

INFORMATION SHEET

Waste Discharge Requirements Order No. R5-2010-XXXX
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Tehama County

INTRODUCTION

On 24 April 2009 the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Individual Waste Discharge Requirements Order No. R5-2009-0045 (Order) for a facility that was to operate as a dairy. The facility was the Alston Farms Dairy No. 2 located at 22954 Christian Road, Orland, Tehama County. The facility required Individual Waste Discharge Requirements (WDRs) because it was not operating as a dairy as of 17 October 2005. Alston Farms Dairy No. 2 operated as a dairy from 1976 until 2002. Since 2002 the facility has been rangeland. In 2008, the Alstons began the process to restart the facility as a dairy.

Gilbert Alston leases the Alston Farms Dairy No. 2 from Elsie Sewald. In addition, land owned by John Alston is incorporated into Alston Farms Dairy No. 2. The dairy was to house up to 850 animals: 400 milking cows, and up to 450 dry cows and bred heifers. There were not going to be any calves housed at the dairy. The facility included a milking parlor, freestall barns, corrals, room for future manure storage and drying areas, a wastewater storage lagoon, and feed storage areas. Wastewater was to be land-applied to 158.8 of the 517 acres for agricultural production.

The Central Valley Regional Water Quality Control Board was the lead agency for CEQA. A Mitigated Negative Declaration was prepared for the project and circulated through the California State Clearing House on 19 February 2009. The final Mitigated Negative Declaration was adopted by the Central Valley Regional Water Quality Control Board on 24 April 2009 as part of the Order.

As part of CEQA, the Discharger was required to mitigate for the environmental effects from operating the dairy by installing a synthetic liner in the existing wastewater storage lagoon or install a new lined lagoon. The Order required the pond mitigation measure to be fully completed by 31 December 2009. In addition, groundwater monitoring wells were required to be installed at the facility by 1 March 2010.

Due to the economic situation, the Alstons were not able to begin operating the facility as a dairy. Because the facility is currently being operated as rangeland, certain requirements set forth in the Order have not and will not be met in time. These requirements include the design report for the wastewater lagoon, the completion report for the wastewater lagoon, a Nutrient Management Plan, a Salinity Report and the installation of the groundwater monitoring wells.

These updated Waste Discharge Requirements will permit Alston Farms Dairy No. 2 to operate as a dairy once again at some point in the future. The dairy will house the number of cows allowed under the approved Mitigated Negative Declaration. The facilities constructed at the dairy are all sized to house the number of animals allowed under the Mitigated Negative Declaration. A Report of Waste Discharge dated 4 March 2008 has been submitted for the dairy. Additional information has been submitted to the Regional Board including portions of the Nutrient Management Plan, a Waste Management Plan, and a Monitoring Well Installation and Sampling Plan. The facility will not be permitted to operate as a dairy until certain requirements of the Order are completed. This includes the lining of the wastewater storage lagoon, the submittal of a certified Nutrient Management Plan that meets the 1.4 nitrogen ratio, the installation of groundwater monitoring wells and completion of an initial round of sampling, and the submittal of the Salinity Report. Written approval from the Executive Officer will be required before the facility can begin operating as a dairy. The revised Order does not change the original project that the Mitigated Negative Declaration adopted by the Central Valley Water Board was completed for. Therefore there are no new environmental impacts associated with the revised Order that are not addressed by the previous CEQA document.

CURRENT CONDITIONS

The site of the dairy is zoned Exclusive Agriculture or Upland Agriculture. The property is characteristic of the valley floor conditions, with steady rolling hills supporting introduced annual grasslands and sparse trees. The site is underlain by soils comprised of the Kimball, Corning-Newville, Cortina, Hillgate, Arbuckle, Riverwash, and Altamont soils.

WASTE GENERATION AT FACILITY

Waste produced at the facility will consist of wastewater from facility wash down operations and storm water containing manure, urine, milk products, spoiled feed material, bedding (litter), soil, and cleaning compounds. Solid wastes will also be produced at the facility and primarily consist of manure with additional fractions of spoiled feed, bedding material and soil. An estimated 3,000 gallons per day (gpd) of clean water from the on-site water supply wells will be used to wash down the holding pen, wash pen, and milking parlor floors, rinse the cows, and wash down miscellaneous dairy equipment. Over 120 days, the volume of barn wastewater generated will be 360,000 gallons. One hundred twenty days (December 1 through March 30) is the maximum amount of time that waste needs to be stored at the facility between land applications. Operation of the dairy is estimated to generate 28,690 gallons of manure wastewater over 120 days for the 400 milk cows that are housed in the barns. Rainfall onto impervious areas of the facility, onto the ponds, and onto corrals is estimated at 670,784 gallons over the December through March storage period, using average rainfall figures and including rainfall from one 25-year, 24-hour storm.

The total amount of wastewater requiring storage over the 120-day maximum storage period, after removing losses due to evaporation and adding one 25-year 24-hour storm, is 881,706 gallons.

WASTE MANAGEMENT AT FACILITY

Wastewater will be conveyed into the wastewater storage lagoon. The existing wastewater storage lagoon has dimensions of 190 feet long by 191 feet wide and 11 deep, with side slopes of 1:1. The total storage capacity of the wastewater storage lagoon, allowing for two feet of freeboard is 1,462,831 gallons.

As part of the Mitigated Negative Declaration, the Discharger is required to install a synthetic liner in the existing wastewater storage lagoon or install a new lined lagoon. The new lagoon or lining of the existing lagoon will be designed and constructed to meet the requirements set forth in the Order.

LAND APPLICATION OF WASTEWATER TO CROPS

Wastewater and solid manure will be applied to land at agronomic rates to grow oats, wheat, sudan hay, and pasture in accordance with a certified Nutrient Management Plan.

All fields that will receive solid manure or liquid wastewater have tailwater recovery systems or are bermed.

The Order requires that solid manure and wastewater samples be collected and analyzed, and the tons of solid manure and volume of wastewater applied to each field determined. This information will be used to refine the Nutrient Management Plan on an ongoing basis.

The dates and volume of each irrigation application (without wastewater) will be recorded. These data are used to ensure that wastewater is not applied when the ground is at or above field moisture capacity, and to limit the flushing of nutrients below the root zone due to excessive application of irrigation water. In addition, samples of the irrigation water will be tested to determine if there are nitrogen compounds present in the groundwater such that the Nutrient Management Plan should be amended to reflect nitrogen added from the irrigation water.

Soil monitoring and plant tissue monitoring are also required and the results used to further refine the Nutrient Management Plan.

GROUND WATER AND SURFACE WATER MONITORING PROVISIONS

There are two existing agricultural supply wells and two domestic wells on the property. Monitoring wells will be installed prior to the start of dairy operations. These wells will, at a minimum, monitor upgradient groundwater quality (unaffected by dairy operations) and groundwater downgradient of the location of corrals, land application areas, and the wastewater storage lagoons. The Order requires sampling of these wells. Regional ground water flow is to the southeast towards the Sacramento River and the depth to groundwater in the area ranged from 40 to 60 feet below ground surface.

Sampling of the domestic and agricultural wells was conducted in November 2008. The results indicate that groundwater at the dairy is not above the Maximum Contaminant Levels (MCLs) for Electrical Conductivity or Nitrate-Nitrogen. Samples for additional constituents will be collected as indicated below.

The domestic and agricultural wells at the facility will be sampled semiannually for at least one year for electrical conductivity and nitrate-nitrogen, and at least once for general minerals, ammonia-nitrogen, total dissolved solids, and fecal coliform. The monitoring wells will be sampled quarterly for two years and then semiannually thereafter, for electrical conductivity, pH, nitrate-nitrogen, ammonium-nitrogen, total dissolved solids, fecal coliform, phosphorous, and potassium; and quarterly for two years and annually thereafter, for general minerals. Prior to any pre-sample purging, the depth of groundwater shall be measured from a surveyed reference point (anticipated to be the top of each well vault) to the nearest 0.01 foot in each well.

Because all fields that will receive solid manure or liquid wastewater have tailwater recovery systems or are bermed, it is not anticipated that there will be off-property discharges of waste, which would be in violation of the Water Code. It is expected that, if the Nutrient Management Plan and other conditions of the Order regarding waste application are followed, any discharges of storm water from fields receiving solid manure or wastewater should not contain significant quantities of waste constituents. To verify this, representative samples of storm water will be collected from a portion of the fields each year to determine if waste constituents are present. Storm water monitoring will be adjusted based on the results from these samples.

REPORTING REQUIREMENTS

By January 15 of each year, the Discharger will submit an Annual Report containing the information on facility operations outlined in the Monitoring and Reporting program and covering the period from 1 November through 31 October of the previous year. The initial annual report will cover the period from the date that operation starts through 31 October. The initial annual report will also

include documentation from a trained professional that no cross connections exist between the waste management system and any water supply or irrigation well.

By 30 June, the Discharger will submit the results of storm water monitoring and storm water monitoring conducted pursuant to the Monitoring and Reporting Program.

In the event of any noncompliance with the requirements of the Order that endangers human health or the environment, or any noncompliance with the prohibitions in the Order as listed in the Noncompliance Reporting provisions of the Monitoring and Reporting Program, the Discharger shall notify the Board within 24 hours of becoming aware of the occurrence. Information about the situation shall be collected and submitted in accordance with the Priority Reporting of Significant Events requirements in the Monitoring and Reporting Program.

APPLICABLE WATER QUALITY STANDARDS

The Central Valley Water Board has adopted a Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins (4th ed.). This Basin Plan designates the beneficial uses of groundwater and surface waters of the Region, specifies water quality objectives to protect those uses, and includes implementation programs for achieving water quality objectives. The Basin Plan also includes plans and policies of the State Water Board incorporated by reference, including State Water Board Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality Waters in California*), State Water Board Resolution 88-63 (*Sources of Drinking Water Policy*), and State Water Board Resolution No. 92-49 (*Policies and Procedures for Investigation and Cleanup or Abatement of Discharges Under Water Code Section 13304*).

Beneficial Uses of Surface Water and Groundwater

Pursuant to Chapter II of the Basin Plan, the beneficial uses of surface water may include: municipal and domestic supply; agricultural supply; agricultural stock watering; industrial process supply; industrial service supply; hydro-power generation; body contact water recreation; canoeing and rafting; other non-body contact water recreation; warm freshwater aquatic habitat; cold freshwater aquatic habitat; warm fish migration habitat; cold fish migration habitat; warm spawning habitat; cold spawning habitat; wildlife habitat; navigation; rare, threatened, and endangered species; groundwater recharge; freshwater replenishment; aquaculture; and preservation of biological habitats of special significance. The Basin Plan contains a Table that lists the surface water bodies and the beneficial uses and where not listed, the Basin Plan designates beneficial uses based on the waters to which they are tributary or applicable state or federal requirements. These beneficial uses are protected in this Order by, among other requirements, the prohibition of a direct or indirect discharge of

waste and/or storm water from the production area to surface waters, the prohibition of discharge of wastewater to surface waters from cropland, the prohibition of any discharge of storm water to surface water from the land application areas unless the land application area has been managed consistent with a certified Nutrient Management Plan, and the prohibition of discharge of waste from existing milk cow dairies to surface waters which causes or contributes to an exceedance of any applicable water quality objective in the Basin Plan or any applicable state or federal water quality criteria, or a violation of any applicable state or federal policies or regulations.

Chapter II of the Sacramento River and San Joaquin River Basin Plan states: *“Unless otherwise designated by the Regional Water Board, all groundwaters in the Region are considered as suitable or potentially suitable, at a minimum, for municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.”* These beneficial uses are protected in this Order by, among other requirements, the specification that the discharge of waste at an existing milk cow dairy shall not cause a violation of water quality objectives or cause pollution or nuisance.

Water Quality Objectives

Pursuant to the California Water Code Section 13263(a), WDRs must implement the Basin Plans, which require consideration of the beneficial uses of water, water quality objectives reasonably required to protect the beneficial uses, other waste discharges, the need to prevent nuisance conditions in the disposal area, and the receiving water. The water quality objectives are implemented in WDRs consistent with the Basin Plan’s *Policy for Application of Water Quality Objectives*. The Basin Plan requires that WDRs apply the most stringent objective for each constituent to ensure that discharges do not cause adverse affects to any beneficial use.

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 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 primary waste constituents of concern due to discharges of waste from dairies are ammonia, nitrates, phosphorus, chloride, boron, salts, pathogens, and organic matter. The discharge of waste from dairies must not cause surface water or groundwater to exceed the applicable water quality objectives for those constituents.

Water Quality Objectives and Federal Criteria for Surface Water¹

Water quality objectives that apply to surface water include, but are not limited to, (1) the numeric objectives, including the bacteria objective, the chemical constituents objective (includes listed chemicals and state drinking water standards, i.e., maximum contaminant levels (MCLs) promulgated in Title 22 CCR Division 4, Chapter 15 Sections 64431 and 64444 that are applicable through the Basin Plan to waters designated as municipal and domestic supply), dissolved oxygen objectives, pH objectives, and the salinity objectives; and (2) the narrative objectives, including the biostimulatory substances objective, the chemical constituents objective, and the toxicity objective. The Basin Plan also contains numeric water quality objectives that apply to specifically identified water bodies, including for example, electrical conductivity objectives for the Delta.

Federal water quality criteria that apply to surface water are contained in federal regulations referred to as the California Toxics Rule and the National Toxics Rule. See 40 CFR Sections 131.36 and 131.38.

Water Quality Objectives for Groundwater

Water quality objectives that apply to groundwater include, but are not limited to, (1) numeric objectives, including the bacteria objective and the chemical constituents objective (includes state MCLs promulgated in Title 22 CCR Division 4, Chapter 15 Section 64431 and 64444 and are applicable through the Basin Plan to municipal and domestic supply), and (2) narrative objectives including the chemical constituents, taste and odor, and toxicity objectives.

Implementation of Water Quality Objectives

The Basin Plan includes an implementation program for water quality objectives called the *Policy for Application of Water Quality Objectives*, which applies to implementation of both numeric and narrative water quality objectives. To evaluate compliance with narrative objectives, the Policy requires the Regional Board to consider, on a case-by-case basis, various factors and information, including direct evidence of beneficial use impacts (e.g., a fish kill), information submitted by the discharger and other interested parties (e.g., levels that constitute natural background or site-specific conditions, such as soil types), and “*relevant numerical criteria and guidelines developed and/or published by other agencies and organizations*”, such as the State Water Resources Control Board, California Department of Health Services, Department of Fish and Game, and the United States Environmental Protection Agency (USEPA). The Policy requires the Regional Board to consider this information and determine what

¹ It is important to note that this Order prohibits the direct or indirect discharge of waste and/or storm water from the production area to surface waters, the discharge of wastewater to surface waters from cropland, and requires the monitoring of discharges of storm water to surface water from the land application areas where manure or process wastewater has been applied as well as implementation of a certified Nutrient Management Plan.

specific numerical limit is “relevant and appropriate” to the situation at hand, and, therefore should be used in determining compliance with the narrative objective.

Narrative Water Quality Objectives

Some of the considerations of relevant numerical criteria and guidelines developed or published by other agencies and organizations include:

Agriculture

The Basin Plan contains a narrative chemical constituents objective for both groundwater and surface water that states that “[waters] shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” This objective applies to the protection of agricultural beneficial uses. Relevant numerical criteria and guidelines for agricultural uses of groundwater are included in publications from the National Academy of Sciences, the University of California Cooperative Extension, and the Food and Agricultural Organization of the United Nations. This information is summarized in a 1985 publication *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29*, (hereafter U.N. Guidelines) and includes detailed information to evaluate the quality of irrigation water necessary to sustain various crops.

The major constituents used to assess the quality of water for beneficial uses of irrigated agriculture are salinity (expressed as total dissolved solids, or TDS), boron, chloride, and sodium. Salinity reduces crop growth by reducing the ability of plant roots to absorb water. Boron is an essential element in very low concentrations but can become toxic to plants when concentrations in water even slightly exceed the amount required for optimal growth. While boron sensitivity appears to affect a wide variety of crops, sodium and chloride toxicities are mostly limited to tree crops and woody perennials (e.g., citrus, stone-fruit, and vineyard). A predominance of sodium relative to other ions in irrigation water may also disperse soil aggregates, which in turn, affects virtually all crops by decreasing the permeability of the soil to water and air.

Nitrogen in the form of nitrate and ammonium can also affect some nitrogen sensitive crops such as sugar beets, grapes, apricots, citrus, avocado, and some grain crops. Production of nitrogen sensitive crops may be affected at nitrogen concentrations above 5 mg/L nitrate (as nitrogen) or ammonium-nitrogen.

The University of California report titled “Managing Dairy Manure in the Central Valley of California” determined through both in-field studies and modeling simulations (ENVIRO-GRO) that 1.4 to 1.65 times the crop uptake was the lowest nitrogen application rate that would still allow good crop yields. Specifically the report states that, “investigations of the crop N recovery in several field experiments showed that the appropriate N loading rate that minimizes N leaching and maximizes N harvest is between 140 to 150% of the N harvested and computer models indicated a somewhat larger range of 140% to

165%.” The report also indicated that a nitrogen “loading rate of 1.4 to 1.65 times the crop N harvest removal are practical and...achievable if the production field is properly managed.” If a crop fails, all of the nitrogen applied is available as runoff or goes to groundwater. Therefore, an NMP incorporating the 1.4 to 1.65 standard is currently considered BPTC for control of nitrogen to groundwater and surface water. In addition, groundwater monitoring will be used to verify the effectiveness of the NMP.

The U.N. Guidelines conclude that salt tolerance of crops and yield reductions can vary depending on various factors, such as irrigation management, the crop being grown, and the site conditions. The U.N. Guidelines recommend that a site-specific assessment be conducted to determine if water quality above or below the U.N. Guidelines would provide protection of irrigated agricultural uses. The U.N. Guidelines divide water quality characteristics as having “No Problem – Increasing Problems – Severe Problems” and show numerical criteria that protect a full range of crops and would likely be protective under all irrigated agricultural uses. The numerical criteria for agricultural irrigation use are:

<u>Problem and Related Constituent</u>	<u>No Problem</u>	<u>Increasing Problems</u>
Salinity of irrigation water (micromhos per centimeter (µmhos/cm))	< 700	700 – 3,000
Salinity of irrigation water (total dissolved solids (mg/L))	< 450	450 – 2,000
Specific Ion Toxicity		
From ROOT absorption		
Sodium (mg/L)	< 69	69 – 207
Chloride (mg/L)	< 142	142 – 355
Boron (mg/L)	< 0.7	0.7 – 3.0
From FOLIAR absorption		
Sodium (mg/L)	< 69	> 69
Chloride (mg/L)	< 106	> 106
Miscellaneous		
NH ₄ -N (mg/L) (for sensitive crops)	< 5	5 – 30
NO ₃ -N (mg/L) (for sensitive crops)	< 5	5 – 30
HCO ₃ (mg/L) (only with overhead sprinklers)	< 90	90 – 520
pH	normal range =	6.5 – 8.4

In determining the concentrations of the constituents listed above that will not result in adverse affects on agricultural beneficial uses in a given area, multiple criteria can apply. While the most stringent concentration becomes the constraining criterion, it is not necessarily the concentration that is required to protect all crops typically grown in the area. The U.N. Guidelines reflect the highest tolerable level of quality necessary to sustain the most sensitive crops

but those crops may or may not be grown in the area. An evaluation of the existing crops grown in an area and crops that could be grown in that area is necessary to determine what the most stringent water quality criteria are that will protect all beneficial uses of water in that area. The highest water quality that is reasonable must be maintained.

Animal Drinking Water

As shown in the U.N. Guidelines, water quality needed to protect dairy animal drinking water uses are less sensitive than irrigated agriculture for all constituents shown above.

Municipal and Domestic Supply

With respect to water quality needed to protect municipal and domestic supply, the Basin Plan contains the narrative taste or odor objective that state in summary that waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance, adversely affects any beneficial use, or impart undesirable tastes or odors in fish flesh or other edible products. Waste from a dairy contains organic nitrogen, a decomposition by-product of which is ammonia, a taste-producing substance that, if present in excessive concentrations, can adversely affect the beneficial use of groundwater for municipal and domestic supply. J.E. Amooore and E. Hautala have determined an odor threshold for ammonia-nitrogen of 1.5 mg/L (*Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6 (1983)). While this numeric level is a value that is to be met at the point of use (i.e., the tap, rather than the receiving water), the Basin Plans state that “[w]ater quality objectives apply to all waters within a surface water or ground water resource for which beneficial uses have been designated, rather than at an intake, wellhead or other point of consumption.” In accordance with the *Policy on Application of Water Quality Objectives*, it is relevant, appropriate, and reasonable to use this numeric level of 1.5 mg/L ammonia-nitrogen to protect beneficial use of area groundwaters and surface waters for human consumption.

Aquatic Life

Ammonia is known to cause toxicity to aquatic organisms in surface waters. Waste from a dairy contains both ammonia and un-ionized ammonia, both of which can cause impact to aquatic life. The US EPA has established Ambient Water Quality Criteria for Ammonia for the protection of freshwater aquatic life. These criteria include an acute criterion (1-hour average) for total ammonia (including ionized and un-ionized ammonia) that is dependent on pH and fish species and a chronic criterion (30-day average) that is dependent on pH and temperature, and at temperatures less than 15 degrees centigrade (59° F) is also dependent on fish species. For freshwater aquatic life protection, the acute criterion for total ammonia-nitrogen ranges from 0.885 (at pH 9.0) to 32.6 (at pH 6.5) milligrams nitrogen per liter (mg N/L) when salmonids are present and from

1.32 (at pH 9.0) to 48.4 (at pH 6.5) mg N/L when salmonids are absent. The chronic criterion for total ammonia-nitrogen ranges from 0.179 (at pH 9.0) to 10.8 (at pH 6.5). These criteria are based on total (un-ionized plus ionized) ammonia.

The California Department of Fish and Game criteria to protect freshwater aquatic life is 0.02 mg/L un-ionized ammonia. The equilibrium between un-ionized and ionized ammonia is controlled by temperature and pH. The California Department of Fish and Game determines the concentration of un-ionized ammonia based on the known percentage of un-ionized ammonia in a concentration of total ammonia at a given temperature and pH.

Numeric Water Quality Objectives

Maximum Contaminant Levels (Drinking Water Standards)

The Basin Plan's incorporation of MCLs by reference is prospective to incorporate changes to MCLs as changes in Title 22 CCR take effect. Should a change occur to an MCL and that MCL thereby becomes the most or more stringent objective, implementation of the changed objective would be affected through reopening of this Order.

Water Quality Objectives for Bacteria

The majority of waste collected at a dairy is fecal matter or manure. This waste contains pathogenic bacteria and can impact water quality if not properly handled. The Basin Plan contains numeric water quality objectives for bacteria in surface waters and in groundwater. For surface water, the Basin Plan specifies that "[i]n waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml." For groundwater, the Basin Plan specifies that "[i]n ground waters used for domestic or municipal supply the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 ml."

Receiving Water Limitations for Dairies

The numeric water quality objectives and numeric limits that are relevant and appropriate to implement narrative water quality objectives applicable to the primary waste constituents of concern in discharges of waste at dairy facilities that could affect groundwater and surface water are as follows: For groundwater, the most stringent limitations to implement narrative and numeric water quality objectives are for total coliform 2.2/100 milliliter (ml), for ammonia-nitrogen 1.5 mg/L, for boron 0.7 mg/L, for chloride 106 mg/L, for nitrate-nitrogen 5 mg/L, for EC 700 μ mhos/cm, and for TDS 450 mg/L. For surface water, the most stringent limitations to implement narrative and numeric water quality objectives and criteria are for total coliform 2.2/100 ml, for chloride 106 mg/L, for nitrate-nitrogen 5 mg/L, for EC 700 μ mhos/cm, and for TDS 450 mg/L. For surface water, the appropriate limitation for ammonia is 0.02 mg/L un-ionized ammonia or a concentration of total ammonia determined by the pH and fish species,

whichever is less. Less stringent limitations may apply to different areas but can only be determined through a site-specific assessment. The Discharger may propose the application of less stringent limitations for consideration in the Monitoring and Reporting Program. Dairy waste may include other waste constituents not mentioned here. This Order requires the discharge to comply with all water quality objectives and federal water quality criteria for surface waters applicable to the discharge.