CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2010-____

WASTE DISCHARGE REQUIREMENTS FOR HILMAR CHEESE COMPANY, INC. AND REUSE AREA OWNERS HILMAR CHEESE PROCESSING PLANT MERCED COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. Hilmar Cheese Company, Inc. (Hilmar Cheese), a California corporation, owns and operates a Cheese Processing Plant (Plant) about one-half mile north of the unincorporated community of Hilmar. The Plant is at the northwest corner of Lander Avenue and August Road, within Section 10 of T6E, R10E, MDB&M, as shown on Attachment A, which is attached hereto and made part of this Order by reference. The Assessor Parcel Numbers (APNs) of parcels that comprise the Plant site are: 045-014-054 and 045-014-066. Hilmar Cheese discharges wastewater to two areas known as the Primary and Secondary Lands as shown on Attachment B, which is attached hereto and made part of this Order by reference. The Primary and Secondary Lands are collectively referred to as Reuse Areas. Hilmar Cheese owns some of the Primary Lands and leases the rest from others (Primary Land Owners). All of the Secondary Lands are owned by others (Secondary Land Owners). The Primary and Secondary Land Owners are collectively referred to as Reuse Area Owners. The parcels and Reuse Area Owners for this Order are shown in Attachment C and listed in Attachment D, which are attached hereto and made part of this Order by reference. Hilmar Cheese and the Reuse Area Owners are collectively referred to as Discharger. Hilmar Cheese is the primary discharger responsible for compliance with this Order. Each Reuse Area Owner is responsible for compliance with the requirements of this Order concerning discharge to its respective parcels that are included within the Reuse Area.

2. Hilmar Cheese manufactures various cheese products (white and yellow cheddar, Monterey and pepper jack, Colby and Colby jack, Muenster, some Hispanic cheeses, etc). The Plant currently receives over 11 million pounds of milk each day from more than 150,000 cows housed in over 260 dairies. It produces over one million pounds of cheese, and over 325,000 pounds of whey protein and lactose powder each day. The Plant operates continuously year round and employs about 700 people.

3. The Plant is composed of a milk-receiving area, three cheese processing plants, a protein plant, a lactose plant, a visitor's center, a delicatessen restaurant, banquet facilities for up to 300 people, and a wastewater treatment facility (WWTF). The Plant's domestic wastewater is discharged to septic tanks and leachfields regulated separately.

4. Waste Discharge Requirements (WDRs) Order 97-206 formerly regulated the discharge of cheese processing wastewater to a 102-acre area near the Plant referred to as the Primary Lands. Order 97-206 authorized Hilmar Cheese to discharge a monthly average daily flow of up to 0.75 million gallons per day (mgd) of wastewater treated to have electrical conductivity (EC) of no greater than 900 micromhos per centimeter (µmhos/cm). In 1998, Hilmar Cheese installed salinity reduction treatment technology and began treating a portion of its Plant's wastewater flow, and initiated a discharge of wastewater treated to reduce EC to levels in compliance with the EC limit to 920 acres of agricultural land west of the Plant referred to as the Secondary Lands. Because the treatment technology did not have sufficient capacity to treat the entire wastewater flow, Hilmar Cheese continued to discharge to the Primary Lands wastewater not treated to fully reduce EC.

5. The Executive Officer of the Central Valley Water Board issued Cleanup and Abatement Order R5-2004-0772 (CAO) to Hilmar Cheese Company; Hilmar Whey Protein; and Kathy and Delton Nyman in December 2004 due to nuisance conditions and impacts to groundwater from Hilmar Cheese's disposal of wastewater to land. The CAO directs Hilmar Cheese to abate nuisance and address impacts to groundwater caused by its discharge in violation of Order 97-206. Work to address the tasks of the CAO is ongoing.

6. On 26 January 2005, the Executive Officer issued Administrative Civil Liability Complaint R5-2005-0501 to Hilmar Cheese in the amount of $4,000,000 for chronic violations of the effluent EC limitation prescribed in Order 97-206. On 16 March 2006, the Central Valley Water Board adopted Order R5-2006-0025, which ratified a Revised Settlement Agreement with Hilmar Cheese. Order R5-2006-0025 settled Administrative Civil Liability Complaint R5-2005-0501; required Hilmar Cheese to submit a Report of Waste Discharge (RWD) by 31 October 2006; and prescribed Interim Operating Limits for discharge flow and effluent EC that would be in effect until the Central Valley Water Board issued revised WDRs for the discharge.

7. The Revised Settlement Agreement included Interim Operating Limits (Order R5-2006-0025) that prescribed discharge requirements until Hilmar Cheese could complete improvements to the WWTF. Hilmar Cheese has been operating within those limits since adoption of the Revised Settlement Agreement in March 2006, which became effective in April of 2006. The Interim Operating Limits allow for the discharge of up to 1.2 mgd of partially-treated wastewater with an EC of up to 3,700 µmhos/cm to the Primary Lands. In 2008, the monthly average flow of partially-treated wastewater to the Primary Lands to about 0.65 mgd, with an average EC of about 3,500 µmhos/cm. In 2009, the discharge of partially-treated wastewater to the Primary Lands was about 0.57 mgd, with an average EC of about 3,300 µmhos/cm.

8. The Discharger submitted a RWD in October 2006, but also indicated that it needed additional time to complete its evaluation of WWTF improvements and effluent disposal options. Central Valley Water Board staff concurred with the Discharger's determination

that additional time was necessary to allow it to submit an RWD of sufficient detail for staff to prepare revised WDRs. The Discharger submitted two additional RWDs in November 2007 and June 2008, followed by an *Addendum to Report of Waste Discharge* (Addendum) dated 13 November 2008 prepared by Kennedy/Jenks Consultants.

9. The Addendum proposed to increase the discharge flow from 1.9 to 2.5 mgd; to fully treat all the Plant's cheese processing wastewater flow by December 2009; and provide reuse water for use as an irrigation supply to owners of about 1,200 acres of agricultural land situated generally west/northwest of the Plant. In July 2009, Hilmar Cheese reported that costs associated with its Ultrafiltration (UF) and Reverse Osmosis (RO) units may not be sustainable and that it was evaluating a new salinity-removal technology, Electrodialysis Reversal (EDR), an electrochemical separation process that removes ions and other charged species from water and other fluids. Hilmar Cheese reported the EDR system may function more effectively than UF/RO treatment and its associated costs in labor, chemicals, maintenance, and equipment would be considerably less. EDR treatment technology has been successfully employed to treat brackish water for use as drinking water, but has not been tested on industrial wastes such as those from a cheese processing plant.

10. Hilmar Cheese has incorporated several treatment and control measures to reduce the salinity of its discharge, including source control and UF/RO treatment. Because Hilmar Cheese will not immediately be able to comply with the effluent limits of this Order, a separate Time Schedule Order is appropriate to address compliance while Hilmar Cheese evaluates an EDR treatment system and installs either EDR or further UF/RO treatment systems.

Existing Wastewater Treatment Facility and Reuse

11. Wastewater is generated from sanitizing equipment and tanks, general facility wash down, assorted sources of equipment blow down, and truck washing. Wastewater is temporarily contained in three collection basins prior to the Plant's WWTF. A collection basin designated the "Cheese Basin" accepts wastewater from the milk receiving area, the three Plants, and the protein plant (about 60 percent of the discharge). Wastewater from the lactose plant is discharged to the "Lactose Basin" (about 35 percent of the discharge), and a third sump, designated the "Wastewater Basin" accepts truck wash wastewater (about 5 percent of the discharge).

12. The WWTF consists of the collection basins; three 350,000-gallon equalization tanks with one equalization tank designated for wastewater resulting from abnormal operational conditions; two 55,000-gallon physio-chemical Dissolved Air Flotation (DAF) tanks; a heat exchanger; a granular sludge bed anaerobic digester; a 1,000,000-gallon pre-aeration tank; two 1,000,000-gallon sequencing batch reactors (SBRs); a 1,000,000-gallon surge tank; three DAF tanks, two with a capacity of 10,000 gallons and one with a capacity of 11,000 gallons: a UF membrane separation system; a two-stage RO system; and an evaporator.

13. The UF membrane system consists of a Zenon-supplied 1,000-gallon-per-minute (gpm) submerged hollow fiber UF membrane unit and four 330-gpm submerged hollow fiber UF membrane units. Permeate from the UF system is sent to the two-stage RO system for further salinity reduction, while concentrate from the UF system is currently recycled to the DAF system.

14. The RO system consists of three high-pressure primary RO units followed by two high-pressure secondary units. Permeate from the secondary RO units is discharged to the storage ponds prior to discharge to the Secondary Lands for crop irrigation. Concentrate from the secondary RO is sent to the deep well injection system regulated by the United States Environmental Protection Agency (USEPA). Excess concentrate that cannot be discharged to the deep well is shipped offsite. In 2008, approximately 40,000 gallons per day of concentrate was sent to the East Bay Municipal Utility District (EBMUD).

15. Hilmar Cheese has a wastewater storage and application system consisting of two lined effluent storage ponds to store UF/RO treated wastewater prior to discharge to the Secondary Lands (Attachment B). The effluent storage ponds have approximately 44 million gallons of storage capacity and were constructed just north of the Plant in September 2000. The two ponds are clay lined (minimum 8-inch thickness).

16. The Primary Lands currently consist of about 95 acres that are directly adjacent the Plant and receive partially-treated wastewater (Attachment B). The APNs of parcels that comprise the Primary Lands are: 045-180-018, 045-140-030, 045-140-041, and 045-140-077.

17. The Secondary Lands consist of several interconnected individual parcels generally to the west of the Plant as shown on Attachment B. The Secondary Lands receive wastewater that has been treated by UF and RO. The acreage of the Secondary Lands was listed as about 735 acres in the 2006 RWD, about 920 acres in the Addendum, and currently consists of about 750 acres. Hilmar Cheese notifies the Central Valley Water Board in writing when new parcels are added to the Secondary Lands and assigns a specific number to discrete parcels (e.g., S-39) for identification.

18. Hilmar Cheese was issued Class I Underground Injection Control Permit No. CA1050001 by the USEPA for the installation of up to four deep injection wells. Currently, two wells have been installed. The first, WD-2, was installed in June 2006 to a depth of 4,100 feet below ground surface (bgs). The second, WD-1P, was completed to a depth of 4,125 feet bgs in January 2009. These deep injection wells are used to dispose of the concentrate from the secondary RO units.

Existing Wastewater Discharge

19. Data from Hilmar Cheese's self-monitoring reports indicates that the wastewater applied to the Primary Lands from April 2006 through 2008 had the following average characteristics.

Primary Lands Effluent Data

Flow (mgd[1])	**BOD**[2] (mg/L[3])	**Total N**[4] (mg/L)	**TDS**[5] (mg/L)	**EC**[6] (µmhos/cm[7])	**Cl**[8] (mg/L)	**Na**[9] (mg/L)
0.73	362	187	2,217	3,532	327	631

1. million gallons per day (mgd)
2. 5-day biochemical oxygen demand (BOD)
3. milligrams per liter (mg/L)
4. Total nitrogen (Total N) equals TKN + Nitrate, as N.
5. Total Dissolved Solids
6. Electrical Conductivity (EC)
7. Micromhos per centimeter (µmhos/cm)
8. Chloride (Cl)
9. Sodium (Na)

In 2009, the wastewater applied to the Primary Lands had the following average characteristics.

2009 Primary Lands Effluent Data

Flow (mgd)	**BOD** (mg/L)	**Total N** (mg/L)	**TDS** (mg/L	**EC** (µmhos/cm)	**Cl** (mg/L)	**Na** (mg/L)
0.57	119	68	2,112	3,334	391	621

20. Data from Hilmar Cheese's self-monitoring reports indicates that the wastewater applied to the Secondary Lands in from April 2006 through 2009 had the following average characteristics.

Secondary Lands Effluent Data

Flow (mgd[1])	**BOD**[2] (mg/L[3])	**Total N**[4] (mg/L)	**TDS**[5] (mg/L)	**EC**[6] (µmhos/cm[7])	**Cl**[8] (mg/L)	**Na**[9] (mg/L)
1.06	42	18	452	817	68	145

1. million gallons per day (mgd)
2. 5-day biochemical oxygen demand (BOD)
3. milligrams per liter (mg/L)
4. Total nitrogen (Total N) equals TKN + Nitrate, as N
5. Total Dissolved Solids
6. Electrical Conductivity (EC)
7. Micromhos per centimeter (µmhos/cm)
8. Chloride (Cl)
9. Sodium (Na)

21. Comparison of the values presented in the previous tables indicates the WWTF is effective in treating the portion of wastewater that is fully-treated. From April 2006

through 2009, the full treatment system removed about 88 percent of 5-day biochemical oxygen demand (BOD), 79 percent of total dissolved solids (TDS), 80 percent of chloride, 78 percent of sodium, and reduced EC by 77 percent.

WWTF Expansion Project

22. In order to treat all of the wastewater using the UF/RO systems or alternate treatment systems to the meet the Effluent Limitations of this Order, various improvements to the WWTF and to the current disposal activities have been completed or are underway.

23. Improvements to the WWTF include: installation of a second DAF system (consisting of three DAF units) to improve the ability to remove minerals and excessive biomass; conversion of the existing 1-million-gallon pre-aeration tank to a third SBR providing additional SBR retention time and improved activated sludge performance; installation of an additional UF system (consisting of four units, each rated at 350 gpm) to provide UF treatment for all of the wastewater. RO concentrate from the 2nd stage RO units will continue to be disposed of in the deep injection well system, permitted by the USEPA. Solids generated by the first and second DAF systems are dewatered and trucked offsite to the East Bay Municipal Utility District..

24. In case of short-term operational issues or equipment failures, Hilmar Cheese will construct a wastewater equalization system to ensure that effluent meets the limits before it is discharged to the two storage ponds and the Reuse Areas.

25. Secondary Lands will receive the discharge of the fully-treated effluent, with a total of approximately 1,200 acres being required to accommodate the total effluent flow authorized by this Order.

26. Hilmar Cheese provides treated wastewater to farmers to irrigate crops grown on the Secondary Lands. Secondary Lands crop irrigation is supplemented with Turlock Irrigation District (TID) canal water. Historically, irrigation has also been supplemented with up to 20 percent of its crop irrigation demand with dairy wastewater.

27. Most existing milk cow dairies in the Central Valley Region are regulated by General WDRs Order R5-2007-0035, *General Order for Existing Milk Cow Dairies* (General Order), which requires dairy waste that is blended with waste generated off-site to be regulated by a separate order. This Order authorizes Plant effluent and dairy wastewater to be applied to Secondary Lands, providing the Discharger accounts for both in its loading calculations and the facility meets the requirements for nutrient management plans, monitoring and reporting, and runoff contained in the General Order. The General Order will continue to regulate dairy operations and discharges of dairy waste to lands identified in Attachments C and D, as well as lands that do not receive Plant effluent. In the event of any inconsistency between this Order and the General Order, the more stringent requirement shall apply.

28. The proposed treatment improvements will increase the rated treatment capacity of the WWTF to 2.5 mgd. This Order authorizes Hilmar Cheese to increase discharge flow to 2.5 mgd following satisfaction of Provisions F.18 and F.21 which require the Discharger to certify sufficient wastewater treatment, storage, and disposal capacity and submit Nutrient Management Plans for each parcel receiving Plant effluent.

Water Reuse

29. Order 97-206 incorporated specifications to allow Hilmar Cheese to implement water reuse to flood irrigate crops grown on 138 acres adjacent to the Plant (i.e., the original Primary Lands).

30. The Secondary Lands are generally cropped using a furrow and ridge irrigation system planted with silage corn in the summer and wheat, oats, or winter forage mix in the winter. Each parcel is typically planted and harvested individually to accommodate field drying cycles as well as other field activities. Values of the annual plant available nitrogen demand of alfalfa, wheat, oats, and silage corn are 480,175, 115, and 250 lbs/acre, respectively, according to *Western Fertilizer Handbook*. Studies in the Hilmar area by University of California staff indicate that wheat and oat cropping for dairies require 294-342 lbs/acre and wheat requires 263-329 lbs/acre (Matthews. 2003. *Using Winter Forages for Dairy Nitrogen Management*. California Alfalfa and Forage Symposium). In a separate study of winter forage nitrogen uptake at eight dairy land application sites, the crop removed 202 lbs/acre (Pettygrove et. al. 2003. *Integrating Forage Production with Dairy Manure Management in the San Joaquin Valley. Sustainable Agriculture Research Education Program Grant Final Report*, University of California, Davis, CA). Accordingly, the nitrogen demand of double-cropped parcels or alfalfa ranges from 365 lbs/acre for winter forage/silage corn to over 500 lbs/acre if the cropping methods tested by Matthews for winter crops are used.

Site-Specific Conditions

31. The Hilmar area is characterized by warm, dry summers and cool, wet winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and evapotranspiration in the discharge area are approximately 12 and 53 inches, respectively, according to information published by the California Department of Water Resources (DWR). The maximum precipitation for a 100-year rainfall return period is estimated to be 21 inches.

32. Soils in the discharge area are classified as the Delhi sands and the Hilmar loamy sands, according to the United States Department of Agriculture Natural Resources Conservation Service (USDA/NRCS) *Soil Survey of Merced Area, 2007*. The Delhi Series is described by the USDA/NRCS as somewhat excessively drained with negligible to slow runoff and rapid permeability. The Delhi sands are reportedly used to grow grapes, peaches, truck crops, almonds and alfalfa. The USDA/NRCS describes the

Hilmar Series as "somewhat poorly and poorly drained with a fluctuating water table that rises to within a foot or so of the surface during the rainy season and during the periods of heavy irrigation either on the soil or on nearby areas" and the surface soil is described as "rapidly permeable and the IIC horizon is slowly permeable." The Hilmar Series is reportedly to grow alfalfa, grapes, row crops, almonds and irrigated pasture.

33. The Plant and the Secondary Lands are not within a 100-year floodplain according to Federal Emergency Management Agency Map 06047C0175G. Hilmar Cheese has experienced problems with standing wastewater in the Primary Lands due to poor drainage, shallow groundwater, and preferential flow of wastewater to portions of the Primary Lands where wastewater collects in areas of lower elevation. Surface water drains typically to the west/southwest in the Reuse Areas.

34. Hilmar Cheese is not required to obtain coverage under a National Pollutant Discharge Elimination System general industrial storm water permit for WWTF because all storm water runoff is retained onsite and does not discharge to a water of the United States. A storm water retention basin with an approximately 3.3 million gallon capacity is present north of the Plant that, in addition to storm water, collects non-storm water discharges such as landscape irrigation water.

35. The land use in the vicinity of the Plant is primarily agricultural with a mixture of pasture and orchard crops. Additional uses include confined livestock (there are at least six dairies within a one-mile radius of the Plant) residential (the unincorporated community of Hilmar is located about one half mile south of the Plant), and light industrial.

Groundwater Considerations

36. The Plant and Reuse Areas are within the Turlock groundwater subbasin that forms a part of the San Joaquin Valley Groundwater Basin. This Basin is reported to contain three general primary water bearing zones: an uppermost unconfined aquifer (Modesto Formation); a semi-confined aquifer (Turlock Lake Formation); and a confined aquifer that is beneath the Corcoran Clay layer.

37. Jacobson James & Associates, Inc. (Jacobson James) completed an evaluation of these zones in June 2008. Based on this evaluation, the zones are:as follows:

Zone	Units	Depth Intervals (feet bgs)
Modesto Formation	A Zone Aquifer	~5 to 125
	A Zone Aquitard	~105 to 125
Turlock Lake Formation	B Zone Aquifer	~125 to 150
	B Zone Aquitard (Corcoran Clay)	~150 to 200
Below Corcoran Clay	C Zone Aquifer	~175 to 200
	C Zone Aquitard	~190 to 210
	D Zone Aquifer	~210 to 250

38. The direction of groundwater flow in the unconfined aquifer is generally to the west/southwest, but the direction is influenced by nearby pumping of wells and the discharge of wastewater and irrigation water. The overall direction of the flow is to the southwest. The depth to first-encountered groundwater is shallow, ranging from about 5 to 15 feet bgs. During wet periods, water can be at the ground surface. Area groundwater depth is controlled in various areas in the discharge vicinity by the operation of agricultural tile drain systems that discharge to TID canals (e.g., Lateral No. 6 north of the Plant). Tile drains under the Primary Lands were sealed off and no longer discharge to the TID canals.

39. Hilmar Cheese has a groundwater monitoring well network consisting of 23 groundwater monitoring wells. Of the 23 wells, 19 were installed to depths of 26 feet bgs or less and monitor groundwater in the Upper A Zone; two (MW-18 and MW-19) were installed to depths of about 60 feet bgs and monitor the Lower A Zone; MW-22 was installed to 125 feet bgs and monitors the B Zone; and MW-23 was installed to 195 feet bgs and monitors the C Zone.

40. Monitoring wells will be monitored as part of the Monitoring and Reporting Program for this Order. Additional groundwater monitoring wells are required as part of the Plant expansion and the CAO both upgradient and downgradient of the Plant and the Reuse Areas. Hilmar Cheese will submit a work plan listing the wells to be included in the groundwater monitoring network, as required by Provision F. 19, for approval by the Executive Officer.

41. Groundwater quality in the Hilmar area is highly variable and, in general, the concentration of mineral constituents increases from east (upgradient) to west (downgradient). It is typical for groundwater quality to decrease along the axis of its flow as it moves downgradient. Water quality appears to have been also degraded by past and current land uses (the Plant and its discharges, dairies, farming, industry, etc) and irrigation with water of varying quality.

42. As detailed in the CAO, the discharge has unreasonably degraded groundwater beneath the Plant's storage ponds and Primary Lands. In May and June 2008, Jacobson James collected samples from about 42 domestic wells, seven industrial supply wells, and seven irrigation wells. The greatest impact was observed in the Upper A Zone (unconfined aquifer) in the vicinity of the Primary Lands. The maximum TDS concentration recorded during the May and June 2008 investigations by Jacobson James was 2,700 mg/L (which corresponds to an EC of about 3,800 µmhos/cm) in a monitoring well. TDS concentrations in the semi-confined and confined aquifers were significantly lower, with concentrations ranging from about 260 to 1,000 mg/L.

43. In an effort to establish water quality conditions upgradient (east) of the Plant, Jacobson James collected groundwater samples over several years from 11 direct push technology borings and a monitoring well to provide preliminary data for the evaluation of ambient

conditions in the Upper Aquifer (above the Corcoran Clay) upgradient (east) of the Plant. Using this data, the Central Valley Water Board evaluated upgradient groundwater quality for several constituents of concern. Those values are presented in the following table.

Upgradient Groundwater Quality

EC[1] (µmhos/cm[2])	TDS[3] (mg/L[4])	NO_3 as N[5] (mg/L)	Cl [6](mg/L)	Na [7](mg/L)
847	570	18	54	76

1. Electrical Conductivity (EC)
2. Micromhos per centimeter (µmhos/cm)
3. Total Dissolved Solids (TDS)
4. Milligrams per liter (mg/L)
5. Nitrate as nitrogen (NO_3 as N)
6. Chloride (Cl)
7. Sodium (Na)

Nitrates are above the primary maximum contaminant level of 10 mg/L for nitrate as nitrogen. Nitrates in groundwater are a regional concern in the Hilmar area and likely influenced by local agricultural land uses such as nearby dairies and farmland including almond orchards. Sodium is above the lowest typical agriculture limit of 69 mg/L and likely influenced by local agricultural land uses such as nearby dairies. The remaining constituents are within water quality objectives for drinking water supplies or agriculture.

44. Historical groundwater data is limited. The oldest data available is from 1989 when monitoring wells MW-1 and MW-2 were installed. EC values in samples collected from MW-1 in 1989 and 1990 ranged from 150 to 700 µmhos/cm, while values in MW-2 ranged from about 280 to 580 µmhos/cm. In 2008, EC values in samples from MW-1 ranged from 2,470 to 4,530 µmhos/cm, while samples from MW-2 ranged from 1,640 to 3,690 µmhos/cm.

Source Water Quality

45. Source water is supplied to the Plant by three groundwater wells (IN-1, IN-2, and IN-7). Wells IN-1 and IN-2 are pumped into a storage tank and designated Water Supply No. 1, (WS-1), while water from well IN-7 is pumped into a second storage tank and designated Water Supply No. 2 (WS-2). Wells IN-1 and IN-2 are within the Plant and IN-7 is northwest of the Plant. Water quality averages for samples collected from April 2006 through 2008 are shown on the following table.

Supply Well Data

Source	TDS[1] (mg/L)[2]	EC[3] (µmhos/cm[4])	NO_3 as N[5] (mg/L)[2]	Cl[6] (mg/L[2])	Na[7] (mg/L[2])
WS-1	555	855	12	79	84
WS-2	887	1429	7	195	159

1. Total Dissolved Solids (TDS)
2. Milligrams per liter (mg/L)
3. Electrical Conductivity (EC)
4. Micromhos per centimeter (µmhos/cm)
5. Nitrate as nitrogen (NO_3 as N)
6. Chloride (Cl)
7. Sodium (Na)

46. Jacobson James prepared an August 2008 *Supply Well Evaluation Technical Report* that reported both IN-1 and IN-2 had been degraded by discharges of waste from the Plant. The report found that IN-7 was degraded in quality, but it was not likely that Hilmar Cheese had caused the impact. IN-7 appears to be downgradient of a dairy. Hilmar Cheese indicates IN-7 is its primary source for water. IN-1 is used as a supplemental supply and IN-2 is non operational.

Basin Plan, Beneficial Uses, and Water Quality Objectives

47. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4th Edition, revised February 2007* (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting all waters of the basin, and incorporates by reference plans and policies of the State Water Resources Control Board (State Water Board). Pursuant to Section 13263(a) of the California Water Code (CWC), WDRs must implement the Basin Plan.

48. The Plant and the Primary and Secondary Lands lie within the San Joaquin Basin, specifically the Turlock Hydrologic Area (No. 535.5), as depicted on interagency hydrologic maps prepared by DWR in 1986. The Basin Plan designates the beneficial uses of groundwater as municipal and domestic supply, agricultural supply, industrial process and service supply, water contact recreation supply, and wildlife habitat supply.

49. The area around the Plant and Reuse Areas regionally drains towards the San Joaquin River. The Basin Plan designates the following beneficial uses for the San Joaquin River: municipal and domestic supply, agricultural supply, industrial process supply, water contact recreation, non-contact water recreation, warm freshwater habitat, migration of warm and cold water fishes, spawning for warm and cold water fishes, and wildlife habitat.

50. The Basin Plan includes a groundwater water quality objective for chemical constituents that, at a minimum, require waters designated as municipal and municipal supply to meet the State drinking water maximum contaminant levels (MCLs) specified in Title 22,

California Code of Regulations (CCR). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

51. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses. Quantifying a narrative water quality objective requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses.

52. 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.

53. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot and similar references indicate that yield reductions in nearly all crops are not evident when irrigating with water having an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop.

54. The list of crops in Finding 32 is not intended as a definitive inventory of crops that are or could be grown in the area affected by the discharge, but is representative. Discharge has degraded the quality of groundwater beneath the Plant to levels that could affect plant growth if used for irrigation of crops such as almonds. However, agricultural operations in the area typically irrigate with TID irrigation water, which has excellent mineral water quality. Cleanup of groundwater impacted by the Plant discharge is being addressed by the CAO, and the effluent concentrations for the discharge permitted by this Order are consistent with water quality objectives and will not limit use for irrigation on all but the most salt-sensitive crops.

Antidegradation

55. State Water Board Resolution No. 68-16 (“Policy with Respect to Maintaining High Quality Waters of the State”) (hereafter Resolution 68-16) prohibits degradation of groundwater unless it has been shown that:

    a. The degradation is consistent with the maximum benefit to the people of the State;

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

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

d. The Discharger employs best practicable treatment or control (BPTC) to minimize degradation.

56. Economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and therefore sufficient reason exists to accommodate growth and limited groundwater degradation around the Plant, provided that the terms of the Basin Plan are met. Degradation of groundwater by some of the typical waste constituents released with discharge from a food processing plant after effective source reduction, treatment, and control, and considering the best efforts of the Discharger and magnitude of degradation, is of maximum benefit to the people of the State. Hilmar Cheese aids in the economic prosperity of the region by directly employing over 700 workers, it provides incomes for numerous surrounding dairies and associated trucking firms, and provides a tax base for local and county governments. The proposed Order requires treatment that constitutes best practicable treatment or control.

57. Historically, Hilmar Cheese's disposal of partially-treated wastewater degraded groundwater in the vicinity of the Primary Lands and affected beneficial uses. The cleanup of this is regulated by the CAO and groundwater investigations are ongoing. An accompanying Time Schedule Order requires Hilmar Cheese to fully treat all of its wastewater to the effluent limits of this Order by no later than July 2011. The CAO addresses development of remedial actions to clean up groundwater from past discharges, which will address future use of the Primary Lands.

58. Constituents of concern that have the potential to degrade groundwater include organic material, nitrogen, and salts (TDS, EC, chloride, and sodium).

59. Regarding organics, the estimated instantaneous and cycle average BOD loading rates to the Reuse Areas are below the USEPA maximum recommended rate of 100 pounds per acre per day (lbs/acre/day) according to USEPA Publication No. 625/3-77-007, *Pollution Abatement in the Fruit and Vegetable Industry*. Therefore, no degradation due to organic loading is expected to occur.

60. For nitrogen, total nitrogen concentrations in the effluent are equal to or lower than that of upgradient water quality. Additionally, the ponds used to store treated effluent are clay-lined and the effluent is used to irrigate crops that use available nitrogen. Application of the wastewater at agronomic rates of irrigation will allow crop uptake of the majority of the nitrogen in wastewater and reduce the amount reaching groundwater in the Reuse Areas. The amount of nitrogen reaching groundwater through the clay-lined storage ponds will be minimal. Therefore the discharge would not cause degradation of groundwater above background, nor above the MCL for nitrate.

61. Regarding sodium, the lowest typical agricultural limit is 69 mg/L, which is based on protection of sprinkler-irrigated, salt-sensitive crops. Review of Ayers and Westcott, *Water Quality for Agriculture*; Asano, *Wastewater Reclamation and Reuse* and land use maps showing crops grown in the region, indicates crops highly sensitive to salt are currently not grown in the discharge area.

    Ayers and Westcott indicate sodium concentrations up to 70 mg/L have no restrictions for salt-sensitive crops and concentrations from 70 to 210 mg/L have only slight to moderate restrictions. The average sodium concentration in effluent from the Plant since April 2006 has been about 145 mg/L. The discharge could cause degradation of groundwater above ambient, but would not restrict usage for the types of crops grown in the area or as a drinking water source.

62. Regarding salinity in general, average TDS concentrations in the fully-treated wastewater are, since April 2006, less than 450 mg/L, which is less than the ambient concentration upgradient of the Plant. EC values in the effluent average about 825 µmhos/cm, which is less than the Recommended Secondary MCL of 900 µmhos/cm.

63. Kennedy/Jenks prepared a technical report to estimate the potential degradation to groundwater from the discharge and the amount of land needed for disposal. The report's model indicated that up to 1,200 acres will be required. The model predicted the concentration of TDS in the vicinity of the proposed Secondary Lands would be approximately 700 mg/L, with or without the discharge. This value (700 mg/L) is the predicted value for ambient water quality in the vicinity of the proposed Secondary Lands. The conclusion of the report was that there would be no degradation from the discharge as it is of comparable quality to existing downgradient water quality. The model considered a combination of precipitation, Turlock Irrigation District water used for irrigation in the area, irrigation with wastewater from local dairies, and discharge of Hilmar Cheese's treated wastewater.

64. This Order establishes groundwater limits that are performance based and will not unreasonably threaten present and anticipated beneficial uses or result in groundwater quality that exceeds water quality objectives set forth in the Basin Plan. This Order contains requirements for a groundwater assessment for assuring that the highest water quality consistent with the maximum benefit to the people of the State will be achieved. The groundwater limits reflect relevant, applicable and appropriate information and achievable by implementing the BPTC measure currently being implemented and proposed to be implemented by the Discharger. The limits established in this Order may be revised based on additional monitoring data submitted by the Discharger from monitoring wells in the Secondary Lands that will be installed and monitored in accordance with the requirements of this Order.

Treatment and Control Practices

65. The WWTF Expansion Project described in Findings 22 through 28 provides, or will provide, treatment and control of the discharge that incorporates:
    a. Physical and biological treatment for BOD reduction;
    b. UF and RO treatment, with proposed expansion of RO or addition of EDR treatment or other applicable technology;
    c. Storage of effluent in lined ponds;
    d. Application of wastewater (alone or blended with TID Water and dairy wastewater) on crops at rates not exceeding reasonable agronomic demand;
    e. Application of wastewater at rates that will not allow wastewater to stand for more than 48 hours;
    f. At least daily inspection of the Reuse Area during times of discharge;
    g. Preparation of a Nutrient Management Plan; and
    h. Appropriate solids disposal practices.

66. These Treatment and Control Practices are reflective of best practicable treatment or control (BPTC) of the discharge.

Water Reuse

67. The Basin Plan encourages the reuse of wastewater and identifies crop irrigation as a reuse option where the opportunity exists to replace an existing use or proposed use of fresh water with recycled water.

Designated Waste and Title 27

68. CWC Section 13173 defines designated waste as either:
    a. Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Section 25143 of the Health and Safety Code.
    b. Non-hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or could reasonably be expected to affect beneficial uses of the waters of the State contained in the appropriate water quality control plan.

69. Unless exempt, release of designated waste is subject to full containment pursuant to the requirements of Title 27, CCR, Section 20005 et seq. (hereafter Title 27). Title 27 Section 20090(b) exempts discharges of designated waste to land from Title 27

containment standards and other Title 27 requirements provided the following conditions are met:

a. The applicable regional water board has issued WDRs, or waived such issuance;

b. The discharge is in compliance with the applicable basin plan; and

c. The waste is not hazardous waste and need not be managed according to Title 22, CCR, Division 4.5, Chapter 11, as a hazardous waste.

The discharge of effluent and the operation of treatment or storage facilities associated with a food processing facility is exempt from Title 27, provided any resulting degradation of groundwater is in accordance with the Basin Plan and the waste need not be managed as a hazardous waste. None of the waste regulated by the proposed Order is hazardous waste nor required to be treated as hazardous waste. With treatment to remove organics and salinity, lined storage ponds, and application at agronomic rates, the discharge authorized by the proposed WDRs will not cause exceedance of groundwater quality objectives and complies with the Antidegradation Policy and is therefore exempt from Title 27. In addition, effluent applied to Secondary Lands is a reuse that is exempt under Title 27, Section 20090(h).

CEQA

70. On 2 January 2009, Merced County, as Lead Agency, circulated a draft Mitigated Negative Declaration for Hilmar Cheese's proposed Plant expansion. Central Valley Water Board staff reviewed and commented on the draft Mitigated Negative Declaration, and on 11 February 2009 the Merced County Planning Commission adopted it. Mitigation measures include a condition that construction of the WWTF is completed and that all wastewater is treated prior to an increase in flows, and a requirement for a Nutrient Management Plan.

71. This Order includes requirements to protect water quality, including:

    a. Effluent Limitations B.1 and B.2 which establish numerical effluent limitations that are reflective of best practicable treatment for this discharge.

    b. Discharge Specification C.2, which stipulates waste constituents cannot be released or discharged in a concentration or mass that causes violation of this Order's groundwater limitations.

    c. Provision F.21, which requires that Hilmar Cheese submit and implement a Nutrient Management Plan by 1 December 2010.

72. The Central Valley Regional Water Board has reviewed the Mitigated Negative Declaration and concurs that all potential water quality and related nuisance impacts have been mitigated to a less-than-significant level.

General Findings

73. Based on the threat to water quality and complexity of the discharge, the facility is determined to be classified as 1-A. Section 2200 of Title 23, CCR, defines these categories to include any of the following:

    a. Category 1 threat to water quality: "Those discharges of waste that could cause the long-term loss of a designated beneficial use of the receiving water. Examples of long-term loss of a beneficial use include the loss of drinking water supply, the closure of an area used for water contact recreation, or the posting of an area used for spawning or growth of aquatic resources, including shellfish and migratory fish."

    b. Category A complexity: "Any discharge of toxic wastes, any small volume discharge containing toxic waste or having numerous discharge points or ground water monitoring, or any Class 1 waste management unit."

74. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

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

76. CWC Section 13267(b) states that: "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 who proposes to discharge, waste outside of its region that could affect the quality of waters 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."

77. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2010-____ are necessary to assure compliance with these WDRs. Hilmar Cheese operates the facility that discharges the waste subject to this Order.

78. DWR sets standards for the construction and destruction of groundwater wells, as described in the *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 CWC Section 13801, apply to all monitoring wells.

Public Notice

79. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

80. The Discharger and interested agencies and persons have been notified of the intent to prescribe WDRs for this discharge, and they have been provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

81. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, Waste Discharge Requirements Order No. 97-206 is rescinded and that, pursuant to Sections 13263 and 13267 of the CWC, Hilmar Cheese Company, Inc., Reuse Area Owners, and their respective agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions

1. Direct discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass of untreated wastes, except as allowed by Provision E.2 of Standard Provisions and Reporting Requirements, is prohibited.

3. Discharge of waste classified as “hazardous”, as defined in Section 2521(a) of Title 23, California Code of Regulations, Section 2510 et seq., is prohibited. Discharge of waste classified as “designated,” as defined in CWC Section 13173, in a manner that causes violation of groundwater limitations, is prohibited.

4. Application of wastewater in a manner or location other than that described herein is prohibited.

B. Effluent Limitations

1. The discharge from the WWTF to the effluent storage ponds shall not exceed the following monthly averages for the constituents listed:

Constituent/Parameter	Units	Value
Electrical Conductivity	µmhos/cm[1]	1,000
Total Dissolved Solids	mg/L[2]	600
5-day Biochemical Oxygen Demand	mg/L[2]	50

Constituent/Parameter	Units	Value
Chloride	mg/L[2]	85
Total Nitrogen	mg/L[2]	20

1. micromhos per centimeter (µmhos/cm)
2. milligrams per liter (mg/L)

2. The discharge from the WWTF to the effluent storage ponds shall not exceed the following 12-month rolling average for the constituents listed:

Constituent/Parameter	Units	Value
Electrical Conductivity	µmhos/cm	900
Total Dissolved Solids	mg/L	500

C. Discharge Specifications

1. The monthly average discharge flow shall not exceed 1.9 mgd until the Discharger has satisfied Provisions F.18 and F.21, after which the monthly average flow shall not exceed 2.5 mgd.

2. No waste constituent shall be released or discharged, or placed where it will be released or discharged, in a concentration or in a mass that causes violation of groundwater limitations.

3. Unless determined by the Executive Officer or the Discharger to be significant sources of pollutants, only the following non-storm waters may be discharged to the storm water retention basin:

   a. potable water line flushing;

   b. irrigation and landscape drainage;

   c. foundation/footing or other minor dewatering drainage;

   d. potable water; and

   e. air conditioning, refrigeration, or compressor condensate.

4. Objectionable odors shall not be perceivable beyond the limits of the WWTF, storage pond, or Reuse Area properties at an intensity that creates or threatens to create nuisance conditions.

5. Application of wastewater to the Reuse Areas shall be at reasonable agronomic rates to preclude degradation of groundwater, considering the crop, soil, climate, and irrigation management system, consistent with the Nutrient Management Plan required by Provision F.21. The annual hydraulic and nutritive loadings to the Reuse

Area, including the nutritive value of organic and chemical fertilizers and of the wastewater shall not exceed the annual crop demand.

6. Wastewater shall not be discharged to the Reuse Area in a manner that causes wastewater to stand for greater than 48 hours.

7. Any irrigation runoff shall be confined to the reuse area and shall not enter any surface water drainage course or stormwater drainage system unless the runoff does not pose a public health threat and is authorized by the appropriate regulatory agencies.

8. No physical connection shall exist between wastewater and any domestic water supply or domestic well, or between wastewater piping and any irrigation well that does not have an air gap or reduce pressure principle device.

D. Solids Specifications

1. Any handling and storage of solids and sludge shall be temporary, and controlled and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations of this Order.

2. Collected screenings, sludge, and other solids removed from the liquid waste shall be disposed of in a manner approved by the Executive Officer and consistent with Title 27. Removal for further treatment, disposal, or reuse at sites (i.e., landfill, composting sites, soil amendment sites) operated in accordance with valid WDRs issued by a regional water quality control board will satisfy this specification. The deep well injection system regulated by the United States Environmental Protection Agency also satisfies this specification.

3. Any proposed change in solids disposal practices shall be reported to the Executive Officer in writing at least 90 days in advance of the change.

E. Groundwater Limitations

Release of waste constituents from any wastewater or storm water collection, treatment, or storage component, or release of waste constituents from discharges to the Reuse Area, shall not cause or contribute to groundwater:

a. Containing concentrations of constituents in excess of those identified below, or background quality, whichever is greater.

   (i) Nitrate as nitrogen of 10 mg/L.

   (ii) TDS of 700 mg/L

   (iii) Total Coliform Organisms of 2.2 MPN/100 mL.

(iv) For constituents identified in Title 22, the Primary and Secondary MCLs quantified therein.

b. Containing taste- or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses.

F. Provisions

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as Standard Provisions(s).

2. The Discharger shall comply with Monitoring and Reporting Program (MRP) No. R5-2010-____, which is part of this Order, and any revisions thereto as adopted by the Central Valley Water Board or approved by the Executive Officer. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program self-monitoring reports.

3. Hilmar Cheese shall keep at the Plant, and each other Reuse Area Owner shall keep at its business office or residence, a copy of this Order including its MRP, Information Sheet, attachments, and Standard Provisions, for reference by operating personnel. Key operating personnel shall be familiar with its contents.

4. The Discharger must 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 Order. Proper operation and maintenance also include 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 only when the operation is necessary to achieve compliance with the conditions of the Order.

5. All technical reports and work plans required herein 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. As required by these laws, completed technical reports and work plans must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

6. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer.

Accordingly, the Discharger shall submit to the Central Valley Water Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter 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 revision or rescission of this Order.

7. In the event of any change in control or ownership of land or waste treatment and storage facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

8. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

9. Effluent storage ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the winter. 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.

10. No later than **1 October** of each year, the available storage capacity in the effluent storage ponds shall be the volume necessary to comply with Provision F.9.

11. All ponds (i.e., effluent storage ponds, storm water ponds) shall be managed to prevent breeding of mosquitoes. In particular,

    a. An erosion control plan should assure that coves and irregularities are not created around the perimeter of the water surface.

    b. Weeds shall be minimized through control of water depth, harvesting, and herbicides.

c. Dead algae, vegetation and other debris shall not accumulate on the water surface.

d. Vegetation management operations in areas in which nesting birds have been observed shall be carried out either before or after, but **not during**, the April 1 to June 30 bird nesting season.

12. The Reuse Area parcels shall be graded to prevent ponding along public roads or other public areas and prevent runoff onto adjacent properties.

13. Reuse Area parcels shall be managed to prevent breeding of mosquitoes. In particular:

a. All applied irrigation water must infiltrate completely within a 48-hour period;

b. Ditches not serving as wildlife habitat should be maintained free of emergent, marginal, and floating vegetation; and

c. Low-pressure and unpressurized pipelines and ditches accessible to mosquitoes shall not be used to store reused water.

14. As a means of discerning compliance with Discharge Specification C.4, the dissolved oxygen (DO) content in the upper one foot of any wastewater pond (i.e., effluent storage ponds or storm water basins) shall not be less than 1.0 mg/L for three consecutive days. Should the DO be below 1.0 mg/L during a weekly sampling event, the Discharger shall take all reasonable steps to correct the problem and commence daily DO monitoring in all affected ponds until the problem has been resolved. If objectionable odors originating from affected ponds are noticed in developed areas, or if the Discharger receives one or more odor complaints, the Discharger shall report the findings in writing within 5 days of that date and shall submit a specific plan to resolve the low DO results to the Central Valley Water Board within 10 days of that date.

15. The pH of the discharge to effluent storage ponds shall not be less than 6.0 or greater than 9.0 pH units for more than three consecutive 24-hour composite sampling events. In the event that the pH of the discharge is outside of this range for more than three consecutive sampling events, the Discharger shall submit a technical evaluation in its quarterly self-monitoring reports documenting the pH of the discharge to the Reuse Area.

16. Hilmar Cheese shall maintain and operate all storage ponds sufficient to protect the integrity of containment levees and prevent overtopping or overflows. Unless a California 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). As a means of management and to discern compliance with this Provision, Hilmar Cheese shall install and maintain in each pond permanent markers with calibration that indicates

the water level at design capacity and enables determination of available operational freeboard.

17. The Discharger shall submit the technical reports and work plans required by this Order for Central Valley Water Board staff consideration and incorporate comments they may have in a timely manner, as appropriate. The Discharger shall proceed with all work required by the following provisions by the due dates specified.

18. Upon completion of the proposed WWTF Expansion Project described in Findings 22 through 28 and **at least 60 days prior** to initiating an increase in the monthly average discharge flow to greater than 1.90 mgd, Hilmar Cheese shall submit an engineering certification that it has sufficient treatment, storage, and disposal capacity to comply with the other terms and conditions of this Order. This Provision will be considered satisfied following written acknowledgement from the Executive Officer that this Provision's criteria have been met.

19. **By 15 June 2010,** Hilmar Cheese shall submit a report documenting the installation and sampling of the additional groundwater monitoring wells described in Finding 40. The report shall include a list of wells proposed to be incorporated into the final groundwater monitoring network for Executive Officer approval.

20 **By 15 June 2010,** Hilmar Cheese shall submit a report summarizing salinity minimization measures that have been implemented, and a time schedule for measures that will be implemented, to reduce the salinity in discharge to the extent feasible. Hilmar Cheese shall identify sources of salt in waste generated at the Plant, report measures to minimize salt in the waste, and certify that it has or will implement the approved measures identified to minimize salt in the waste.

21 **By 15 December 2010,** the Discharger shall, for each separately-owned parcel where wastewater is applied for irrigation purposes, develop and implement management practices that control nutrient losses and describe these in a Nutrient Management Plan. The Nutrient Management Plan must be certified, maintained at the Plant, submitted to the Executive Officer upon request, and must ultimately describe wastewater crop irrigation practices that provide for protection of both surface water and groundwater. The Nutrient Management Plan shall account for all nutrient inputs from all sources (i.e., the discharge, manure, chemical fertilizers, etc.) and shall be reviewed and updated as necessary. The Nutrient Management Plan shall be consistent with General WDRs Order R5-2007-0035, *General Order for Existing Milk Cow Dairies*, for all Reuse Area parcels that are regulated by Order R5-2007-0035. Groundwater monitoring will be used to determine if implementation of the Nutrient Management Plan is protective of groundwater quality.

22 Each Reuse Area Owner is responsible for all water quality or nuisance impacts of wastewater discharged at their Reuse Area parcels. Each Reuse Area Owner shall be responsible for compliance with General WDRs Order R5-2007-0035, *General*

Order for Existing Milk Cow Dairies, for all Reuse Area parcels that are regulated by Order R5-2007-0035. A failure by Hilmar Cheese to comply with this Order or other legal requirements shall not be a defense to any action by the Central Valley Water Board to enforce any law, regulation, or other requirement against a Reuse Area Owner.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer

Order Attachments:

Monitoring and Reporting Program
A Vicinity Map
B Site Map and existing Reuse Area
C Reuse Area Parcel Map
D Reuse Area Owner Table
Information Sheet
Standard Provisions (1 March 1991)

JSP/DKP: 12/08/2009