

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2010-\_\_\_\_\_

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

This Monitoring and Reporting Program (MRP) is required pursuant to California Water Code (CWC) Section 13267.

The Discharger shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP. Changes to sample location shall be established with concurrence of Central Valley Water Board staff, and a description of the revised stations shall be submitted for approval by the Executive Officer.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. All analyses shall be performed in accordance with **Standard Provisions and Reporting Requirements for Waste Discharge Requirements**, dated 1 March 1991 (Standard Provisions).

Field test instruments (such as pH) may be used provided that: the operator is trained in the proper use of the instrument and each instrument is serviced and/or calibrated at the recommended frequency by the manufacturer or in accordance with manufacturer instructions.

Analytical procedures shall comply with the methods and holding times specified in the following: *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA); *Test Methods for Evaluating Solid Waste* (EPA); *Methods for Chemical Analysis of Water and Wastes* (EPA); *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA); *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125). Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program. The Discharger may propose alternative methods for approval by the Executive Officer.

If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after at least 12 months of monitoring, the Discharger may request this MRP be revised to reduce monitoring frequency. The proposal must include adequate technical justification for reduction in monitoring frequency.

A glossary of terms used within this MRP is included on page 11 and a list of the constituents required for the monitoring of Priority Pollutants is included in Table 1, which is presented on page 12.

### INFLUENT MONITORING

Influent samples shall be collected prior to discharge from the equalization tanks to the dissolved air floatation tanks. Influent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	pH	pH Units	Grab
Weekly	EC	µmhos/cm	Grab
Monthly	BOD <sub>5</sub>	mg/L	24-hour composite

### EFFLUENT MONITORING

Effluent samples shall be collected just prior to discharge to the effluent storage ponds or to the Reuse Areas. Effluent monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Continuous	Flow	mgd	Meter
Weekly	pH	pH Units	Grab
Weekly	EC	µmhos/cm	Grab
Weekly	TDS	mg/L	24-hour composite
Weekly	BOD <sub>5</sub>	mg/L	24-hour composite
Weekly	Nitrate as N	mg/L	24-hour composite
Weekly	TKN	mg/L	24-hour composite
Weekly	Ammonia as N	mg/L	24-hour composite
Weekly	Total Nitrogen	mg/L	Calculated
Weekly	Chloride	mg/L	24-hour composite
Weekly	Sodium	mg/L	24-hour composite
Quarterly	General Minerals	mg/L	24-hour composite
Quarterly	Iron	mg/L	24-hour composite
Quarterly	Manganese	mg/L	24-hour composite
Monthly	Monthly Average Flow	mgd	Computed
Varies	Priority Pollutants (see Table 1)	Varies <sup>1</sup>	Varies

<sup>1</sup> mg/L or ug/L, as appropriate

### POND MONITORING

Effluent storage ponds monitoring shall include at least the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Weekly	DO	mg/L	Grab
Weekly	Freeboard	Feet <sup>1</sup>	Calculated

<sup>1</sup>To nearest tenth of a foot

Permanent markers (e.g., staff gauges) shall be placed in the effluent storage ponds. The markers shall have calibrations indicating water level at the design capacity and available operational freeboard. The Discharger shall inspect the condition of the effluent storage ponds once per week and write visual observations in a bound logbook. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the effluent storage pond surface and their location; whether burrowing animals or insects are present; and the color of the pond water (e.g., dark sparkling green, dull green, yellow, gray, tan, brown, etc.).

### GROUNDWATER MONITORING

The existing groundwater monitoring network currently consists of 23 monitoring wells (MW-1 through MW-23). Upon completion of proposed additional downgradient wells and in accordance with Provision 19 of Order R5-2010-\_\_\_\_, the Discharger shall submit for approval by the Executive Officer, a monitoring well network that will demonstrate ongoing compliance with the Groundwater Limitations of Order R5-2010-\_\_\_\_. Pending approval of the proposed monitoring well network, the existing monitoring well network shall be used to demonstrate compliance. The constituents monitored for and the frequencies listed below pertain only to this MRP.

The wells that comprise the monitoring well network are also subject to Cleanup and Abatement Order R5-2004-0772, which has its own sampling requirements that are to be followed independent of the monitoring requirements presented herein.

Prior to collecting samples, water levels will be measured in all monitoring wells. After measuring water levels and prior to collecting samples, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging is typically from 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume.

The Discharger shall monitor wells for the following:

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	Depth to groundwater	Feet <sup>1</sup>	Measured
Quarterly	Groundwater Elevation	Feet <sup>2</sup>	Calculated

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	pH	pH Units	Grab
Quarterly	EC	µmhos/cm	Grab
Quarterly	Nitrate as N	mg/L	Grab
Quarterly	TKN	mg/L	Grab
Quarterly	Total Nitrogen (equals TKN + Nitrate as N)	mg/L	Grab
Quarterly	Total Organic Carbon	mg/L	Grab
Quarterly	Arsenic	ug/L	Grab
Quarterly	Iron	ug/L	Grab
Quarterly	Manganese	ug/L	Grab
Quarterly	General Minerals	mg/L	Grab

<sup>1</sup>To nearest hundredth of a foot.

<sup>2</sup>To nearest hundredth of a foot above mean sea level.

### SOURCE WATER MONITORING

For each source (WS-1 or WS-2 or surface water supply), the Discharger shall calculate the flow-weighted average concentrations for the specified constituents utilizing flow data for the most recent twelve months and the most recent chemical analysis conducted in accordance with Title 22 drinking water requirements.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Sample Type</u>
Quarterly	EC	µmhos/cm	Grab
Quarterly	Nitrate as N	mg/L	Grab
Quarterly	TKN	mg/L	Grab
Quarterly	Total Nitrogen (equals TKN + Nitrate as N)	mg/L	Calculated
Quarterly	General Minerals	mg/L	Grab

### REUSE AREA MONITORING

The Discharger shall monitor the effluent and irrigation water applied to each Reuse Area parcel, as well as soil in each Reuse Area parcel, for the constituents and at the frequency as specified below. This information will be used to evaluate the hydraulic, nutrient, and salt loadings to each individual Reuse Area parcel, and must be used to develop and implement the Nutrient Management Plan required by Provision F.22. The Discharger is encouraged to collect and use additional data, as necessary, to refine nutrient management.

## Hydraulic and Waste Constituent Loading Monitoring

Reuse Area parcels receiving deliveries of reused water, dairy wastewater, and/or freshwater (i.e., groundwater or canal water) shall be monitored for the following:

1. Crop Information
  - a. Crop type (e.g., silage corn, wheat, oats).
  - b. Crop planting or harvesting information (e.g., harvested tonnage in tons/acre).
2. Hydraulic Loading
  - a. Individual estimated monthly volumes (in million gallons) of reused water, freshwater, and dairy wastewater applied.
  - b. Combined estimated monthly volume (in million gallons) of reused water, freshwater, and dairy wastewater applied.
  - c. Monthly hydraulic loading rate (in inches) based on the combined estimated volume of reused water, freshwater, and dairy wastewater applied.
  - d. Monthly total precipitation (in inches) from either an onsite precipitation gage station or through published sources (cite data source(s)).
3. BOD<sub>5</sub> Loading
  - a. Quantity of BOD<sub>5</sub> (in lbs) applied based on the total volume of reused water from any source applied to the parcel and the monthly average value for effluent BOD<sub>5</sub>
  - b. Monthly average daily BOD<sub>5</sub> loading rate (lbs/acre-day) based on the quantity of BOD<sub>5</sub> applied during the month and number of days in the month
4. Nitrogen Loading
  - a. Monthly quantity of Total Nitrogen (in lbs) from reused water applied based on the total volume of reused water applied to the parcel and the monthly average value for effluent total nitrogen.
  - b. Monthly quantity of Total Nitrogen (in lbs) from dairy wastewater applied based on the total volume of dairy wastewater applied to the parcel and the estimated value for dairy wastewater Total Nitrogen concentration.
  - c. Monthly quantity of Total Nitrogen (in lbs) from dairy manure applied based on the total volume of manure applied to the parcel and the estimated value for manure Total Nitrogen concentration.
  - d. Monthly quantity of Total Nitrogen (in lbs) from fertilizer applied based on the total volume of fertilizer applied to the parcel and the estimated value for fertilizer Total Nitrogen concentration.

- e. Monthly quantity of Total Nitrogen (in lbs) applied from all sources of nitrogen.
- f. Monthly Total Nitrogen loading rate (in lbs/acre-month) based on all sources of applied nitrogen.
- g. Annual Cumulative Total Nitrogen loading rate (in lbs/acre-year) on a calendar year basis.

5. TDS Loading

- a. Monthly quantity of TDS (in lbs) from reused water applied based on the total volume of reused water applied to the parcel and the monthly average value for effluent TDS.
- b. Monthly quantity of TDS (in lbs) from dairy wastewater applied based on the total volume of dairy wastewater applied to the parcel and the estimated value for dairy wastewater TDS concentration.
- c. Monthly quantity of TDS (in lbs) from dairy manure applied based on the total volume of manure applied to the parcel and the estimated value for manure TDS concentration.
- d. Monthly quantity of TDS (in lbs) applied from reused water, dairy wastewater, and manure.
- e. Monthly Total TDS loading rate (in lbs/acre-month) based on TDS loadings from reused water, dairy wastewater, and manure.
- f. Annual Cumulative TDS loading rate (in lbs/acre-year) on a calendar year basis.

At least daily, the Discharger shall make visual observations regarding offsite discharge, standing water (indicate approximate depth), presence or absence of objectionable odors or vectors, and general compliance with Discharge Prohibitions and Recycling Specifications.

**Soil Monitoring**

The Discharger shall establish, with Central Valley Water Board staff concurrence, monitoring locations within at least seven representative parcels in the Reuse Area and at least two locations to represent background conditions in areas that are cropped in a manner similar to Reuse Area parcels but do not receive applications of reused water. The samples shall be collected and analyzed for the following constituents.

<u>Frequency</u>	<u>Constituent/Parameter</u>	<u>Units</u>	<u>Soil Profile</u>
Annually	Total Organic Carbon	mg/kg	4 feet <sup>1</sup>
Annually	EC	µmhos/cm	4 feet <sup>1</sup>
Annually	Soil pH	pH Units	4 feet <sup>1</sup>
Annually	Phosphorus	mg/kg	4 feet <sup>1</sup>
Annually	Nitrate as N (equals TKN + Nitrate as N)	mg/kg	4 feet <sup>1</sup>
Annually	TKN	mg/kg	4 feet <sup>1</sup>
Annually	Total Nitrogen	mg/kg	4 feet <sup>1</sup>

<sup>1</sup> Samples to be collected at 6 inches, 2 feet, and 4 feet.

Soil monitoring data shall be analyzed to determine the Plant Available Nitrogen in the upper four feet of the soil profile in monitored parcels and the background location. This information shall be used by the Discharger in its development and implementation of the Nutrient Management Plan required by Provision F.20.

## REPORTING

All monitoring results shall be reported in **Quarterly Monitoring Reports** which are due by the first day of the second month after the calendar quarter. Therefore, monitoring reports are due as follows:

First Quarter Monitoring Report	<b>1 May</b>
Second Quarter Monitoring Report	<b>1 August</b>
Third Quarter Monitoring Report	<b>1 November</b>
Fourth Quarter Monitoring Report	<b>1 February.</b>

Results of annual monitoring shall be reported in the next quarterly report after the sampling has occurred.

**A transmittal letter shall accompany each monitoring report.** The transmittal letter shall discuss any exceedances that occurred during the reporting period and all actions taken or planned for correcting exceedance, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions or a time schedule for implementing the corrective actions, reference to the previous correspondence is satisfactory.

The following information is to be included in all monitoring reports, as well as report transmittal letters:

Hilmar Cheese Company

Cheese Processing Plant.

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Contact Information (telephone and e-mail)

In reporting monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly, whether the Discharger complies with waste discharge requirements.

At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

In addition to the details specified in Standard Provision C.3, monitoring information shall include the method detection limit (MDL) and the Reporting limit (RL) or practical quantitation limit (PQL). If the regulatory limit for a given constituent is less than the RL (or PQL), then any analytical results for that constituent that are below the RL (or PQL) but above the MDL shall be reported and flagged as estimated.

Laboratory analysis reports do not need to be included in the monitoring reports; however, the laboratory reports must be retained for a minimum of three years in accordance with Standard Provision C.3.

All monitoring reports shall comply with the signatory requirements in Standard Provision B.3. Monitoring data or discussions submitted concerning WWTF performance must also be signed and certified by the chief plant operator. If the chief plant operator is not in direct line of supervision of the laboratory function for a Discharger conducting any of its own analyses, reports must also be signed and certified by the chief of the laboratory.

All monitoring reports that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1.

**A. All Quarterly Monitoring Reports** shall include the following:

**Wastewater** reporting:

1. The results of influent, effluent, and effluent storage pond monitoring specified on pages 2 and 3.
2. For each month of the quarter, calculation of the maximum daily and monthly average daily discharge flow to the effluent storage ponds.
3. For each month of the quarter, the volume of RO concentrate generated and the method of disposal.
4. For each month of the quarter, calculation of the average monthly total nitrogen concentration in the discharge to the Reuse Area.
5. A summary of the notations made in the effluent storage pond monitoring log during each quarter. The entire contents of the log do not need to be submitted.

**Groundwater** reporting:

1. The results of groundwater monitoring specified on pages 3 and 4.
2. For each monitoring well, a table showing constituent concentrations through the current quarter.
3. A groundwater contour map based on groundwater elevations for that quarter. The map shall show the gradient and direction of groundwater flow under/around the facility and/or effluent disposal area(s). The map shall also depict the locations of monitoring wells,

effluent storage ponds, storm water ponds, Reuse Area parcels, and subsurface tile drainage networks and associated pumping stations.

**Source water** reporting:

1. The results of source water monitoring (except general minerals) specified on page 4.

**Reuse Area** reporting:

1. For each Quarter, the names and parcel numbers of the Reuse Area that received wastewater including the volume applied and the dates it was applied.
2. The names and parcel numbers of any parcels added or removed from the Reuse Area during the Quarter.

**B. Fourth Quarter Monitoring Reports**, in addition to above, shall include:

**Wastewater** treatment facility information:

1. The names and general responsibilities of all persons in charge of wastewater treatment and disposal.
2. The names and telephone numbers of persons to contact regarding the WWTF for emergency and routine situations.
3. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibrations (Standard Provision C.4).
4. A statement whether the current operation and maintenance manual, sampling plan, and contingency plan, reflect the WWTF as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.
5. A statement certifying when wastewater collection sumps were last inspected for containment integrity, including identification of who performed the inspection.
6. A description of the progress of salinity reduction measures to reduce the salinity in discharge to the extent feasible.

**Source Water** reporting:

1. The results of annual source water monitoring for general minerals.

**Reuse Area** reporting

1. The results of reuse area monitoring specified on pages 4 through 7.
2. An updated map showing all Reuse Area parcels and indicating which parcels were used for land application of wastewater during the annual reporting period.

3. A summary of an evaluation of the effectiveness of the Nutrient Management Plan in minimizing groundwater degradation for nitrogen constituents.
4. Water balances for the annual reporting period based on a calendar year and presented monthly in spreadsheet form. The water balances shall evaluate the following:
  - a. Monthly volume of reused water discharged to the effluent storage ponds
  - b. Monthly volume of reused water, dairy wastewater, and fresh water discharged to individual Reuse Area parcels
  - c. Area (in acres) of individual Reuse Area parcels receiving discharges each month of reused water, dairy wastewater, and/or freshwater
  - d. Monthly average  $ET_o$  (observed evapotranspiration) - Information sources include California Irrigation Management Information System (CIMIS)  
<http://www.cimis.water.ca.gov/>
  - e. Monthly crop uptake for individual Reuse Area parcels for each type of crop grown (cite references for irrigation efficiencies and crop coefficients).
5. Annual BOD, nitrogen, and TDS loading calculations.

The Discharger shall implement the above monitoring program by 1 April 2010.

Ordered by: \_\_\_\_\_

PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
(Date)



**Table 1. Priority Pollutants**

<u><b>Inorganics</b></u> <sup>1</sup>	<u><b>Organics</b></u> <sup>2 (cont)</sup>	<u><b>Organics</b></u> <sup>2 (cont)</sup>	<u><b>Organics</b></u> <sup>2 (cont)</sup>
Antimony	1,1-Dichloroethane	Acenaphthylene	Fluoranthene
Arsenic	1,2-Dichloroethane	Anthracene	Hexachlorobenzene
Beryllium	1,1-Dichloroethylene	Benzidine	Hexachlorobutadiene
Cadmium	1,2-Dichloropropane	Benzo(a)Anthracene	Hexachlorocyclopentadiene
Chromium (III)	1,3-Dichloropropylene	Benzo(a)pyrene	Hexachloroethane
Chromium (VI)	Ethylbenzene	Benzo(b)fluoranthene	Indeno(1,2,3-c,d)pyrene
Copper	Methyl Bromide	Benzo(g,h,i)perylene	Isophorone
Lead	Methyl Chloride	Benzo(k)fluoranthene	Naphthalene
Mercury	Methylene Chloride	Bis(2-chloroethoxy) methane	Nitrobenzene
Nickel	1,1,2,2-Tetrachloroethane	Bis(2-chloroethyl) ether	N-Nitrosodimethylamine
Selenium	Tetrachloroethylene (PCE)	Bis(2-chloroisopropyl) ether	N-Nitrosodi-n-Propylamine
Silver	Toluene	Bis(2-Ethylhexyl)phthalate	N-Nitrosodiphenylamine
Thallium	1,2-Trans-Dichloroethylene	4-Bromophenyl phenyl ether	Phenanthrene
Zinc	1,1,1-Trichloroethane	Butylbenzyl Phthalate	Pyrene
Cyanide	1,1,2-Trichloroethane	2-Chloronaphthalene	1,2,4-Trichlorobenzene
Asbestos	Trichloroethylene (TCE)	4-Chlorophenyl Phenyl Ether	
	Vinyl chloride	Chrysene	
<u><b>Organics</b></u> <sup>2</sup>	2-Chlorophenol	Dibenzo(a,h)Anthracene	
Acrolein	2,4-Dichlorophenol	1,2-Dichlorobenzene	
Acrylonitrile	2,4-Dimethylphenol	1,3-Dichlorobenzene	
Benzene	2-Methyl-4,6-Dinitrophenol	1,4-Dichlorobenzene	
Bromoform	2,4-Dinitrophenol	3,3'-Dichlorobenzidine	
Carbon tetrachloride	2-Nitrophenol	Diethyl phthalate	
Chlorobenzene	4-Nitrophenol	Dimethyl phthalate	
Chlorodibromomethane	3-Methyl-4-Chlorophenol	Di-n-Butyl Phthalate	
Chloroethane	Pentachlorophenol	2,4-Dinitrotoluene	
2-Chloroethylvinyl Ether	Phenol	2,6-Dinitrotoluene	
Chloroform	2,4,6-Trichlorophenol	Di-n-Octyl Phthalate	
Dichlorobromomethane	Acenaphthene	1,2-Diphenylhydrazine	

<sup>1</sup> With the exception of wastewater samples, samples placed in an acid-preserved bottle for metals analysis must first be filtered. If filtering in the field is not feasible, samples shall be collected in unpreserved containers and submitted to the laboratory within 24 hours with a request (on the chain of custody form) to immediately filter then preserve the sample.

<sup>2</sup> Samples to be analyzed for volatile organic compounds and phthalate esters shall be grab samples, the remainder shall be 24-hour composite samples.

<sup>3</sup> The Discharger shall sample for the above listed constituents on an annual basis. Constituents not detected one year can be removed from the analytical suite the following year(s), but the entire list shall be analyzed no less than once every 5 years.