



CALIFORNIA WATER BOARDS
State Water Resources Control Board
Regional Water Quality Control Boards

Water Board Function: Confined animal facilities regulation

Ensure that discharges of waste from confined animal facilities do not cause violations of water quality objectives.

Water Board Program(s) Relevant to Function:

Confined Animal Facilities (CAF) Program and related aspects of the Biomass/Bioenergy Program

Problem/Issue Description:

California has approximately 2,200 dairies with an average size of about 700 milk cows. There are also several hundred feedlots, poultry operations, and other animal feeding operations (AFOs) in the State. California regulations refer to these operations as “confined animal facilities” (CAFs). The current primary water quality concerns at CAFs are impacts to groundwater from salts and nutrients from sources that include cropland where manure and wastewater is applied as a fertilizer. Even when best management practices are used, it appears that groundwater may be adversely affected at many facilities.

Overview of Function:

Over the last decade, regulatory programs for CAFs have transitioned from waiver programs with a nonpoint source focus to permitting programs in regions with the majority of CAF facilities. Additionally, within the last 5 years there has been increased regulatory focus on CAFs as a source of greenhouse gasses and other air emissions and on anaerobic digesters at CAFs that use manure to produce “green” energy, especially at facilities that use other organic feedstocks for “co-digestion.”

Most of the CAF permitting efforts in the last 5 years are for facilities in Region 5. During the last 5 years, there have not been a significant number of proposed permits for biomass/bioenergy facilities, other than for methane digesters at dairies.

There are no regional staff specifically working on biomass/bioenergy programs. Such bioenergy facilities that need permits are addressed by staff in programs such as WDR, Land Disposal, and (in the case of methane digesters at dairies) by the CAF program.

Role of Water Board Staff:

Regional Water Board staff draft/update, for consideration and adoption by the Regional Board, NPDES permits and WDRs (including General Orders) for CAFs as appropriate; review monitoring reports; conduct inspections; recommend enforcement actions; etc. State Board staff assists Regional Water Board staff in developing and implementing regulatory programs, review and comment on permits, and acts as the technical expert when Regional Board actions are petitioned for review. Other State and Regional Water Board staff activities include:

- Identifying database needs for CAF programs
- Work with federal and State agencies such as USEPA, Natural Resource Conservation Service, Air Resources Board, State Energy Commission, and the Department of Food and Agriculture on CAFs and water quality issues
- Work with technical interagency workgroups such as the California Dairy Quality Assurance Program, Cal EPA's Emergency Animal Disposal Committee, the Manure Management Working Group, and the Dairy Power Production Program
- Participate on bioenergy workgroups (Bioenergy Interagency Working Group, California Biomass Collaborative, and the Interagency Digester Working Group)

Role of Regional Board Members:

Conducts public hearing, considers, and adopts WDR or NPDES permit for CAFs and biomass/bioenergy facilities.

Role of State Board Members:

Reviews petitions from Regional Board adoption of WDR or NPDES permit. Adopts policies and regulations.

Primary Issues of Concern:

The high cost of some best management practices, such as double-lined wastewater impoundments, affects the economic viability of some operations, including those considering the use of methane digesters.

The current primary concerns for biomass/bioenergy facilities are the uncertainties related to permitting requirements for new facilities. Better coordination on permits is needed between agencies such as the Regional Water Boards, Air Pollution Control Districts, and county agencies.

Definition of Key Terms:

What are Confined Animal Facilities? A CAF is defined in California regulations as “any place where cattle, calves, sheep, swine, horses, mules, goats, fowl, or other domestic animals are corralled, penned, tethered, or otherwise enclosed or held and where feeding is by means other than grazing.”

What are Animal Feeding Operations (AFOs)? An AFO is defined in federal regulations as: a lot or facility (other than an aquatic animal facility) where animals are confined and fed or maintained for a total of 45 days or more in any 12-month period, and where vegetation is not sustained in the normal growing season.

What are Concentrated Animal Feeding Operations (CAFOs)? A CAFO is an AFO that has a certain number of animals and meets the other criteria contained in federal regulations. Most dairies that have 700 or more mature dairy cows are CAFOs.

What are the primary CAFs in California? California is the number one state in dairy animals. It is among the top ten in chickens (eggs and meat) and turkeys. There are also a significant number of large feedlots in the state. There are only a few swine

operations. There are large numbers of small CAFs such as horse stables and 4-H projects that are generally not the focus of regulatory agencies.

In what regions are the majority of CAFs located? Most of the CAFs in California are in Region 5 including about 75% of the dairies and most of the poultry facilities. There are about 160 dairies and feedlots in R8 and about 200 dairies (mostly smaller facilities with less than 300 milk cows) in Regions 1 and 2. There are also a few CAFs in other regions, including a few CAFOs.

What are Constituents of Concern (COC) at CAFs? COCs for CAFs include any material that can adversely affect the quality of waters of the State. The primary COCs at CAFs are ammonia, nitrates, salts (usually measured as total dissolved solids – TDS), and bacteria that are in animal manure. However, other COCs such as sediments and metals can also be concerns at some facilities. Pesticides and anthropogenics (man-made chemicals such as natural and synthetic hormones and veterinary drugs including antibiotics) have not been identified as a concern in animal wastes at CAFs in California.

How do CAFs impact surface waters? Improper collection and storage of manure or improper application of manure to land can result in discharges of COCs to surface waters. The primary concern is ammonia that is toxic to aquatic life in small amounts. High quantities of organic matter can result in depletion of dissolved oxygen. Nutrients such as nitrates and phosphorus can result in algal growth that can adversely affect beneficial uses. Coliform bacteria and other pathogens are a concern if there is human contact with the receiving water or if food consumed by humans is impacted (for example, bacteria from dairies on the coast have impacted oysters in coastal waters north of San Francisco).

How do CAFs impact groundwater? Improper storage of manure or application of manure to land result in discharges of COCs to groundwater. The primary concerns are TDS and nitrates. Many dairies do not have sufficient cropland to limit the application of manure to reasonable rates for plant growth. Furthermore many additional dairies do not have adequate facilities to control the timing of applications to maximize nutrient uptake by crops and thereby minimize leaching of nitrate to groundwater.

How are CAFs different from other farming operations? Although other farming operations can and do discharge COCs into surface water and groundwater, CAFs such as dairies that land apply manure have features that make them a higher concern. Dairies may apply manure “to get rid of it” rather than apply it in the most efficient manner for crop production (since other farmers pay for their fertilizers, they are less likely to over apply it). Also, dairies may need to empty holding ponds during the rainy season when crops do not need nutrients. Another factor is that manure contains a higher ratio of “unwanted” salts to nutrients than do commercial fertilizers, so that even dairies with well-managed manure handling can contribute a higher salt loading than do other farming operations.

Bioenergy Interagency Working Group (BIWG)

The BIWG was initiated by the Governor in 2005 and includes decision makers from various State boards and departments. The BIWG provides information to the Governor's office on issues related to energy including environmental issues.

California Biomass Collaborative

The California Biomass Collaborative is coordinated by the University of California, Davis. The Collaborative administers programs involving scientific research and innovation; technology development, demonstration, and deployment; and education and training, to help advance the use of biomass.

Interagency Digester Working Group (IDWG)

The IDWG was formed at the request of the Air Resources Board. Participants include staff from several State agencies and representatives of the dairy industry.