

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2004-0722

FOR  
HILMAR CHEESE COMPANY, INC  
HILMAR WHEY, INC  
AND  
KATHY AND DELTON NYMAN  
CHEESE PROCESSING PLANT  
MERCED COUNTY

The Order is issued to the above-named parties based on provisions of California Water Code (CWC) Section 13304 that authorize the Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) to issue cleanup or abatement orders.

The Regional Board finds that:

**INTRODUCTION AND BACKGROUND**

1. Facility Location: The Hilmar Cheese Company (HCC) Cheese Processing Plant (hereafter Plant or Facility) and waste disposal areas are one-half mile north of the unincorporated community of Hilmar on Lander Avenue in Merced County.
2. Land Uses: Land uses in the vicinity of the Plant are primarily rural residential and agricultural, including several confined animal feeding operations (dairies). Isolated houses on agricultural parcels that rim the perimeter of the Facility rely upon private domestic supply wells. In 2001 HCC reported 97 private domestic and irrigation supply wells within 2,500 feet of the Plant. Crops grown within five miles of the Plant include alfalfa, corn (forage), peaches, almonds, sweet potatoes, and vineyards according to 1995 land use data published by the California Department of Water Resources.
3. Responsible Parties: Waste Discharge Requirements (WDRs) Order No. 97-206 regulates waste discharge from the Plant and it identifies Hilmar Cheese Company, Inc.; Hilmar Whey, Inc.; Hilmar Cheese Company Properties Partnership; Alvin and Devona Wickstrom; Kathy and Delton Nyman, dba Delton Nyman's Farm; and Jose G. and Marie Silveira, a privately held California corporation; collectively as the discharger. Order No. 97-206 identifies Hilmar Cheese Company, Inc.; Hilmar Whey, Inc.; and Kathy and Delton Nyman as operators and remaining persons as property owners. Alvin and Devona Wickstrom, identified as owners of a portion of the Primary Lands (as identified in Order No. 97-206), subsequently sold the property to Kathy and Delton Nyman. This action names only the identified operators and collectively refers to them as "HCC" and "Discharger." The identification of Dischargers under this Order may be amended in future actions, as information justifies.
4. Waste Discharge Requirements: WDRs Order No. 97-206 authorizes a monthly average daily wastewater flow of up to 0.75 million gallons per day (mgd) to fields identified as "Primary Lands." Hilmar Cheese Company Properties Partnership and the Nymans acquired adjoining acreage in 2000 now included with the Primary Lands identified in Order No. 97-206. WDRs Order No. 97-206 states, in part, the following:

Discharge Specification B.3: Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and reclamation area.

Standard Provision A.11: Creation of a condition of nuisance or of pollution by the treatment and disposal of waste is prohibited.

### WATER QUALITY OBJECTIVES

5. Basin Plan Designated Beneficial Uses: WDRs Order No. 97-206 implements the *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, 4<sup>th</sup> Edition*, (hereafter Basin Plan). The Basin Plan establishes water quality objectives (WQOs) that set the threshold necessary to protect the beneficial uses identified in WDRs Order No. 97-206 (e.g., MUN and AGR) and it establishes policies for implementation of WQOs.
6. Basin Plan Water Quality Objectives: The Basin Plan includes numeric and narrative WQOs for constituents in, and toxicity and tastes and odors of, groundwater. For example, waters designated for use as a municipal and domestic supply cannot contain chemical constituents in concentrations that exceed the numeric maximum contaminant levels (MCLs) specified in Title 22, California Code of Regulations (CCR). In contrast, the narrative WQO for chemical constituents states groundwaters shall not contain chemical constituents in concentrations that adversely affect any designated beneficial use. The Basin Plan (pages IV-16 through IV-18) establishes procedures for establishing maximum numerical water quality limitations from narrative and numeric WQOs. The concentration of each constituent that effectively ensures the protection of the beneficial use most sensitive to the constituent becomes the controlling concentration.
7. Numeric Water Quality Objectives: The WQOs specified in the Basin Plan for certain salt constituents that protect and maintain MUN beneficial use of groundwater are listed below:

<u>Constituent</u>	<u>Units</u>	<u>WQO</u>
Electrical Conductivity at 25°C (EC)	µmhos/cm	900
Iron	mg/L	0.3
Manganese	mg/L	0.05
Total Dissolved Solids (TDS)	mg/L	500

8. Narrative Water Quality Objectives: Major constituents affecting suitability of water for crop application include chloride and sodium. Elevated concentrations can reduce crop growth by causing foliar damage or reducing the ability of plant roots to absorb water. *Water Quality for Agriculture* by Ayers and Westcot provides general salt tolerance guidelines for many common field, vegetable, forage, and tree crops. Several possible concentration thresholds exist for irrigation use dependent upon crop and irrigation method, and thresholds are considered flexible in that adverse impacts can sometimes be avoided with up to 20% variance in specific applications. The range of concentrations of certain waste constituents potentially affecting MUN and AGR beneficial uses of groundwater are listed below as the range of concentrations as developed following Basin Plan procedures for implementation of a narrative WQO. The greatest concentration in the range allows continued use but may cause some impairment, and

therefore is the maximum concentration projected in this action as still potentially consistent with the Basin Plan.

<u>Constituent</u>	<u>Units</u>	<u>AGR</u>	<u>MUN</u>
Ammonia-N	mg/L		1.5 - 10 <sup>1</sup>
Chloride	mg/L	106-175 <sup>2</sup>	
Sodium	mg/L	69-115 <sup>3</sup>	

<sup>1</sup> Upper Limit assumes complete nitrification to nitrate (as N), and reflects the MCL for nitrate.

<sup>2</sup> Lower limit reflects sensitivity of certain crops as reported in Ayers, R. S. and D. W. Westcot, *Water Quality for Agriculture*, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985). Upper limit reflects sensitivity of certain crops as reported in *Agricultural Salinity Assessment and Management. American Society of Civil Engineers Manuals and Reports on Engineering Practice No. 71*, New York (1996).

<sup>3</sup> *Ibid*

### FACILITY MODIFICATIONS

9. 2000 Report of Waste Discharge: In 2000, the Discharger submitted a Report of Waste Discharge (RWD) for an increase in discharge to 1.25 mgd, enlargement of wastewater disposal area, use of Vibratory Shear Enhanced Processing (VSEP™) for insoluble solids removal, and use of reverse osmosis (RO) treatment technology for dissolved solids removal. The RO treatment produces a low salinity effluent (RO permeate) and a concentrated wastestream (RO concentrate). In December 2000, the Discharger began discharging to other than the Primary Lands by discharging RO permeate to two clay-lined ponds. In February 2001, it began to deliver RO permeate to irrigate fodder crops planted in nearby farmland called the “Secondary Lands.”
10. Treatment Technology Failure: Though effective in pilot trials, the VSEP™ treatment system subsequently proved ineffective at full-scale operation. Beginning in spring 2003, treatment changed to dissolved air flotation followed by sand filtration then RO. HCC has discharged about 0.6 mgd of RO Permeate to the Secondary Lands and about 0.7 mgd of untreated wastewater to the Primary Lands using these treatment methods.
11. 2004 RWD: In August 2004, the Discharger submitted an RWD proposing a phased increase in discharge to 2 mgd; expansion of discharge area; a new wastewater treatment facility (WWTF) that reflects a change in treatment technology; and groundwater limitations. The RWD contains an analysis of the proposed discharge with respect to State Water Resources Control Board (State Board) Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality Waters in California*. The change in technology is necessary to consistently comply with the effluent quality requirements prescribed by WDRs Order No. 97-206. The Discharger reports the new WWTF will be fully operational by the end of December 2004. Regional Board staff is preparing draft revised WDRs, and will propose that the Regional Board action consider consistency with State Board Resolution 68-16 and establishment of groundwater limitations.

**WASTE CHARACTERIZATION**

12. Discharger self-monitoring reports (SMRs) characterize the trend of discharge to the Primary Lands over the last six years as follows<sup>1</sup>:

<u>Constituent</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>
Flow (mgd)	0.86	1.2	0.69	0.84	0.74	0.68
EC (µmhos/cm)	1,900	2,100	3,900	2,500	2,800	2,700
BOD <sup>2</sup> (mg/L)	3,300	3,400	5,300	3,900	4,300	4,100
Total Nitrogen <sup>3</sup> (mg/L)	170	260	270	290	330	150

<sup>1</sup> Yearly averages calculated from data submitted in SMRs from 1999 to June 2004 rounded to two significant figures.

<sup>2</sup> 5-day biochemical oxygen demand at 20°C

<sup>3</sup> Total nitrogen calculated by adding the nitrate (as N) and total Kjeldahl nitrogen (TKN) concentrations reported in the SMRs or as directly reported in the August 2004 RWD. Total nitrogen results for 1999 were calculated using reported nitrate (as NO<sub>3</sub>) and converting it to nitrate as N, then adding TKN.

Three recent SMRs (June through August 2004) characterize the concentrations of selected waste constituents discharged to the Primary Lands as follows:

<u>Constituent (mg/L)</u>	<u>Average</u>	<u>Range</u>
TDS	5,280	2,000 - 12,000
Fixed TDS	1,900	800 - 3,500
Sodium	310	160 - 490
Chloride	310	160 - 510
Iron	0.29	0.16 - 0.63
Manganese	0.01	< 0.01 - 0.02

**ODORS AND FLIES**

13. Citizen Complaints: Northwest winds prevail in the Plant vicinity, but at times may blow south-southeast toward the community of Hilmar. Since HCC increased waste discharge to the Primary Lands in 2000, local residents have complained to the Regional Board of both odors and flies at an increasing frequency, blaming the conditions on HCC and claiming an adverse effect on their free use of property (e.g., unable to open windows, enjoy outdoor activities, etc.). Some complainants also expressed concern over fly-borne diseases. As characterized by these complaints, the objectionable odor and vector (primarily flies) conditions occur year-round, typically peak during the summer months, and are most intense during the early morning or late evening hours. Some Regional Board staff inspections (e.g., March 2000) have verified offensive odors offsite that staff attributed to HCC. Other staff inspections found no offensive odors that could be attributed to HCC. A recent inspection documented a large number of flies (e.g., June 2004) in the Primary Lands, but no on-site fly breeding.
14. Citizen Complaints filed with Others: Local residents have also filed complaints that HCC causes objectionable odor and vector conditions with the Merced County Environmental Health Department and the San Joaquin Valley Air Pollution Control District. In September 2004, the

Governor of California received a petition signed by 43 local residents that alleged HCC to be the source of ongoing foul odors and pollution.

15. Discharger Nuisance Controls: In 2002, the Discharger began cultivating checks within a few days of wastewater application to break the fly breeding cycle. It also has service contracts for fly control in and around the Plant. The Discharger does not monitor flies within and along the perimeter of the Primary Lands.

### GROUNDWATER

16. Groundwater Monitoring: The Discharger monitors groundwater in a network of 20 wells (MW-1 through MW-20). Most wells are within or along the perimeter of the Primary Lands. First-encountered groundwater is monitored by MW-1 through MW-17 and by MW-20. Two shallow-deep well pairs (MW-11/MW-18 and MW-12/MW-19) provide data from the uppermost and lower portions of the upper aquifer. Wells MW-12, MW-14, MW-16, and MW-17 monitor shallow groundwater beyond the perimeter of the Primary Lands.
17. Background Quality: Only MW-20 appears unaffected by the HCC discharge, other waste sources, and freshwater sources. For purposes of this Order, it is considered reflective of background quality.
18. Groundwater Characterization: Data from January 1999 through February 2004 SMRs for wells downgradient of the Primary Lands yielded the following averages<sup>1</sup>:

Constituent	Background <sup>2</sup>	Monitoring Wells at Points of Compliance				
		MW-4	MW-7	MW-8	MW-10	MW-15
BOD	1	5	42	23	17	42
EC	510	1,800	2,700	1,500	1,700	1,800
TDS	450	1,100	1,900	950	1,100	1,200
Sodium	13	240	410	210	250	120
Chloride	11	190	230	130	160	140
Ammonia-N	< 1	9.0	10	13	11	2.0
Iron	0.6	9.6	15	20	15	10
Manganese	0.08	3.0	18	5.9	5.1	5.3

<sup>1</sup> Values rounded to two significant figures. For all results reported as less than or non-detect, half the detected limit was used.

<sup>2</sup> MW-20 data, representing ambient water quality.

### NUISANCE

19. Section 13050(m) of the CWC defines “nuisance” as:

anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of wastes.

The off-site offensive odors verified by staff violated Discharge Specification B.3 of WDRs Order No. 97-206 and indicate a nuisance or a threat thereof. Reports from local residents that indecent or offensive odors have interfered with comfortable enjoyment of life or property indicate a nuisance or threat of nuisance. Until HCC can fully oxidize all of its industrial wastewater in all circumstances, the threat will continue.

**POLLUTION**

20. Section 13050(l)(1) of the CWC defines pollution as:

an alteration of the quality of the waters of the state by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses.

21. Comparison of well data against the background data from MW-20 (Finding 18) demonstrates degradation of groundwater by waste constituents discharged by HCC, with the exception of iron and manganese. The elevated concentrations of these two constituents in groundwater impacted by the discharge are due to the excessive loading of organic waste constituents to the Primary Lands. Organic overloading in a soil treatment system creates reducing conditions that cause denitrification, which reduces nitrate in soil pore solution to nitrogen gas, but reduces insoluble manganese and iron oxide compounds in soil to soluble forms that leach to groundwater.

22. Comparison of average well data against numeric WQOs (Finding 7) and background quality, as background quality supersedes the numeric WQO for iron and manganese, indicates that waste constituents discharged by HCC have created a condition of pollution for these constituents:

Monitoring Wells at Points of Compliance

<u>Constituent</u>	<u>Background</u>	<u>WQO</u>	<u>MW-4</u>	<u>MW-7</u>	<u>MW-8</u>	<u>MW-10</u>	<u>MW-15</u>
EC	N/A	900	1,800	2,700	1,500	1,700	1,800
TDS	N/A	500	1,100	1,900	950	1,100	1,200
Iron	0.6	N/A	9.6	15	20	15	10
Manganese	0.08	N/A	3.0	18	5.9	5.1	5.3

23. Comparison of average well data against the maximum groundwater limits that can be projected from narrative WQOs (Finding 8) indicates that waste constituents discharged by HCC threaten to create a condition of pollution:

Monitoring Wells at Points of Compliance

<u>Constituent</u>	<u>WQO</u>	<u>MW-4</u>	<u>MW-7</u>	<u>MW-8</u>	<u>MW-10</u>	<u>MW-15</u>
Sodium	115	240	410	210	250	120
Chloride	175	190	230	130	160	140
Ammonia-N	10	9.0	10	13	11	2.0

### SITE ASSESSMENT

24. In September 2004, the Discharger submitted a *Groundwater Characterization Report* that concluded the horizontal extent of impacts to the shallow groundwater beneath the Primary Lands is confined to an area that extends beyond the Primary Lands, and that private wells sampled beyond this area showed no evidence of impact. The Report recommends, among other things, that HCC cease applying untreated or partially treated wastewater to the Primary Lands as soon as the new WWTF is commissioned.
25. Review of the *Groundwater Characterization Report* indicates the following: the horizontal and vertical extent of degradation and pollution need to be defined; private wells not sampled within the affected area need to be sampled and evaluated; accountability needs to be established for providing alternate water supplies; a conceptual model needs to be provided that identifies and evaluates components of the aquifer system affecting gradient and quality of groundwater within influence of the discharge.

### REGULATORY CONSIDERATIONS

26. State Board Resolution No. 92-49 establishes *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*. Resolution 92-49 requires clean up to background or, if that is not reasonable, to an alternative level no greater than WQOs that is the most stringent level economically and technologically feasible. Any cleanup level alternative to background must (a) be consistent with the maximum benefit to the people of the state, (b) not unreasonably affect present and anticipated beneficial uses of such water, and (c) not result in water quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Board.
27. The State Board *Water Quality Enforcement Policy* states, in part:

At a minimum, cleanup levels must be sufficiently stringent to fully support beneficial uses, unless the RWQCB allows a containment zone. In the interim, and if restoration of background water quality cannot be achieved, the CAO should require the discharger(s) to abate the effects of the discharge. Abatement activities may include the provision of alternate water supplies. (Enforcement Policy, p. 19.)
28. Section 13304(a) of the CWC provides that:

Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirement or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action, including, but not limited to, overseeing cleanup and abatement efforts. A cleanup and abatement order issued by the state board or a regional board may require the provision of, or payment for, uninterrupted replacement water service, which may include wellhead treatment, to each affected public water supplier or private well owner. Upon failure of any person to comply with the cleanup or abatement order, the Attorney General, at the request of the board, shall petition the superior court for that county for the issuance of an injunction requiring the person to comply with the order. In the suit, the court shall have jurisdiction to grant a prohibitory or mandatory injunction, either preliminary or permanent, as the facts may warrant.

29. Section 13267(b) of the CWC states:

(1) 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.

Technical reports required by this Order are necessary to assure compliance with Section 13304 of the CWC and to ensure the protection of the public health and safety.

30. Section 13304(c)(1) of the CWC provides that:

. . . the person or persons who discharged the waste, discharges the waste, or threatened to cause or permit the discharge of the waste within the meaning of subdivision (a), are liable to that government agency to the extent of the reasonable costs actually incurred in cleaning up the waste, abating the effects of the waste, supervising cleanup or abatement activities, or taking other remedial actions. . .

31. The Discharger has violated waste discharge requirements established by WDRs Order No. 97-206 and it has caused or permitted, causes or permits, or threatens to cause or permit waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance. A cleanup or abatement order pursuant to CWC Section 13304 that requires nuisance abatement and investigation and cleanup as required by Resolution 92-49 is necessary and appropriate. To the extent that the Discharger's actions have affected public water supplies or private wells, the Regional Board is authorized to require that it provide uninterrupted replacement water service to each affected public water supplier or private well owner. The Regional Board is authorized to require the Discharger to reimburse the Regional Board for oversight and supervision of cleanup and abatement activities. As the WWTF will be fully operational by the end of December 2004, impacts on groundwater should begin to be addressed and offensive odors should be abated by 1 January 2005.
32. If the Discharger fails to comply with this Order, the Executive Officer may request the Attorney General to petition the superior court for the issuance of an injunction and may issue a complaint pursuant to CWC Section 13268 or 13323 that proposes to assess administrative civil liability in a monetary amount authorized by CWC Sections 13268 or 13350
33. The issuance of this Order is an enforcement action by a regulatory agency and is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.), pursuant to Title 14, CCR, Section 15321(a)(2). The implementation of this Order is also an action to assure the restoration of the environment and is exempt from the provisions of the California Environmental Quality Act in accordance with Title 14, CCR, Sections 15308 and 15330.



34. Any person affected by this action of the Regional Board may petition the State Board to review the action in accordance with CWC Section 13330 and Title 23, CCR, Sections 2050-2068. The State Board must receive the petition within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions are available at [www.waterboards.ca.gov](http://www.waterboards.ca.gov), but will be provided on request.

**IT IS HEREBY ORDERED** that, pursuant to CWC Sections 13304 and 13267, Hilmar Cheese Company, Inc.; Hilmar Whey, Inc; and Kathy and Delton Nyman; their agents, successors, and assigns; shall cleanup and abate as specified below:

1. Effective **1 January 2005**, abate offensive odors and nuisance caused by the conveyance, treatment, storage, and disposal of Plant waste and wastewater.
2. In accordance with the following schedule, initiate a program to identify and mitigate impacts on private domestic water supplies:
  - a. **Within 30 days of written notification from the Executive Officer** that use of the private well supply of any person has been unreasonably affected or may potentially be unreasonably affected by the discharge, including taste and odor, submit a work plan and schedule to provide the person at HCC expense an in-kind replacement of the specified water supply. The Discharger shall implement the work plan in accordance with the schedule approved by the Executive Officer, which shall become part of this Order. HCC shall continue to supply alternative water to each affected public water supplier or private well owner until HCC receives written notification from the Executive Officer that such action is no longer necessary.
  - b. **By 1 February 2005**, submit a technical report containing protocol for conducting a comprehensive survey of all water supply wells within one-half mile of the Primary Lands potentially threatened by waste constituents originating from the Plant, including a plan for sampling all water supply well(s). The sampling plan shall include specific actions and a commitment by the Discharger to complete the sampling plan within 90 days of approval by the Executive Officer, including obtaining all necessary access agreements.
  - c. **Within 30 days of written approval from the Executive Officer of the water supply well sampling plan**, implement the sampling plan and, **within 90 days of written approval of the plan from the Executive Officer**, submit a written technical report describing conditions encountered during the survey. The technical report shall include a map depicting the location of all wells, well ownership information (i.e., contact name and address), an explanation for all unmonitored wells, a tabulated summary of analytical results from monitored wells, analytical laboratory reports, and chain-of-custody forms.
3. As the first phase in a process to conform with State Board Resolution 92-49 and the Basin Plan (in particular the Policies and Plans listed within the Control Action Considerations portion of Chapter IV), comply with the following tasks:

- a. Submit a technical report **by 15 March 2005** that describes a work plan to determine the lateral and vertical extent of waste constituents in groundwater that exceed background quality if the exceedance is potentially caused by HCC. The investigative area shall include groundwater influenced by HCC's discharge beneath and beyond the Plant and Primary Lands. The work plan shall satisfy the information requirements set forth in *Attachment A* of this Order.

Well design, construction, and destruction shall comply with appropriate standards as described in California Well Standards Bulletin 74-90 (June 1991) and Water Well Standards: State of California Bulletin 94 81 (December 1981), and any more stringent standards adopted by Merced County pursuant to CWC Section 13801.

- b. Submit a technical report **by 15 April 2006** that describes the results of the first phase of *Site Assessment* and that satisfies *Attachment B* of this Order. The technical report shall describe the distribution of waste constituents in groundwater, identify groundwater gradients, and include graphs and contours where beneficial for interpretation and understanding of the situation. Where degradation is reported to be in part or whole from other sources, the technical report shall provide reasoning and evidence that supports such a conclusion. The technical report shall include a recommendation for additional investigation and ongoing monitoring, as appropriate.
- c. Upon a determination by the Executive Officer that the investigation of lateral and vertical extent of waste constituents in groundwater to be complete, submit a technical report by a date to be specified by the Executive Officer that evaluates remedial action and cleanup alternatives and proposes an appropriate cleanup system.
- d. Continue investigation, cleanup and abatement activities under this Order until such time as the Executive Officer determines that the Discharger has complied with the Order.

4. Provide only technical reports that are:

- a. 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. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports 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.
- b. Submitted with a cover letter from the Discharger that includes a statement signed by the authorized representative certifying under penalty of law that the representative has examined and is familiar with the report and that to his knowledge, the report is true, complete, and accurate.
- c. Submitted in triplicate, with two bound and one unbound. When requested by Regional Board staff, the Discharger shall provide technical reports and supporting data in

electronic format. This requirement is necessary for Regional Board staff to effectively and efficiently review and comment on submitted technical reports.

5. Reimburse the Regional Board in a timely manner for reasonable costs associated with oversight of the investigation and cleanup that are billed in accordance with State Board procedures. Failure to do so shall be considered a violation of this Order.
6. Conduct new work only after the work plan for the work has been approved in writing by the Executive Officer.

If, for any reason, the Discharger is unable to perform any activity or submit any document in compliance with the schedule set forth herein, or in compliance with any work schedule submitted pursuant to this Order and approved by the Executive Officer, it may request in writing an extension of the time. The extension request shall include justification for the delay.

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement or may issue a complaint for administrative civil liability. This Order does not preclude the possible assessment of civil liability pursuant to CWC Sections 13261, 13265, 13268, 13350, or other applicable authority for violations that predate this Order.

This Order is effective upon the date of signature.

ORIGINAL SIGNED  
THOMAS R. PINKOS, Executive Officer

2 DECEMBER 2004  
(Date)

Attachments

- A Information Requirements for Site Assessment Work Plan
- B Information Requirements for a Site Assessment Report

ARP/jlk 12/2/04

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2004-0722  
FOR  
HILMAR CHEESE COMPANY  
CHEESE PROCESSING PLANT  
MERCED COUNTY

ATTACHMENT A  
INFORMATION REQUIREMENTS FOR A  
SITE ASSESSMENT WORK PLAN

The outline below is a minimum requirement for items to be included and discussed in the text of the technical report describing a *Site Assessment Work Plan* submitted to the Regional Board pursuant to Task 3.a of the cleanup and abatement order. Other pertinent information specific to the investigation also should be included. The work plan must be certified by a geologist, engineering geologist, or civil engineer registered by the State of California.

I. BACKGROUND

A. Site History

1. State all operations conducted at the site.
2. Identify current and historic chemical usage, handling and disposal procedures.
3. Describe current and historic wastewater discharges to the primary lands with respect to hydraulic loadings and waste constituent loadings.

B. Map of site vicinity showing:

1. All natural and man-made surface and subsurface drainage features including ditches, surface impoundments, and tile drain networks, and the drainages' destination;
2. Utilities, especially the Facility's storm drain system;
3. Location of existing monitoring wells, including those installed by other parties;
4. Location of private, municipal, or irrigation wells within 2,500 feet of the Primary Lands;  
and
5. Other major physical and man-made features.

C. Area Land Uses. Describe current and historical land use of overlying and surrounding land. For agricultural land uses, identify current and historical crop types, cropping patterns, and irrigation methods (furrow, sprinkler, drip), source(s) of irrigation water, and methods for controlling shallow groundwater.

## II. GEOLOGY/HYDROGEOLOGY

- A. Provide detailed summaries of previous technical reports evaluating the geology and hydrogeology of the discharge site.
- B. Describe aquifer characteristics, velocity and direction of regional groundwater movement.
- C. Provide groundwater contour maps of the discharge vicinity representative of discharge conditions before and after the addition of the Secondary Lands. Depict flow nets on the maps that show flow patterns. If groundwater elevation data exhibits seasonality, provide contour maps representative of each major season.
- D. Present a conceptual model of the hydrogeologic system within the area impacted or potentially impacted by the discharge. The model must reasonably simulate the hydraulic situation, in part, by accounting for all significant hydraulic inputs, outputs, and barriers. The model is, at times, horizontally radial in the uppermost zone (as indicated by self-monitoring reports) with a downward vertical component, and with both vertical and horizontal gradients locally sensitive to drains, wells, and infiltration from freshwater sources. Irrigation and drinking water wells likely affect the model as well, influencing gradients and providing conduits for poor quality surface water to reach deeper groundwater zones. The model must successfully address the dynamics of the aquifer system influenced by discharges of waste constituents by HCC and other sources in order to provide the context for evaluating compiled groundwater elevation and quality data.
- E. Provide annual water balances formulated on a monthly basis representative of discharge conditions before and after the addition of the Secondary Lands. Each water balance must indicate inflows (i.e., HCC wastewater applications, irrigation applications, precipitation) and outflows (i.e., evaporation, crop uptake, deep percolation, offsite flow), show formulas for and sample calculations of each type of calculated value, and provide references or technical justification for input values, as appropriate.
- F. Provide annual mass balances representative of the Primary Lands discharge before and after the addition of the Secondary Lands and, for each discharge scenario as appropriate, with and without the addition of RO concentrate to the Primary Lands discharge. Provide mass balances for, at a minimum, fixed dissolved solids, chloride, sodium, potassium, and total nitrogen (i.e., total Kjeldahl nitrogen and nitrate). Each mass balance must show formulas for and sample calculations of each type of calculated value, and provide references or technical justification for input values, as appropriate.
- G. Estimate the vertical and lateral extent of groundwater mounding caused by the discharge to the Primary Lands before and after the addition of the Secondary Lands.
- H. Estimate the lateral and vertical extent of the portion of the aquifer(s) impacted by the discharge (e.g., the limits at which the effects of the discharge(s) cannot be distinguished from the regional aquifer's quality and flow patterns). Include an evaluation of the adequacy

of the existing groundwater monitoring wells network for estimating the lateral and vertical extent of groundwater influenced by the discharge.

- I. Data Gaps. Identify data gaps and information needs that affect the opinions, evaluations, and recommendations of the registered civil engineer or geologist that will conduct the site assessment. Include recommendations for additional groundwater monitoring wells to perform a complete site assessment.

### III. PROPOSED GROUNDWATER MONITORING WELLS.

This section shall contain, at a minimum, the following information:

#### A. Proposed monitoring well locations and rationale for well locations

#### B. Drilling Details:

1. On-site supervision of drilling and well installation activities
2. Description of drilling equipment and techniques
3. Equipment decontamination procedures
4. Cuttings disposal methods
5. Soil sampling intervals (if appropriate); logging methods; number and location of soil samples and rationale; and sample collection, preservation, and analytical methods.

#### C. Monitoring Well Design (in graphic form with rationale provided in narrative form):

1. Diagram of proposed well construction details
  - i. Borehole diameter
  - ii. Casing and screen material, diameter, and centralizer spacing (if needed)
  - iii. Type of well caps (bottom cap either screw on or secured with stainless steel screws)
  - iv. Anticipated depth of well, length of well casing, and length and position of perforated interval
  - v. Thickness, position and composition of surface seal, sanitary seal, and sand pack
  - vi. Anticipated screen slot size and filter pack

#### D. Well Development (not to be performed until at least 48 hours after sanitary seal placement):

1. Method of development to be used (i.e., surge, bail, pump, etc.)
2. Parameters to be monitored during development and record keeping technique

3. Method of determining when development is complete
4. Disposal of development water
- E. Well Survey (precision of vertical survey data shall be at least 0.01 foot):
  1. Identify the Licensed Land Surveyor or Civil Engineer that will perform the survey
  2. Datum for survey measurements
  3. List well features to be surveyed (i.e., top of casing, horizontal and vertical coordinates, etc.)
- F. Schedule for Completion of Work
- G. Appendix: Groundwater Sampling and Analysis Plan (SAP). The Groundwater SAP, a guidance document that is referred to by individuals responsible for conducting groundwater monitoring and sampling activities, shall contain, at a minimum, a detailed written description of standard operating procedures for:
  1. Equipment to be used during sampling
  2. Equipment decontamination procedures
  3. Water level measurement procedures
  4. Well purging (include a discussion of procedures to follow if three casing volumes cannot be purged)
  5. Monitoring and record keeping during water level measurement and well purging (include copies of record keeping logs to be used)
  6. Purge water disposal
  7. Analytical methods and required reporting limits
  8. Sample containers and preservatives
  9. Sampling. General sampling techniques. Record keeping during sampling (include copies of record keeping logs to be used). Quality Assurance/Quality Control samples.
  10. Chain of Custody
  11. Sample handling and transport

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

CLEANUP AND ABATEMENT ORDER NO. R5-2004-0722  
FOR  
HILMAR CHEESE COMPANY  
CHEESE PROCESSING PLANT  
MERCED COUNTY

ATTACHMENT B  
INFORMATION REQUIREMENTS FOR A  
SITE ASSESSMENT REPORT

The outline below is a minimum requirement for items to be included and discussed text of the technical report describing the results of the first phase of *Site Assessment* submitted to the Regional Board pursuant to Task 3.b of the cleanup and abatement order. Other supporting data to be included in the report, either within the text of the report or in appendices, are italicized at the end of each section. The report must be certified by a geologist, engineering geologist, or civil engineer registered by the State of California.

**I. INTRODUCTION**

Summary of past investigations  
Purpose of the recent investigation  
Scope of the recent investigation  
Time period in which the recent investigation was carried out  
Topographic map showing facility location, roads, surface water bodies

**II. SUMMARY**

Number of wells drilled  
Results of soil and water analyses  
Groundwater contour map(s) showing flow direction and gradient

**III. FIELD INVESTIGATION**

Well Construction  
Number and depth of wells drilled  
Date(s) wells drilled  
Description of drilling and construction equipment and techniques  
Description of on-site supervision of drilling and well installation activities  
Drilling contractor and driller's name  
Large-scaled site map showing all previously existing wells, newly installed well wells, surface water bodies and drainage courses, buildings, waste handling facilities, utilities, and other major physical and man-made features relative to discharge site(s)

*Supporting Data:*

*A well construction diagram for each newly installed well showing the following details:*

*Total depth drilled*  
*Depth of open hole (same as total depth drilled if no caving occurs)*  
*Footage of hole collapsed*  
*Length of slotted casing installed*



*Depth of bottom of casing*  
*Depth to top of sand pack*  
*Thickness of sand pack*  
*Depth to top of bentonite seal*  
*Thickness of bentonite seal*  
*Thickness of concrete grout*  
*Sanitary seal thickness and location in addition to bentonite seal, as appropriate*  
*Boring diameter*  
*Casing diameter*  
*Casing material*  
*Size of perforations*  
*Number of bags of sand*  
*Well elevation at top of casing*  
*Depth to first encountered groundwater and stabilized groundwater depth*  
*Date of water level measurement*  
*Monitoring well number*  
*Date drilled and constructed*  
*Type of well caps (bottom cap either screw on or secured with stainless steel screws)*

#### Well Development

Date(s) of development of each newly installed well  
Method of development  
Volume of water purged from well  
How well development completion was determined  
Method of purge water disposal  
Well Completion Report(s) (as defined in California Water Code §13751). Blank forms are available from California Department of Water Resources' website [www.water.ca.gov](http://www.water.ca.gov).  
Submit Well Completion Report(s) under separate cover.

#### *Supporting Data:*

*Field notes from well development and County-issued well construction permit(s)*

#### Well Survey (provide for each newly installed well)

Reference elevation at the top rim of the well casing with the cap removed (feet above mean sea level to within 0.01 foot)  
Ground surface elevation (feet above mean sea level to within 0.01 foot)  
Horizontal geodetic location, where the point of beginning shall be described by the California State Plane Coordinate System, 1983 datum, or acceptable alternative (provide rationale)  
Present the well survey report data in a table

#### Water Sampling

Date(s) of sampling  
How well was purged  
How many well volumes purged  
Levels of temperature, EC, and pH at stabilization

Sample collection, handling, and preservation methods  
Sample identification  
Analytical methods used

Soil Sampling (if applicable)  
Date(s) of sampling  
Sample collection, handling, and preservation method  
Sample identification  
Analytical methods used

#### **IV. FINDINGS OF THE INVESTIGATION**

##### **Lithology**

Types of sediments encountered  
Detailed description of soils encountered during well drilling, using the Unified Soil Classification System  
Presence, location, and lateral continuity of any significant sand, silt, or clay layers  
Any visual signs of contamination

##### *Supporting Data:*

*Well logs geologic cross-sections*

##### **Analytical Results of Soil and Groundwater Sampling**

Tabular summary of analytical results of each monitoring well sampled

##### *Supporting Data:*

*Laboratory analytical sheets  
Chain-of-custody forms*

##### **Water Levels**

Static water levels measured when well drilled  
Date(s) of water level measurements  
Water levels determined prior to sampling

##### *Supporting Data:*

*Dates of water level measurement, depths to ground water, and groundwater elevations should be tabulated and included in the report.*

##### **Groundwater Gradient and Flow Direction**

Discuss groundwater gradient and flow direction determined by the investigation and compare to the regional gradient and flow direction.

*Supporting Data:*

*Provide a groundwater contour map, drawn to scale, which shows each well, its groundwater elevation, and lines of equal ground water elevation. Show on map the groundwater gradient and flow direction.*

*Provide supporting calculations for determining groundwater gradient.*

Groundwater constituent concentration maps for, at a minimum, fixed dissolved solids, total alkalinity, hardness, chloride, sodium, potassium, nitrate, total nitrogen (i.e., total Kjeldahl nitrogen and nitrate), total phosphorus, iron, and manganese.

Conceptual Model Refinement

Compare the conceptual model developed as part of the site assessment work plan against the field investigation findings.

Describe a modified conceptual model that incorporates the new findings, as appropriate

**V. RESULTS OF QA/QC (Quality Assurance/Quality Control)**

QA/QC procedures

Equipment decontamination procedures

QC sample identification

Field blank analyses

Comparison of duplicate sample results

**VI. CONCLUSIONS AND RECOMMENDATIONS**

Extent of Impacted Groundwater

Identify groundwater gradients, describe vertical and lateral extent of groundwater containing waste constituents attributed or potentially attributed to the discharge in concentrations (a) above background (e.g., as characterized by Monitoring Well 20) and (b) above water quality objectives identified in the cleanup and abatement order, and include graphs and contours where beneficial for interpretation and understanding of the situation.

Identify any suspected contributing source(s) of waste constituents in groundwater, if possible, and provide reasoning and evidence that supports such identification.

Recommend additional investigation and ongoing monitoring, as appropriate.