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ATTACHMENT L

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.
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> 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
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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