

A. Permit Provisions and Program Elements

California
Santa Ana Region



Implementing TMDL Wasteload Allocations

Concentrated animal feeding operations (CAFOs) within the jurisdiction of the Santa Ana Regional Water Quality Control Board, California (Santa Ana Regional Board) are located in either the Santa Ana River or the San Jacinto River watersheds. The Middle Santa Ana River flows through an area with a high concentration of dairies and is subject to a total maximum daily load (TMDL) for indicator bacteria. Canyon Lake and Lake Elsinore, both in the San Jacinto River watershed, are subject to nutrient TMDLs.

Federal regulations require that National Pollutant Discharge Elimination System (NPDES) permits include effluent limits "consistent with the assumptions and requirements of any available wasteload allocation for the discharge." 40 CFR 122.44(d)(1)(vii)(B). The General Waste Discharge Requirements for Concentrated Animal Feeding Operations (Dairies and Related Facilities) within the Santa Ana Region ([Order No. R8-2013-0001](#), [NPDES No. CAG018001](#); Dairy General Permit) establish technology-based effluent limitations (TBELs) and water-quality based effluent limitations (WQBELs) to meet TMDL wasteload allocations (WLAs). The General Dairy Permit, which applies to dairies in both the Middle Santa Ana and San Jacinto River watersheds, became effective June 7, 2013 and expires on June 1, 2018.

The Dairy General Permit's TBELs prohibit the discharge of manure, litter, and process wastewater from a CAFO production area, including runoff and the direct precipitation, from storms up to and including the 25-year, 24-hour rainfall event, consistent with the federal technology-based standards at [40 CFR § 412.31](#). The General Dairy Permit's WQBELs rely on implementation of best management practices (BMPs), in lieu of numeric effluent limitations, to achieve TMDL WLAs, as allowed by [40 CFR 122.44\(k\)\(3\)](#). WQBELs are specific to each TMDL and are discussed below.

GENERAL WASTE DISCHARGE REQUIREMENTS FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (DAIRIES AND RELATED FACILITIES) WITHIN THE SANTA ANA REGION

Section II. PERMIT PROVISIONS

Section II.B. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Section II.B.1. Technology-based Effluent Limitations (TBELs) Whenever precipitation causes an overflow of manure, litter, or process wastewater, pollutants in the overflow may be discharged from the facility, provided all provisions of an Engineered Waste Management Plan (EWMP), approved by the Executive Officer, are fully implemented, and:

Section II.B.1.a. The production area is designed, constructed, operated and maintained to contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 25-year, 24-hour rainfall event; and

Section II.B.1.b. The operations at the facility are conducted in accordance with the additional measures required by 40 CFR Section 412.37(a) and (b) with respect to inspection, corrective actions, monitoring and record keeping as specified in the Monitoring and Reporting Requirements of this Order (Attachment B).

Middle Santa Ana River Watershed Bacterial Indicator TMDL

The [Middle Santa Ana River TMDL](#) calculated WLAs for fecal coliform and *E. coli* during dry summer and wet winter conditions. The calculated WLAs are the same for dry summer and wet winter conditions.

- **Fecal Coliform WLA:** 5-sample/30-day logarithmic mean less than 180 organisms/100 ml, and not more than 10% of the samples exceed 360 organisms/100ml for any 30-day period.
- ***E. Coli* WLA:** 5-sample/30-day logarithmic mean less than 113 organisms/100 ml, and not more than 10% of the samples exceed 212 organisms/100ml for any 30-day period.

The dry summer period is April 1st through October 31st and the wet winter period is November 1st through March 31st. Section II.B.2.a of the Dairy General Permit “prohibits the discharge of wastes to surface waters under dry conditions. As such, the CAFO Dischargers discharging into the middle Santa Ana River Watershed shall be immediately in compliance with the...dry weather wasteload allocations.”

Compliance with the wet winter period WLAs must be achieved as soon as possible but no later than December 31, 2025. Compliance with the wet winter period WLAs is determined through Santa Ana Regional Board approval of a series of programs and plans, and subsequent implementation by CAFO Dischargers. Section II.B.2.a.iii of the Dairy General Permit sets forth the required programs and plans.

- CAFO Dischargers must continue to implement monitoring program approved by the Santa Ana Regional Board during the previous permit term.
- CAFO Dischargers submitted an [Agricultural Source Evaluation Plan](#) (AgSEP) that was approved by the Santa Ana Regional Board in April 2008.
- The AgSEP was implemented in 2008 and 2009 and a revised AgSEP was submitted to the Santa Ana Regional Board in July 2009.
- CAFO Dischargers were required to evaluate annual monitoring data and develop and submit a Bacterial Indicator Agricultural Source Management Plan (BASMP) for Regional Board approval by December 31, 2014.

Section 4.3 of the Santa Ana Regional Board-approved [BASMP](#) defines CAFO Discharger compliance with the wet winter period WLAs to include:

- Develop and implement a Santa Ana Regional Board-approved Engineered Waste Management Plan (EWMP) that describes design, construction and maintenance of all containment structures to retain all wastewater within the facility, including all process wastewater and all precipitation on, and drainage through, manured areas resulting from rainfall up to and including a 25-year, 24-hour rainfall event. The EWMP must be certified as implemented by a registered professional engineer, or other qualified individual.
 - Implement and maintain CAFO-specific wet weather best management practices (BMPs), as identified in the EWMP.
 - Conduct and document weekly visual inspections of waste containment structures and, during wet weather periods, daily inspections whenever more than 0.5 inches of rain falls in a 24 hour period. Documentation of visual inspections must be submitted with the CAFO’s annual report.
 - Develop and follow a nutrient management plan (NMP) for CAFOs that apply manure, litter or process wastewater to cropland that they own or control.
 - Sample discharges from waste containment structures to surface waters for total dissolved solids, total coliform bacteria, *E. Coli*, total nitrogen, total phosphorus and total suspended solids.
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The Santa Ana Regional Board also considers participation in the Middle Santa Ana River Bacterial Indicator TMDL Taskforce (TMDL Taskforce) process, including participation in monitoring programs, special studies, and implementation of control measures developed by the Taskforce and approved by the Regional Board when assessing compliance with WLAs by Dairy General Permit holders (R8-2013-0001, Section II.B.2.a.iii(h)). Specifically, the TMDL Taskforce must evaluate BMP effectiveness by May 31st of each year along with the monitoring results and submit a report to the Santa Ana Regional Board. If these evaluations indicate that additional BMPs are needed to achieve the WLAs by December 31, 2025, Middle Santa Ana River watershed dischargers will include additional control measures in the BASMP or in any BASMP revisions.

Nutrient TMDLs for Lake Elsinore and Canyon Lake

The [Lake Elsinore and Canyon Lake Nutrient TMDLs](#) established WLAs for total phosphorus and total nitrogen. The Dairy General Permit establishes compliance with these WLAs through the implementation of BMPs and other control measures. The permit includes the TMDL WLAs for total phosphorus and total nitrogen and states “The Regional Board recognizes that the goal of the TMDL is to achieve the numeric targets in the two lakes even if the numeric wasteload allocations...are not met. If this goal is achieved through in-lake control measures or other means, then the beneficial uses of the lakes will be restored.”

The Santa Ana Regional Board notes that Lake Elsinore and Canyon Lake are at the bottom of a 780-square mile watershed that experiences an ever-increasingly extreme Mediterranean climate with a varied number of nutrient sources. Nutrients and salts are primarily delivered to the lakes through sediment loads in years where annual flows from the watershed exceed 100,000 acre-feet; these events occur approximately once every 20 years. The infrequent recurrence of flows high enough to deliver sediment laden with nutrients and salts to the lakes requires impractical BMP implementation to control these pollutants. Further, once the sediment/nutrients are deposited in the lakes, it appears that they have a bio-available half-life of 15 years as there is infrequent sediment transfer from Canyon Lake to Lake Elsinore and even less overflow from Lake Elsinore (the last time Lake Elsinore overflowed was 1998). It is the internal sediment nutrient load that drives the nutrient dynamics in both lakes. Adding to the nutrient storage issue, historical conditions of drought have resulted in Lake Elsinore going completely dry at least five times in the past 200 years along with a number of instances of hypo-concentration of salts and nutrients.

In January 2015, the Santa Ana Watershed Project Authority (SAWPA) initiated an effort to revise the numeric targets and WLAs specified in the TMDLs.

GENERAL WASTE DISCHARGE REQUIREMENTS FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (DAIRIES AND RELATED FACILITIES) WITHIN THE SANTA ANA REGION

ORDER NO. RS-2013-0001, NPDES NO. CAG018001

II. PERMIT PROVISIONS

II.B. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

II.B.2. Water Quality-based Effluent Limitations (WQBELs)

II.B.2.b. Nutrient TMDLs for Lake Elsinore and Canyon Lake:

II.B.2.b(a) Participation in the TMDL taskforces including the monitoring programs, workplan development and implementation activities either by each individual Discharger or by all the Dischargers represented by a trade association or a stakeholder taskforce shall be considered in assessing compliance with the wasteload allocations in the TMDLs.

II.B.2.b(b) The complex nature of nutrient controls for the two lakes have [*sic.*] necessitated the need for extensive research and course corrections for the implementation plans for nutrient controls in Lake Elsinore and Canyon Lake. The activities specified below are based on research conducted so far and may require further changes as new information becomes available. To comply with the Nutrient TMDLs for Lake Elsinore and Canyon Lake:

[compliance requirements are summarized in the text below]

II.B.2.b(c) All Dischargers within the Lake Elsinore and Canyon Lake watershed shall comply with the Lake Elsinore and Canyon Lake Watershed Nutrient TMDL requirements specified in Section III.D.2...

To comply with the Lake Elsinore and Canyon Lake TMDLs, Section B.2.b(b)(i) of the Dairy General Permit requires dischargers in the San Jacinto watershed to collaborate with the Western Riverside County Agriculture Coalition¹ (WRCAC) to develop and implement a watershed-based Comprehensive Nutrient Reduction Plan for approval by the Santa Ana Regional Board. Dischargers must also collaborate with WRCAC and the Lake Elsinore and Canyon Lake TMDL Taskforce to:

- Evaluate the effectiveness of the Comprehensive Agricultural Nutrient Reduction Plan within one year of its implementation.
- Conduct nutrient monitoring throughout the watershed in accordance with a previously-developed Water Quality Monitoring Plan.
- Submit monitoring results to the Santa Ana Regional Board.
- Evaluate the monitoring results along with the various implementation measures to determine their progress towards meeting the WLAs by December 31, 2020 and/or the water quality objectives in the lakes. If this evaluation indicates the need for additional control measures, the dischargers must collaborate with WRCAC and the Lake Elsinore and Canyon Lake TMDL Taskforce to propose additional control measures and/or monitoring programs designed to meet the TMDL WLAs by December 31, 2020.

The Dairy General Permit indicates that the Santa Ana Regional Board will consider the CAFO Dischargers' participation in the Lake Elsinore/Canyon Lake Nutrient TMDL Taskforce process, including participation in the monitoring programs, special studies, and implementation of control measures developed by the Taskforce and approved by the Santa Ana Regional Board, in assessing compliance with the WLAs (R8-2013-0001, Section II.B.2.b(a)).

¹ WRCAC is a 501(c)3 non-profit organization dedicated to supporting the agriculture and dairy communities of the San Jacinto River Watershed.

Programmatic Framework

The Santa Ana Regional Board, the designated NPDES permitting authority, determined that every animal feeding operation (AFO) with a herd size of more than 20 cows or 50 heifers, calves, or cattle within the Santa Ana Region is a significant contributor of pollutants to waters of the U.S. As such, these AFOs must be regulated under waste discharge requirements.

The General Dairy Permit is issued pursuant to Section 402 of the CWA and implementing regulations adopted by the U.S. Environmental Protection Agency and Chapter 5.5, Division 7 of the California Water Code ([Water Code, § 13370 et seq.](#)).

Regulations governing discharges from California confined animal facilities, including dairies, are contained in [Division 2, Title 27](#) of the Combined State Water Resources Control Board/California Department of Resources Recycling and Recovery (CalRecycle, previously Integrated Waste Management Board) AB 1220 Regulations, which became effective on July 18, 1997. [Chapter 7, Subchapter 2 \(Article 1\)](#) contains requirements for confined animal facilities.

Implementation

As of 2015, 109 dairy-related CAFOs exist within the Santa Ana Regional Board's jurisdiction. Eighty-six (86) of these CAFOs (with 96,000 animals total) are located in the Santa Ana River Basin and subject to WQBELs derived from the Middle Santa Ana River TMDL WLAs. Twenty-three (23) CAFOs (with 49,000 animals total) are located in the San Jacinto River Basin and subject to WQBELs derived from the Canyon Lake/Lake Elsinore Nutrient TMDLs (Ed Kashak, Santa Ana Regional Water Quality Control Board, Dairy Program, personal communication, March 8, 2016).

WLAs and LAs established in the Lake Elsinore/Canyon Lake Nutrient TMDLs were calculated to meet causal numeric targets for total phosphorus and total nitrogen, and beneficial use response targets for chlorophyll *a* and dissolved oxygen that were translated from the narrative water quality objectives that “Waste discharges shall not contribute to excessive algal growth in receiving waters” and that “Dissolved oxygen content of surface waters shall not be depressed below 4 mg/L for waters designated WARM.” By reducing the bio-availability of the legacy loads of phosphorus that have been delivered to Canyon Lake and the future loads of phosphorus that are delivered in extreme storm events that are not controllable by conventional BMPs, and through the in-lake use of alum, it is anticipated that the appropriate chlorophyll *a* and dissolved oxygen response targets will be achievable, thus satisfying that portion of the TMDL.

The [Lake Elsinore & Canyon Lake TMDL Task Force](#) represents a diverse group of stakeholders including city, county, state, and federal agencies; water districts; and dairies, CAFOs, and other agricultural operators. As a result, decisions on how to meet Lake Elsinore and Canyon Lake WLAs include dairies but are not focused exclusively on Dairy General Permit holders.

References

General NPDES Permit. ORDER No. R8-2013-0001 NPDES No. CAG018001. 2013. California Regional Water Quality Control Board, Santa Ana Region. *General Waste Discharge Requirements for Concentrated Animal Feeding Operations (Dairies and Related Facilities) Within the Santa Ana Region*.
http://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2013/13_001_General_WDR_CAFOs_Dairies_Related_Facilities.pdf. Accessed January 6, 2017.

Santa Ana Regional Water Quality Control Board, Dairy Program. 2016, March 8. *Personal communication with Ed Kashak.*

Xinyu Li, California Regional Water Quality Control Board, Santa Ana Region. 2004. *Lake Elsinore and Canyon Lake Nutrient Total Maximum Daily Load Technical Report.*

http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/docs/elsinore/final_1.pdf.

Accessed January 6, 2017.
