerous times about the language of that resolution and the conundrum of trying to de-designate something that shouldn't have been designated in the first place. So essentially there was a resolution that blanket-designated these things with no evidence that these uses were actually in existence and now we're having to provide tons and tons of evidence to undue something that was done without proper evidence.

DR. LONGLEY: Patrick, could you address the --

MR. PULUPA: Okay. I -- I think that -- let's start with the easy ones. I think the -- and I've spoken

with Stephanie and Clay. I think the first requests coming in from Valley Water Action make a whole lot of sense to changes to 16, 18, and 3 and 5, and it's my understanding that E9 or 10 has already been changed to reflect that. So, you know --

DR. LONGLEY: 16, 18 or 9. Please clarify for the board, because we'll be ruling on this.

MR. PULUPA: It's -- it's in two different orders.

DR. LONGLEY: Okay.

MR. PULUPA: So I think it's in 16. And, again, I'll -- it might take a quick recess ahead of time.

MS. THORME: Yeah. It's B18 in General Order One and B16 in General Order Two.

MR. PULUPA: Yeah.

MS. THORME: And B9 --

DR. LONGLEY: I'll tell you what. We'll let you work on this, and we'll let Melissa finish her testimony, and I'll take testimony from the other two folks while --

MR. PULUPA: Well, I -- I only got to four or five of -- of that, and the fifth one is the fun one. I -- we have had a number of conversations, and I think the problem is I wasn't your attorney in 1989, so that's the big -- big problem.

DR. LONGLEY: I can attest to that. I like

working with you.

MR. PULUPA: I agree with Melissa in concept. However, the text that was actually added into the Basin Plan and then has been implemented since 1989 is perhaps inconsistent with that resolution. CV-SALTS and other basin planning efforts are undertaking, you know, complete or partial steps to rectify that problem. I do think that this is one of those situations where both the dischargers and the Regional Board will be working together to alleviate the concerns of the potentially inappropriate MUN designation in areas where MUN is not supportable by one of the factors in the Sources of Drinking Water Policy. I do think that it is in many cases a joint effort. I think that the monitoring and reporting that is required to push those efforts through, which is really where that -- costs come into play most -- most sharply, it is something that is reasonable to require of the dischargers in those areas.

I do think that the Regional Board will -- will be doing a heck of a lot of work and devoting a lot of its resources to looking into those issues. So it's not simply that the dischargers are bearing the burden of that. It will be -- personnel of the Regional Board will be working on Basin Plan amendments to shepherd that through the process. So it's certainly a shared burden there. It is, you know, it is a burden that all things being equal

probably could have been alleviated had there been a greater degree of granularity in that initial MUN designation in 1989, had the board gone and said these are the areas were it applies, these are the areas where it doesn't apply and had the Basin Plan amendment text match up exactly with those areas. That isn't what happened, so we're left with the Basin Plan as it is right now, something that would require regulatory changes to make happen. I mean, and I do think that the board is committed to making those changes happen. And, frankly, if the board had all the time in the world, we would be analyzing those areas and de-designating them all in due time. It's a pressing concern for the dischargers that discharge into that area. That's why we would expect the dischargers to work with us to expedite those processes in those areas where the MUN designation can, we believe, be changed.

DR. LONGLEY: So that's -- I thank you for that, but how does that pertain to this general order that we'll be voting upon, the three general orders?

MR. PULUPA: I think the requirements in the general order that pertain to the proposed course towards de-designation are appropriate.

DR. LONGLEY: Okay. Thank you. Number of other issues that Melissa has brought up. Could you go through those?

MS. THORME: The one was the cost not being considered of the de-designation process. We can see that --

THE REPORTER: I'm sorry, I'm not hearing you.

MS. THORME: Oh, I'm sorry. The cost of the de-designation process wasn't part of the presentation of costs today. And the reason this is very important, this improper designation, is because Prop 65 -- I think I talked to you in another context at a previous hearing about the reason why you had those designations of the Sources of Drinking Water Policy was because of Prop 65. Prop 65 also has a discharge prohibition, and so people are getting sued now for discharges to sources of drinking water when it really isn't the source of drinking water, so people are having to battle over this Prop 65 lawsuit that they shouldn't really have had to deal with. So that's the concern.

MR. PULUPA: And I do appreciate that -- that concern. I mean, it is -- it is something that is obviously impacting your clients, obviously impacting folks in ways that I don't think the authors of Prop 65 intended, perhaps not, and certainly the authors of the 1989 Basin Plan amendments did not intend. However, the -- the costs that are anticipated by the water code, there is a point at which those costs are sufficiently attenuated that they

don't have to be included in the -- the 13241 analysis. I think what we have analyzed is the cost of complying with the existing regulatory standards, recognizing that a standards action is required and that the Regional Board will be acting on the reports that are generated to study the water quality within that area, which again, that falls under the purview of 13267. So I -- I do think that the costs were appropriately analyzed within the general orders. I do think that there -- you know, and, like I said, it's an existing regulatory standard as the Basin Plan has been interpreted and so the -- the costs were compliant with that. And then the -- the Regional Board bears much of the burden of changing that in response to the monitoring or reporting efforts that are going to be undertaken by the dischargers in those areas.

MS. THORME: Thank you.

DR. LONGLEY: Were there other points that weren't addressed, Melissa?

MS. THORME: Those were the main ones. Thank you.

DR. LONGLEY: Thank you very much.

Brittany Watson? Apparently, Brittany has departed.

Amy Roth?

MS. ROTH: Hello, Dr. Longley and Members of the

Board. My name is Amy Roth. I did take the oath.

I represent E&B Natural Resources. We're a California-based oil producer. We're based in Kern County. We do have an operation on the west side of Kern County where ponds are our only means of water disposal, and we -- we believe we will most likely fall under Order Three. We have about 100 wells. We produce about 350 barrels a day in production of oil, and about 40 of these wells we believe may have been well stimulated or hydraulically fractured in the '50s or '60s. We didn't own the field then, so it was by our predecessors, so we've been trying to look over some of the records to get a little more information. And as you -- you might suspect that even when looking at the records, it doesn't necessarily provide the clarity versus the standards that are in place today to be able to measure well stimulation.

My concern that I wanted to inquire about, and perhaps it's been addressed in one of the late late versions, but it's on page 28, 1A. There's a task description for -- to address this part about the produced water from wells that have been simulated, and in that section 1A it talks about a work plan being provided. And in that work plan it indicates that you must include a proposed monitoring plan -- proposed monitoring plans for the wells that have been well stimulated. And I guess for

us, we don't believe that we have groundwater, so -- and even if we're in Order Three, then there wouldn't be a beneficial use. And so I guess I'm just trying to understand why there would be a monitoring program if in this order, by definition of being in the order, you may not adversely affect the beneficial uses of water. And so that's my -- my concern then is that we may be asked to do some monitoring of these wells that would be costly, and that's what we're trying to avoid if it isn't necessary.

DR. LONGLEY: The -- Clay or Patrick, could you address the question?

MR. RODGERS: I was too quick to the button and beat Patrick.

But -- but, anyway, the reason we have the monitoring of the effluent is because we still want to understand what's going to the ponds, how much of the discharge is -- you know, what the volume of discharge is and have that basic information, you know, just in case at some point we become aware of issues that -- that it needs to -- that a different action needs to take place. Certainly, we would strongly recommend to them that, you know, after we start to collect some data we would be very open to being able to reduce monitoring requirements on an individual basis or even on a larger group if they wanted to make a group request of that. And I think we would be

open to it once we have the justification. But we have kept the monitoring requirements in so that we can get some baseline data so that if we become aware of things in the future like we have in the past, we don't start out from a baseline of -- of very little information.

Yeah. And then -- and then we have the -- the possibility of the reduction in either the number of constituents infrequency with technical justification, so I think we can address that pretty easily.

DR. LONGLEY: Well, that baseline doesn't exist now; am I correct?

MR. RODGERS: No. Most of the these ponds we don't have much information, particularly when you get the unregulated ponds. We had nothing before the -- the cleanup and abatement orders, so we really were starting with -- with almost no information.

DR. LONGLEY: Thank you.

Any questions from members of the board?

Yes, Dan, go ahead.

MR. MARCUM: If you're going to have them sample ponds, are you sampling the smallest of ponds? I mean, is there a size that gets so small that you say this is terribly expensive for such a small land?

MR. RODGERS: Well, that's -- that's an excellent question, but the bottom line is that, you know, the

discharges here are still measured in barrels and we don't have a de minimis amount in -- in this. I mean, one thing about it is that, you know, if you're talking about a very small discharger, there are other means of disposal like commercially-available injection wells or something they could go to, you know. If you're on the -- the order of just a couple barrels a day, let's say, you could put in a tank, you'd probably be far better off, and then remove the threat of potential impacts to the groundwater quality. So that's part of it. We don't have a de minimis amount, because even though some of the smaller producers, when you take 250 barrels a day and you multiply it by 42, you know, it -- it still comes out to be a substantial volume of water.

MR. MARCUM: So -- so if the discharger changes their way of doing business, you know, tanks it and hauls it off, are they still responsible for monitoring the pond that's associated --

MR. RODGERS: No.

MR. MARCUM: -- with the well.

MR. RODGERS: No. At that point if they're no longer discharging waste to land, they can come out from under the order, because they're not discharging. We do have some closure requirements that we look at based upon a geographic information and what is the volume of waste

that's left in place. Because if they have a lot of waste in place, we do not want that to pose a threat to water quality or if you don't have -- don't restrict access and you have a lot of oil or something like that, we still want it protective of wildlife, we still want it protective of human health and the environment, so. But we would look at that point at -- at closing ponds. And we've been closing quite a few of them under the cleanup and abatement phase.

DR. LONGLEY: Amy, did that answer your question?

MS. ROTH: Yeah. I think we look forward to working with the staff here on, you know, finding a reasonable way through -- through our situation on a case-by-case basis. So thank you.

DR. LONGLEY: Thank you. Is there any --

Yes? I have one more card. Mark Gasky. And I -- if I messed your name, please excuse me. He wants to discuss whether the TDS is greater than 3,000 or 10,000.

MR. MAGARKY: Mark Magarky, a hydrogeologist in Bakersfield. And I did not take the oath. I thought my question would be answered.

(Chairman Longley swears in Mr. Magarky.)

MR. MAGARKY: Most of my clients were planning on filing under Tier Three, greater than 3,000 TDS, as it says in the draft. However, I saw a display that was put up by

board staff presentation in which the area felt to be covered under Tier Three was far more restricted than the 3,000 line, perhaps a 10,000 line up along the west side. And what I wanted to get assurance is that what was in the draft that we printed out last week which said Tier Three was 3,000 was in fact where they were to appropriately apply whether or not we have to, you know, declassify those areas, because literally several hundred wells that were felt -- or several hundred sumps that were felt on the west side to be Tier Three were depicted on that. And I'm sure the staff took very care on where they drew that line between Tier Three and Tier Two, which I think they will demonstrate they are greater than 3,000 TDS. So that was my comment.

DR. LONGLEY: Yes?

MR. RODGERS: Certainly -- Clay Rodgers again.

Certainly, it's the data on the graph that would control it, not -- not a figure that was shown that was a generalization. I will tell you, and I was going to talk to my staff, and maybe they saw it when they were giving the presentation, that slide was different than what I saw yesterday and that line had actually slid further west than it was yesterday. And -- and I didn't quite hemorrhage when I saw it on the screen there, but I wasn't far away from it. So that was mis --

MR. MAGARKY: Well, my clients would've hemorrhaged if they'd have seen that.

MR. RODGERS: I mean, but it will be the actual data in the demonstration based upon --

MR. MAGARKY: Apply Tier Three, you may be declassified to Tier Two later, but apply Tier Three if your supporting data today says you're greater than 3,000 TDS.

MR. RODGERS: Well, you need to have reasonable data to show that -- that the beneficial uses, and that's basically all of the beneficial uses that would be affected by water quality, can be de-designated. So on many of those areas we'll be monitoring all of the areas and it may be AGR in many of the areas also, but the beneficial uses would need to be de-designated.

MR. MAGARKY: Thank you.

DR. LONGLEY: Thank you.

Is there anyone else wishing to testify on this matter who has not spoken? Thank you.

We are prepared to take a closing statement by the Oil Field Industry Group.

MS. ROSEGAY: No further comments are necessary. Thank you.

DR. LONGLEY: Okay. We're prepared to take a closing statement by the Environmental Group.

MR. ALLAYAUD: Pass.

DR. LONGLEY: We are prepared to take a closing statement by staff.

MR. RODGERS: Certainly, Dr. Longley. This is Clay Rodgers. I need to ask my staff a question.

Dale, are we ready with the late late late revisions? And we could go over the -- we could go over those now, I think, perhaps even without a recess so that we can lay those out as to -- we're ready to do that?

MR. HARVEY: Dr. Longley, Members of the Board, we --

DR. LONGLEY: Can't hear you.

MR. RODGERS: Go ahead and turn it on there.

MR. HARVEY: Hello.

DR. LONGLEY: Better.

MR. HARVEY: I completed late revisions for my part.

DR. LONGLEY: They -- they need some time. We will take a recess until about five 'til 6:00. I have 11 'til 6:00.

(Short recess taken.)

DR. LONGLEY: Come back into order, please. Thank you for your patience.

So the board members, in front of you there's about five documents we've got to -- that we'll work

through here, and I'm going to explain the late revisions with Stephanie's help.

If you look at the document dated 6 April 2017, at the top of that it says -- it says late revisions, just late revisions, and it has two items on it. The first item refers to General Order Number One. The second item pertains to all three general orders. Then we will do late late revisions and also dated 6 April. And all of that document pertains -- all of those late late revisions pertain to General Order Number Three. Then if you'll go to late late later revisions, the first item refers and the second item on that page refers to -- the first page refers to all three general orders, as does page 2 refers to all three general orders. There should be -- on your late late later there should be two pages, all three general orders. And late late latest also refers to three general orders.

Any questions at this point?

Then we have the letter. I have a -- here's the letter, the letter from Valley Water Management Company, and Stephanie is going to walk us through that one.

MS. YU: Sure. So looking at the letter from Valley Water, one of their first comments pertains to Provision B.16 of General Order Two. And --

DR. LONGLEY: And you're on page what? What --

MS. YU: Page 2 --

DR. LONGLEY: Page 2.

MS. YU: -- of the letter. So it pertains to Provision B.16 of General Order Two and then the next bullet point below that is Provision B.18 of General Order One, and they both refer to a similar -- or they're both requesting a similar change, which is to add --

DR. LONGLEY: They're -- they're putting in high quality water rather than water quality; am I correct?

MS. YU: Yes.

DR. LONGLEY: Okay.

MS. YU: And so I'm recommending that we accept that change.

DR. LONGLEY: And that's General Orders Two and Three; am I correct?

MS. YU: Two and One.

DR. LONGLEY: One and Two. One and Two. Okay. Okay. Go further.

MS. YU: And then the third bullet point refers to Provision D3 in all of the general orders, and they are proposing a change to basically the second sentence -- I'm sorry. In the -- in Provision D3 they're proposing to change the second sentence to read, "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." They are recommending that -- that we delete it from D5, because D5 and D3 -- oh, I'm sorry.

DR. LONGLEY: So delete it from D3.

MS. YU: Delete it from D3.

DR. LONGLEY: And D5 has that sentence, but slightly different.

MS. YU: Right. It's slightly different, but it --

DR. LONGLEY: Right.

MS. YU: -- refers to similar --

DR. LONGLEY: So basically that requirement is still there, but it's on D5?

MS. YU: That's correct.

DR. LONGLEY: Okay. So that's all three general orders.

MR. PULUPA: The second sentence in Provision D3 will be deleted.

DR. LONGLEY: That's right, because we find it in D5.

MS. YU: Right. And then the first bullet point on page 3 has actually been addressed in the -- the tentative orders that are before us right now.

DR. LONGLEY: So this doesn't -- this -- we can

disregard this; am I correct?

MS. YU: That's correct.

DR. LONGLEY: Okay.

MS. YU: And --

DR. LONGLEY: And the next -- the next one was addressed during testimony?

MS. YU: That's correct.

DR. LONGLEY: Next bullet.

MS. YU: Yes. And so we're recommending that the changes that we just discussed be accepted in the -- in the general orders that are adopted.

DR. LONGLEY: So, I'm sorry, say that again, Stephanie.

MS. YU: So we're recommending that these changes be made to the tentative orders.

DR. LONGLEY: So the changes in the second bullet?

MS. YU: In addition to the late --

MR. PULUPA: All four.

MS. YU: Well, to all the sets of --

DR. LONGLEY: Oh, okay. Okay. Down at the bottom of the page, in other words. I see, "To properly initiate."

MS. YU: I'm sorry. I'm a little confused right now. Where are you referring to?

DR. LONGLEY: Well, on page 3, the only thing that I see is the last paragraph on the page where they have inserted the words "Properly initiate."

MR. PULUPA: No, that -- that's actually discussing something different.

DR. LONGLEY: That's an interest that's added?

MR. PULUPA: Yeah. That -- that's their request that the board reinterpret our current interpretation of the -- how the Sources of Drinking Water Policy is applied to our Basin Plan, and our suggestion is to not change the general orders in response to that comment.

DR. LONGLEY: Okay. So on page 3 then we're not changing anything. We're not accepting any of this; am I correct?

MS. YU: That is correct.

DR. LONGLEY: Okay. Good.

MS. YU: Because it's already --

DR. LONGLEY: Moving to page 4.

MS. YU: That is still part of the discussion. That -- that's all been addressed.

DR. LONGLEY: So there's -- there's nothing here we have to be concerned about for changes. Page 5 would be the same?

MS. YU: That's right.

DR. LONGLEY: So the only changes I come up with

in this are on page 2 on the second bullet, and then on -- about a little past halfway where it's talking about discharges or something in the general order, the same thing on high quality water. Then further down on Provision D3 we deleted a sentence, but because that sentence is found in -- already in D5; is that correct?

MS. YU: That's right. Yeah.

DR. LONGLEY: And -- and that's the end as far as any -- any late changes are concerned.

MS. YU: Related to this --

DR. LONGLEY: So we'll refer to these as the Valley Water Management Company comments as far as changes are concerned. Very good. It's a little complicated, but it's a complicated subject.

Very good. With that said, and we're back in session, we're ready to close the hearing, first of all. We'll go to deliberation and voting.

MS. YU: Have we discussed the two other sets of late revisions, the late late later revisions and the late late latest?

DR. LONGLEY: Yeah. I went through and identified what they pertained to, but you want further discussion?

MR. PULUPA: It should be appropriate.

DR. LONGLEY: Okay. Go ahead.

MS. YU: Okay. So the late late later revisions pertain to, let's see, first -- first change pertains to General Orders One, Two, and Three.

DR. LONGLEY: Right.

MS. YU: It's page 13 on General Order One, page 12 on General Order Two, page 13 on General Order Three, and it's findings 47, 47 and 46 respectively. And it's to revise the first sentence to read, "This general order contains a prohibition for the discharge of produced wastewater that contains well stimulation treatment fluids," and deleting the phrase, "or related waste," and that's the end of that first sentence, and there's no further changes proposed.

DR. LONGLEY: Well, and further down the page in A, about the middle of the page, also deleting "or related waste."

MS. YU: Right. Yes.

DR. LONGLEY: And, once again, going down to the last paragraph, it looks like you also deleted fluids; is that correct?

MS. YU: Yeah, I think that's inadvertent.

DR. LONGLEY: Pardon?

MS. YU: I think that's inadvertent. I think --

DR. LONGLEY: Just or related fluids.

MS. YU: Right.

DR. LONGLEY: Just or related fluids. And it's done twice in that paragraph.

MS. CREEDON: Or related waste.

DR. LONGLEY: I mean related -- I'm sorry -- related waste. And it's done twice in that paragraph.

MS. YU: Right.

DR. LONGLEY: Okay. And going to the late late later revisions, it pertains to all three.

MS. YU: Well, stepping back a little bit and still staying with the late late late revisions, there's going to be a change proposed to the response to comments to the response to CIPAs comment number one, changing the first sentence to "that can adversely affect beneficial uses," and this is something that was discussed during her oral comments. And so that can adversely affect beneficial uses appears twice.

DR. LONGLEY: That's correct. And that's page 2.

MS. YU: That's correct.

DR. LONGLEY: Very good.

MS. YU: So now we can finally move to what I hope is the last set of late late latest revisions, which pertains to all three general orders as well. And it's to revise Prohibition A.5 to the discharge of produced wastewater on wells containing well stimulation treatment

fluids, redacting the phrase "and/or related waste is prohibited" and it will state "is prohibited except as provided by Provision E.7." So we're deleting that phrase in there in accordance with the requirements.

DR. LONGLEY: Very good.

So, Board Members, any questions on the revisions?

Okay. The meeting is closed. Is there any discussion before we --

MS. KADARA: The meeting is closed?

DR. LONGLEY: Not the meeting. Excuse me. The hearing is closed. Oh, boy. You can tell where my mind is.

Do I have a motion on -- on General Order Number One?

MR. SCHNEIDER: Karl, I've got to say the process is getting difficult with all the revisions and stuff. And while I read through all these with you and I like all of this, this is very disassembled. And I am -- I am happy to move forward on this, but what I really would like to see is a copy of -- at our meeting tomorrow so we can vote on it with a package of what we have. Is that possible or is that just too much? I'll -- I'll be happy to move forward if that's what it is, but --

MS. CREEDON: We serve at the pleasure of the

board. We can wait until tomorrow when they can put it all together or -- I under -- it is -- it is rather confusing, because it's three orders in one thing and we're still trying to make the changes.

MR. SCHNEIDER: I appreciate the difficulty and what staff has done here.

DR. LONGLEY: Well, we -- we can continue it to the end of tomorrow's board meeting to give staff time to work on it.

MR. PULUPA: The issue would be we have a number of stakeholders that have made the trip for the --

MR. SCHNEIDER: Well, we know what we're doing now. I mean, this is what we're doing. We're just going to put it in a packet.

DR. LONGLEY: We think, but we haven't made the motions yet.

MR. SCHNEIDER: Yeah.

MR. PULUPA: If I was in their shoes, I would absolutely stay until the board made its final vote. I think that's --

MR. SCHNEIDER: Yeah. I understand that.

MR. PULUPA: -- that's the only -- the only point of which it becomes final. And I certainly appreciate your concern, and I think the board would be well within its right to continue the item until tomorrow. I just think

that the board should also take into account that we do have these individuals who --

DR. LONGLEY: So as to the board members, what is your pleasure? We have an -- we have the option of continuing it to tomorrow or to -- to finish it up in the next several minutes for the folks that are in the room. What is your pleasure?

MR. MARCUM: What about at dinner break and come back and submit a complete document?

MR. SCHNEIDER: No. I'll -- I'll -- I mean, the meeting -- the hearing is closed to the public. It's not going to have any more input in this in any case. But I understand they're wanting to hear all of the discussion and the decision. I am willing to -- to move forward. I do want to say -- and I'll tell you why. And this actually goes back to the discussion on -- on the environmental documents. And -- and I do think it's critically important to get this on the ground, moved towards implementation and start making this happen. And with that as kind of an overriding consideration, I'll make a motion.

Did you want to make a motion on each one individually or --

DR. LONGLEY: We have to -- we have to do each one individually.

MR. SCHNEIDER: Well, I'll move the first.

DR. LONGLEY: With all of the --

MR. SCHNEIDER: All of the revisions.

DR. LONGLEY: With all of the revisions.

MR. SCHNEIDER: Up to the late late latest.

DR. LONGLEY And the board has gone -- and for the record, the board has gone through what is -- which revisions pertaining to which general order.

Do I have a second?

MS. KADARA: I will second that, Dr. Longley.

DR. LONGLEY: I have a motion, and I have a second with all of -- with all of the revisions we have discussed. Call the roll, please.

MS. ROSENBERGER-HAIDEN: What about the radioactive wastewater coming out of the...

THE REPORTER: I'm sorry, who's speaking?

MS. LANFRANCHI-RIZZARDI: Mr. Schneider?

MR. SCHNEIDER: Aye.

MS. LANFRANCHI-RIZZARDI: Dr. Marcum?

MR. MARCUM: Aye.

MS. LANFRANCHI-RIZZARDI: Ms. Brar?

MS. BRAR: Yes.

MS. LANFRANCHI-RIZZARDI: Ms. Kadara?

MS. KADARA: Yes.

MS. LANFRANCHI-RIZZARDI: Dr. Longley?

DR. LONGLEY: Aye.

MS. LANFRANCHI-RIZZARDI: Motion carried.

DR. LONGLEY: Thank you very much.

Do I have a motion on the second general order?

MR. MARCUM: Also moved.

DR. LONGLEY: Dan moves. With all the -- is that with all of the late revisions?

MR. MARCUM: With the revisions.

DR. LONGLEY: Revisions, good.

MR. MARCUM: In total.

DR. LONGLEY: Any seconds?

MS. KADARA: Yes, I do.

DR. LONGLEY: Denise seconds.

Call the roll, please.

MS. LANFRANCHI-RIZZARDI: Dr. Marcum?

MR. MARCUM: Aye.

MS. LANFRANCHI-RIZZARDI: Mr. Schneider?

MR. SCHNEIDER: Aye.

MS. LANFRANCHI-RIZZARDI: Ms. Brar?

MS. BRAR: Yes.

MS. LANFRANCHI-RIZZARDI: Ms. Kadara?

MS. KADARA: Yes.

MS. LANFRANCHI-RIZZARDI: Dr. Longley?

DR. LONGLEY: Aye.

MS. LANFRANCHI-RIZZARDI: Motion carried.

DR. LONGLEY: Thank you very much.

Do I have a motion for the third general order?

MS. BRAR: Motion with all the late revisions.

DR. LONGLEY: With all the late revisions. Do I have a second?

MS. KADARA: I'll second.

MR. MARCUM: I'll second.

MS. KADARA: Oh, he will.

DR. LONGLEY: Dan seconded. Raji made the motion.

Roll call, please.

MS. LANFRANCHI-RIZZARDI: Ms. Brar?

MS. BRAR: Yes.

MS. LANFRANCHI-RIZZARDI: Dr. Marcum?

MR. MARCUM: Aye.

MS. LANFRANCHI-RIZZARDI: Mr. Schneider?

MR. SCHNEIDER: Aye.

MS. LANFRANCHI-RIZZARDI: Ms. Kadara?

MS. KADARA: Yes.

MS. LANFRANCHI-RIZZARDI: Dr. Longley?

DR. LONGLEY: Aye.

MS. LANFRANCHI-RIZZARDI: Motion carried.

DR. LONGLEY: Motion carried.

Very good. I thank you for all your hard work. I thank the folks here today for their patience as we went through this very complicated process.

CERTIFICATE OF CERTIFIED SHORTHAND REPORTER

I, Gracie E. Becerra, a Certified Shorthand Reporter, licensed by the State of California, do hereby certify:

That the said proceeding was taken before me in shorthand writing, and was thereafter transcribed, under my direction, by computer-assisted transcription;

That the foregoing transcript constitutes a full, true, and correct record of the proceedings which then and there took place;

That I am a disinterested person to the said action;

IN WITNESS WHEREOF, I have hereunto subscribed my signature on this 3rd day of May , 2017.

_____

Gracie E. Becerra
Certified Shorthand Reporter No. 13136

EXHIBIT 5

May 27, 2016

Chair Karl Longley
Central Valley Regional Water Quality Control Board
1020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

Dear Chair Longley:

On behalf of the undersigned organizations, we submit these comments regarding the "Waste Discharge Requirements General Order[s] for Oil Field Discharges to Land" (hereinafter called the Orders). We appreciate the Central Valley Regional Water Quality Control Board (hereinafter the Board) undertaking an effort to prevent ground and surface water contamination from oil and gas wastewater disposal pits. It demonstrates that the Board recognizes that the current practice of disposing of produced water into unlined and open percolation pits is problematic. However, much work remains, as these orders do not fully achieve the stated goals of protecting water quality.

The only way for the Board to ensure water quality protection is to prohibit the disposal of produced water into open pits and onto land.

Through its staff, the Board has identified numerous disposal sites, such as the Fee 34, Racetrack Hills and McKittrick facilities, which are known to have issues resulting from historically inadequate oversight and inherently risky activities. Staff inspections of these sites, and in some cases Board decisions have identified leaking or ineffective liners, a massive plume of produced water migrating underground, and the likely migration of chemicals into an aquifer. The Racetrack Hills facility continues operating despite having an unpermitted spray field where Board staff determined that a plume of contamination is likely percolating into an aquifer, and contaminant build up presents surface runoff risks. All of these facilities continue to operate despite problematic operations. We also recall the Starr Farms/Aera Energy case where a waste pond polluted adjoining irrigation wells.

We suggest the following recommendations apply generally to all orders and/or to supporting activities and/or documents pursuant to this entire process.

General Recommendations

1. First, the Board should issue emergency orders that mandate the immediate halt to discharge until operators demonstrate compliance with the Basin Plan and the Water

Code To allow discharge to continue while the orders are being developed means that it is likely that facilities are operating in violation of the goals and objectives of these orders. The Board should take a more precautionary approach.

2. We believe the way the Board is proposing to handle CEQA is inadequate. The time to address this shortcoming is now, through the General Order, which is in effect the initial permitting for many of these projects.

The Orders assert that all existing ponds are all categorically exempt, and for new ponds, the discharger must provide evidence of compliance with CEQA in the form of a certified EIR, Mitigated Negative Declaration, or Negative Declaration. For the latter, the Board should indicate who the lead agency would be in these cases. Is the Discharger complying with CEQA through a local government or through the Board?

For existing ponds, it appears the Board is proposing to grandfather-in all existing ponds within its jurisdiction. We see this action as having a potential significant environmental impact that must be addressed through the application of CEQA to the General Order before the Board can approve it. Grandfathering in all of the existing ponds has significant implications for air and water quality and for land use. Clearly, some of the existing facilities have impacts on the degraded air quality of Kern County due to emission of VOCs, and the cumulative impact on air and water from the discharges is not being addressed by the Orders. Also, as addressed in a paragraph above, some of the water from the ponds is already reaching groundwater or will reach groundwater and this impact must be addressed.

We bring to your attention 14 CCR 15300.2(c) (CEQA regulations) which states that a categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances. We suggest that using pits, whether lined or unlined, to dispose of industrial wastewater that contains hydrocarbons, heavy metals, large quantities of salts, and various chemicals used in the oil drilling and production process is not a usual circumstance.

Furthermore, 14 CCR 15300.2(b) states that a categorical exemption cannot be used when the cumulative impact of successive projects of the same type in the same place is significant. This could exactly be the case for the situation that these Orders are attempting to address. Without a CEQA analysis as part of these Orders, we do not believe that the Board can find that cumulative impacts are not significant, and therefore the Categorical Exemption cannot be used.

The Board has acknowledged that many of these ponds were never properly permitted, that is, they do not have valid WDRs. Therefore, environmental review either in the form of an EIR of Mitigated Negative Declaration was never done for those ponds. Now, the Board proposes to call them “existing” and therefore “exempt” from CEQA. This appears to be a work-around of the issue of a bona fide CEQA analysis for hundreds of ponds that may have significant environmental effects, individually and cumulatively.

3. The Board must clarify situations where land discharge is not permissible. The three orders specify general scenarios where discharge into pits may be allowed, however the Board should specify circumstances that do not fit any of the general order "Threat Levels" and are therefore not allowed. For example:
    a. The Orders should establish mandatory setbacks from water wells, beneficial use aquifers, surface water ways, homes, schools, businesses, roads, etc.
    b. The orders should prohibit discharge if the Board cannot rule out the presence of harmful chemicals in the wastewater, either as a result of naturally occurring constituents in the formation fluid or because harmful fluids have been used as additives and may be present in the waste stream. The orders correctly prohibit waste from stimulated wells from being discharged to land or pits. However the orders must also consider chemicals related to other oil and gas processes, beyond well stimulation. The California Council on Science and Technology (CCST), has recommended:

> **"Recommendation 4.1. Ensure safe disposal of produced water in percolation pits with appropriate testing and treatment or phase out this practice.**
>
> "Agencies with jurisdiction should promptly ensure through appropriate testing that the water discharged into percolation pits does not contain hazardous amounts of chemicals related to hydraulic fracturing as well as **other phases of oil and gas development.** (Bold added for emphasis) If the presence of hazardous concentrations of chemicals cannot be ruled out, they should phase out the practice of discharging produced water into percolation pits." [1]

4. The Board should expand its inventory of all pits to specify which threat level, and therefore which general order applies to each existing facility, based on the data already collected under previously issued 13267 orders. The inventory should also specify which facilities do not fit any of the orders, based on current information about wastewater quality and the presence and quality of underlying groundwater.
5. The orders should include enforcement provisions that violations or failure to comply with the orders would result in immediate shut down.
6. The orders should specify that Board staff or contractors of the Board are authorized to enter facilities without advance notification, to conduct inspections, take water samples and/or conduct other business as needed in order to enforce the orders.

"Information Needs Sheets" Recommendation

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[1] California Council on Science and Technology "An Independent Scientific Assessment of Well Stimulation in California" July 2015, Executive Summary p. 8

We support the collection of significant information regarding the operations, specifically we recommend

1. The Board must strengthen the disclosure requirements for chemicals used in each oil field.
    a. Senate Bill 4 (Public Resources Code 3160) established strong and appropriate disclosure requirements for chemicals used well stimulation treatments. The orders should require chemical disclosure requirements that are consistent with the SB 4 requirements for all chemicals used in oil fields where any produced water is sent to disposal pits. SB 4 requires reporting within 60 days of chemical use. We recommend that timeline as opposed to quarterly reporting.
    b. The trade secret provisions in SB 4 (PRC 3160 (j)) should be replicated for all chemicals used in fields where produced water may be discharged to land or pits. Trade secret provisions such as those in SB 4 are necessary to ensure operators do not hide the identities of chemicals that could enter the waste stream, and eventually impact water quality.
    c. Operators should submit additional information about the fate and transport, testing and detection methods, and health impacts of each chemical used. Based on this information, the Board should limit land applications for wastewater that contain certain chemicals as a result of their use in production or maintenance. The following chemical disclosure information should be used as criteria that would prohibit land or pit discharge:
        i. If chemicals are used that do not have established detection methods.
        ii. If chemicals that are hazardous to human health or the environment are used, and cannot be reasonably shown to have NOT entered the waste stream.

Monitoring and Reporting Programs (MRP) Recommendations

We support the robust effort to characterize water quality, detect groundwater impacts and gather information. We recommend the following changes in order to make the MRP's more effective:

1. The MRP's groundwater monitoring section should include more specific requirements about baseline testing in order to measure the quality of groundwater. The baseline testing should occur prior to any discharge for any new or expanded facilities.
2. The orders should specify an approval process for the groundwater monitoring plans that gives the Board the ability to require changes to the monitoring program design prior to approval. This process should be consistent with the current practice used for well stimulation treatments' monitoring plans mandated by SB 4. Until the monitoring plan is approved, discharge must cease.
3. The orders should specify Board staff or contractors' rights to conduct independent monitoring and testing of samples in order to verify accuracy and completeness of operator submitted monitoring results, as well as protocols for requesting split samples and observing sampling collection.

General Order Recommendations

General Order 1: “Low Threat” facilities

1. The contaminant thresholds for qualifying for this order must be expanded. Simply using EC, Chloride, Boron and Arsenic is inadequate. In order to qualify as a low threat facility, produced water must contain below safe harbor limits for Proposition 65 chemicals, and also contain below long-term Effects Screening Levels for any other harmful chemical, either those added in production and maintenance or naturally occurring in the formation fluid.

General Order 2: “Moderate Threat” facilities

1. The Board must not permit produced water that exceeds Basin Plan limits, or the chemical thresholds described above (in our recommendation for General Order 1), to be discharged onto land or into pits. This change would result in the orders being consistent with CCST’s recommendation.
2. Dust control with contaminated wastewater must also be prohibited.

General Order 3: “Limited Threat” facilities

1. The order does not adequately define "first encountered" groundwater. In order for a discharge facility to qualify for GO 3, the operator must demonstrate that any underground migration from the facility cannot and will not enter groundwater that may have beneficial uses. This analysis should not simply rely on the characterizing the groundwater (or claiming an absence of groundwater) directly beneath the discharge site, but should also consider horizontal migration, naturally occurring or human-made pathways, and changes in groundwater movement that could result from discharge. The operator should have to prove complete isolation/confinement of any fluids discharged on the site. Any such claims must be supported with adequate geologic modeling and verified by the Board with an explicit approval process. Until such approval is granted, discharge must be prohibited.
2. The order outlines a process for de-designating groundwater from beneficial uses. We agree that in order to claim that underlying groundwater is low quality this process must occur. We object to the option of de-designating groundwater with less than 10,000 total dissolved solids. The 3,000 TDS limit is arbitrary and does not meet federal standards for an Underground Source of Drinking Water (USDW). Additionally, we strongly object to operators being allowed to continue to discharge while that process is occurring. The timeline provided could allow for up to five years of discharge before the denial of a de-designation application. The order must specify that no discharge can occur while the de-designation process is ongoing.

Thank you for the opportunity to provide comments. We look forward to the introduction of the Tentative Orders in June. We welcome any questions on these comments and would appreciate a meeting to discuss the issues raised in this letter.

Sincerely,

Bill Allayaud
California Director of Gov't Affairs
Environmental Working Group

Keith Nakatani
Oil and Gas Program Manager
Clean Water Action

Dan York
Vice President
The Wildlands Conservancy

Patricia McPherson
President
Grassroots Coalition

Tanja Srebotnjak, PhD
Hixon Center for Sustainable Env. Design
Harvey Mudd College (no logo at top)

Sue Chaing
Pollution Prevention Prog
Center for Environmental Health

Jennifer Krill
President
Earthworks

Jean Hays
Earth Democracy Team
Women's Int'al League for Peace & Freedom

Jason R. Flanders
Attorney
Aqua Terra Aeris Law Group

Kimberly Rivers
Executive Director
Citizens for Responsible Oil & Gas

Barbara Sattler
RN, DrPH, FAAN
Alliance of Nurses for Healthy Environments

EXHIBIT 6

July 11, 2016

Chair Karl Longley
Central Valley Regional Water Quality Control Board
1020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670-6114

RE: Comments on the Tentative WDR General Order for Oil Field Discharges to Land

Dear Chair Longley:

On behalf of the undersigned organizations, we submit these comments regarding the "Tentative Waste Discharge Requirements General Order[s] for Oil Field Discharges to Land" (hereinafter called the Orders). We appreciate the Central Valley Regional Water Quality Control Board (hereinafter the Board) undertaking an effort to prevent ground and surface water contamination from oil and gas wastewater disposal pits. It demonstrates that the Board recognizes that the current practice of disposing of produced water into unlined and open percolation pits is problematic. However, much work remains, as these orders do not fully achieve the stated goals of protecting water quality. Based on the available scientific consensus and available data, the only way for the Board to ensure water quality protection is to prohibit the disposal of produced water into open pits and onto land.

Since our comments were largely dismissed, many of the points below are repeated from our May 27 comments. We are hopeful that the lack of responsiveness to our recommendations was a result of the short amount of time between receiving our comments and the release of the Tentative Orders, and that substantive changes will be reflected in the Orders prior to adoption.

Through its staff, the Board has identified numerous disposal sites, such as the Fee 34, Racetrack Hills and McKittrick facilities, which are known to have issues resulting from historically inadequate oversight and inherently risky activities. Staff inspections of these sites, and in some cases Board decisions have identified leaking or ineffective liners, a massive plume of produced water migrating underground, and the likely migration of chemicals into an aquifer. The Racetrack Hills facility continues operating despite having an unpermitted spray field where Board staff determined that a plume of contamination is likely percolating into an aquifer, and

contaminant build up presents surface runoff risks. All of these facilities continue to operate despite problematic operations. We also recall the Starr Farms/Aera Energy case where a waste pond polluted adjoining irrigation wells. This demonstrated poor track record of operating disposal pits safely furthers our opposition to this method and adds urgency to the Board's adoption of orders that provide real protections for water quality.

We suggest the following recommendations apply generally to all orders and/or to supporting activities and/or documents pursuant to this entire process.

General Recommendations

1. First, the Board should issue emergency orders that mandate the immediate halt to discharge until operators demonstrate compliance with the Basin Plan and the Water Code. To allow discharge to continue while the orders are being developed means that it is likely that facilities are operating in violation of the goals and objectives of these orders. The Board should take a more precautionary approach.

2. We believe the way the Board is proposing to handle CEQA is inadequate. The time to address this shortcoming is now, through the General Order, which is in effect the initial permitting for many of these projects.

   The Orders assert that all existing ponds are all categorically exempt, and for new ponds, the discharger must provide evidence of compliance with CEQA in the form of a certified EIR, Mitigated Negative Declaration, or Negative Declaration. For the latter, the Board should indicate who the lead agency would be in these cases. Is the Discharger complying with CEQA through a local government or through the Board?

   For existing ponds, it appears the Board is proposing to grandfather-in all existing ponds within its jurisdiction. We see this action as having a potential significant environmental impact that must be addressed through the application of CEQA to the General Order before the Board can approve it. Grandfathering in all of the existing ponds has significant implications for air and water quality and for land use. Clearly, some of the existing facilities have impacts on the degraded air quality of Kern County due to emission of VOCs, and the cumulative impact on air and water from the discharges is not being addressed by the Orders. Also, as addressed in a paragraph above, some of the water from the ponds is already reaching groundwater or will reach groundwater and this impact must be addressed.

   We bring to your attention 14 CCR 15300.2(c) (CEQA regulations) which states that a categorical exemption shall not be used for an activity where there is a reasonable possibility that the activity will have a significant effect on the environment due to unusual circumstances. We suggest that using pits, whether lined or unlined, to dispose of industrial wastewater that contains hydrocarbons, heavy metals, large quantities of salts, and various chemicals used in the oil drilling and production process is not a usual circumstance.

Furthermore, 14 CCR 15300.2(b) states that a categorical exemption cannot be used when the cumulative impact of successive projects of the same type in the same place is significant. This could exactly be the case for the situation that these Orders are attempting to address. Without a CEQA analysis as part of these Orders, we do not believe that the Board can find that cumulative impacts are not significant, and therefore the Categorical Exemption cannot be used.

The Board has acknowledged that many of these ponds were never properly permitted, that is, they do not have valid WDRs. Therefore, environmental review either in the form of an EIR of Mitigated Negative Declaration was never done for those ponds. Now, the Board proposes to call them "existing" and therefore "exempt" from CEQA. This appears to be a work-around of the issue of a bona fide CEQA analysis for hundreds of ponds that may have significant environmental effects, individually and cumulatively.

3. The Board must clarify additional situations where discharge to land or ponds is not permissible. The three orders specify general scenarios where discharge into pits may be allowed, however the Board should specify circumstances that do not fit any of the general orders and are therefore not allowed. For example:
    a. The Orders should establish mandatory setbacks from water wells, beneficial use aquifers, surface water ways, homes, schools, businesses, roads, etc.
    b. The orders should prohibit discharge if the Board cannot rule out the presence of harmful chemicals in the wastewater, either as a result of naturally occurring constituents in the formation fluid or because harmful fluids have been used as additives and may be present in the waste stream. The orders correctly prohibit waste from stimulated wells from being discharged to land or pits. However the orders must also consider chemicals related to other oil and gas processes, beyond well stimulation. The California Council on Science and Technology (CCST), has recommended:

> **"Recommendation 4.1. Ensure safe disposal of produced water in percolation pits with appropriate testing and treatment or phase out this practice.**
>
> "Agencies with jurisdiction should promptly ensure through appropriate testing that the water discharged into percolation pits does not contain hazardous amounts of chemicals related to hydraulic fracturing as well as **other phases of oil and gas development.** (Bold added for emphasis) If the presence of hazardous concentrations of chemicals cannot be ruled out, they should phase out the practice of discharging produced water into percolation pits." [1]

[1] California Council on Science and Technology "An Independent Scientific Assessment of Well Stimulation in California" July 2015, Executive Summary p. 8

4. All three of the general orders contain a note, in the "Statutory and Regulatory Considerations" section, on the findings of the CCST study. The Orders correctly state that CCST concluded that produced water from stimulated wells may contain well stimulation chemicals. The findings should also include that CCST concluded that produced water may contain chemicals from other phases of oil and gas production, not just well stimulation. If the orders include findings from that study, the most directly relevant recommendation (which appears above) must be included. We request adding this finding into the "Background Information" section of each of the orders.

5. The Board should expand its inventory of all pits to specify which general order applies to each existing facility, based on the data already collected under previously issued 13267 orders. The inventory should also specify which facilities do not fit any of the orders, based on current information about wastewater quality and the presence and quality of underlying groundwater.

6. The Orders should include enforcement provisions that violations or failure to comply with the orders would result in immediate shut down.

7. The Orders should specify that Board staff or contractors of the Board are authorized to enter facilities without advance notification, to conduct inspections, take water samples and/or conduct other business as needed in order to enforce the orders.

"Information Needs Sheets" Recommendations

1. We strongly object to how the orders handle Resolution 68-16 (State Anti-degradation Policy). The information sheet appears to give blanket license for operators to degrade groundwater up to Basin Plan maximum salinity limits. Under Resolution 68-16, degradation of waters with beneficial uses must be "consistent with maximum benefit to the people of the State." The economic arguments listed in the information sheet are wholly inadequate to make that determination. They do not address anything related to the benefit of discharging wastewater into open pits. If the orders are an attempt to justify oil production benefits to the people of the state, then it must provide an actual cost benefit analysis that considers the many costs oil production, such as degraded air quality, water quality, health impacts and associated medical costs, destruction of farmland, nuisance to neighbors, and contribution to climate. The information sheet of a WDR General Order is not the appropriate venue to make a judgment about the entire oil industry. Instead, operators must conduct an anti-degradation analysis that shows the costs and benefits of a specific discharge if they intend to degrade waters with beneficial uses.

   Additionally, the Anti-degradation section envisions degradation up to the water quality objective. This proposal does not consider other activities that may cause additional

degradation. We object to the Orders' allocating the full assimilative capacity of these aquifers to the oil and gas industry.

2. While we support the collection of significant information as specified in the "Information Needs Sheets", we urge the Board to strengthen the disclosure requirements for chemicals used in each oil field. Without enhanced chemical disclosure, it is impossible to ensure protection of water quality.
    a. Senate Bill 4 (Public Resources Code 3160) established strong and appropriate disclosure requirements for chemicals used well stimulation treatments. The orders should require chemical disclosure requirements that are consistent with the SB 4 requirements for all chemicals used in oil fields where any produced water is sent to disposal pits. SB 4 requires reporting within 60 days of chemical use. We recommend that timeline as opposed to quarterly reporting.
    b. The trade secret provisions in SB 4 (PRC 3160 (j)) should be replicated for all chemicals used in fields where produced water may be discharged to land or pits. Trade secret provisions such as those in SB 4 are necessary to ensure operators do not hide the identities of chemicals that could enter the waste stream, and eventually impact water quality.
    c. Operators should submit additional information about the fate and transport, testing and detection methods, and health impacts of each chemical used. Based on this information, the Board should limit land applications for wastewater that contain certain chemicals as a result of their use in production or maintenance. The following chemical disclosure information should be used as criteria that would prohibit land or pit discharge:
        i. If chemicals are used that do not have established detection methods.
        ii. If chemicals that are hazardous to human health or the environment are used, and cannot be reasonably shown to have NOT entered the waste stream.

Monitoring and Reporting Programs (MRP) Recommendations

We support the robust effort to characterize water quality, detect groundwater impacts and gather information. We recommend the following changes in order to make the MRP's more effective:

1. The MRP's groundwater monitoring section should include more specific requirements about baseline testing in order to measure the quality of groundwater. The baseline testing should occur prior to any discharge for any new or expanded facilities.
2. The orders should specify an approval process for the groundwater monitoring plans that gives the Board the ability to require changes to the monitoring program design prior to approval. This process should be consistent with the current practice used for well stimulation treatments' monitoring plans mandated by SB 4. Until the monitoring plan is approved, discharge must cease.

3. The orders should specify Board staff or contractors' rights to conduct independent monitoring and testing of samples in order to verify accuracy and completeness of operator submitted monitoring results, as well as protocols for requesting split samples and observing sampling collection.

General Order Comments

General Order 1

1. The contaminant thresholds for qualifying for this order must be expanded. Simply using EC, Chloride, and Boron is inadequate. In order to qualify under General Order 1, produced water must contain below safe harbor limits for Proposition 65 chemicals, and also contain below long-term Effects Screening Levels for any other harmful chemical, either those added in production and maintenance or naturally occurring in the formation fluid.
2. It appears that this aspect was weakened since the Administrative draft. The Discharge Specifications were amended to remove prohibitions on discharging organic chemicals, including BTEX as well as a maximum oil and grease concentration. We strongly object to this change and it is exactly the opposite of our recommendation above.

General Order 2

1. The Board must not permit produced water that exceeds Basin Plan limits, or the chemical thresholds described above (in our recommendation for General Order 1), to be discharged onto land or into pits. This change would result in the orders being consistent with CCST's recommendation that produced water containing harmful chemicals not be stored or disposed of into unlined pits or discharged to land.
2. Dust control with contaminated wastewater must also be prohibited.

General Order 3

1. The order does not adequately define "first encountered" groundwater. In order for a discharge facility to qualify for GO 3, the operator must demonstrate that any underground migration from the facility cannot and will not enter groundwater that may have beneficial uses. This analysis should not simply rely on the characterizing the groundwater (or claiming an absence of groundwater) directly beneath the discharge site, but should also consider horizontal migration, naturally occurring or human-made pathways, and changes in groundwater movement that could result from discharge. The operator should have to demonstrate complete isolation/confinement of any fluids discharged on the site. Any such claims must be supported with adequate geologic modeling and verified by the Board with an explicit approval process. Until such approval is granted, discharge must be prohibited.
2. The order outlines a process for de-designating groundwater from beneficial uses. We agree that in order to claim that underlying groundwater is low quality this process must occur. We object to the option of de-designating groundwater with less than 10,000 total

dissolved solids. The 3,000 TDS limit is arbitrary and does not meet federal standards for an Underground Source of Drinking Water (USDW). Additionally, we strongly object to operators being allowed to continue to discharge while that process is occurring. The timeline provided could allow for up to five years of discharge before the denial of a de-designation application. The order must specify that no discharge can occur while the de-designation process is ongoing.

Thank you for the opportunity to provide comments.

Sincerely,

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