

**MINOR MODIFICATION TO PERMIT NO. CA10500001
ISSUED TO HILMAR CHEESE COMPANY**

In accordance with 40 CFR §144.41, it is understood and agreed that this permit has been modified to clarify notification and approval requirements for injection of materials used during stimulation, as discussed in EPA’s letter to Hilmar dated February 2, 2011. In addition, this modification includes several clarifications to existing permit terms regarding monitoring, recordkeeping, and reporting.

Portions of pages 6 to 8, 12 to 15, 17, and Appendix A of the permit have been revised to incorporate the above changes and now read as follows (for clarity, changes are shown with removals struck out and with new additions **emboldened and underlined**):

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6. Monitoring Devices

The Permittee shall install and maintain in good operating condition:

- (a) A tap prior to the injection wellhead for the purpose of obtaining representative samples; and
- (a~~b~~)** Devices to continuously measure and record injection pressure, annulus pressure, flow rate, and injection volumes.

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7. Proposed Changes and Workovers

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8. Drilling, work-over, and plugging procedures

Drilling, work-over, and plugging procedures must comply with the CDOGGR “Onshore Well Regulations” of the California Code of Regulations, found in Title 14, Natural Resources, Division 2, Department of Conservation, Chapter 4, Article 3, Section 1722-1723. Drilling procedures shall also include the following:

- (a) Details for staging long-string cementing or justification for cementing without staging;
- (b) Records of daily Drilling Reports (electronic and hard copies);
- (c) Blowout Preventer (“BOP”) System testing on recorder charts including complete explanatory notes during the test(s),
- (d) Casing and other tubular and accessory measurement tallies; and
- (e) Details and justification for any open hole gravel packing.

In lieu of using EPA reporting forms in Appendix B, procedures provided on reporting forms such as CDOGGR’s Well Summary Report may be acceptable provided all required information as specified above is included.

- 9. Final Well Completion Reports with the associated final construction diagrams, specifications, and locations, once approved by EPA, replace the Well Construction Plans, Proposed Location, and Specifications cited in Paragraphs 2 through 4 of this section for those wells.

B. CORRECTIVE ACTION

Corrective action for wells located within the Area of Review will be required pursuant to 40 CFR §§144.55 and 146.7 contingent upon the results of the testing performed under Part II, Section C. Corrective action may include, but is not limited to:

- 1. Re-Entering, Plugging and Abandoning Oil Production Exploratory Wells Located Within the Area of Review

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- (d) Annual ZEI Review

Annually, the Permittee shall review the Zone of Endangering Influence (ZEI) calculation, taking into account any new data obtained from the Fall-Off Test (FOT) and static reservoir pressure tests required in Section C, paragraph 5(b) of this part. A copy of the modified ZEI calculations, along with all associated assumptions or justifications, shall be provided to EPA with the quarterly report due in January, as required in Section D paragraph 3 of this part.

C. WELL OPERATION

The Permittee shall submit the plans for procedures and specifications to the Director for discussion and approval at least thirty (30) days prior to each demonstration required in this section. No demonstration in this section may proceed without prior approval from the Director. The Permittee shall submit the results of each demonstration required in this section within ~~thirty (30)~~ **sixty (60)** days of completion.

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5. Injection Pressure Limitation

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- (b) A pressure falloff test (**FOT**) shall be conducted annually **on each permitted well**, unless other information demonstrates the need for additional tests and/or an increased frequency of tests. The Permittee must submit a proposal for ~~pressure falloff test~~ **FOT** procedures at least sixty (60) days before the planned test and must receive EPA approval prior to the test. The proposed procedures must generally conform to EPA regional guidance for conducting pressure falloff tests but must be adapted for the specific conditions at this facility. Appendix D contains examples of EPA regional guidance.

- (i) **The Permittee shall determine and include in the FOT report the latest static reservoir pressure of the injection zone and shall provide a graphic plot of its cumulative behavior over time.**

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7. Injection Fluid Limitation

Injection fluids will consist of Hilmar Cheese Company facility wastewater, including wastewater generated from the sanitizing of equipment and tanks, general facility wash down, equipment blow down, and tanker truck wash outs. Concentrated salt and ultrafiltration and reverse osmosis reject solutions (brine), separated from reclaimed water, make up the deep well injectate. Additional brine wastes from water reclamation or production

areas may be blended with the salt concentrate solution. The brine solution may also contain trace contaminants from chemicals used in the treatment process, including residual minerals and organic material. In addition,

- (a) The Permittee shall not inject any hazardous waste, as defined by 40 CFR Part 261, at any time. **See also paragraph 2(f) of this section.**
- (b) Injection fluids shall be limited to only waste fluids authorized by this permit and produced at the Hilmar Cheese Company facility. No fluids shall be accepted from other sources.
- (c) **Information on any well stimulation or treatment procedure performed at the discretion of the Permittee that may modify the makeup of the injectate, such as injecting sodium hypochlorite, biocide, anti-scalant, or acid for pH adjustment, shall be submitted to EPA for review and approval no less than sixty (60) days prior to implementation. The final injected solution shall be demonstrated to be nonhazardous and the injected amounts of chemicals used shall be recorded and subsequently reported in the quarterly reports.**

8. Tubing/Casing Annulus Requirements

- (a) **Corrosion-inhibiting annular fluid shall be used and maintained during well operation.**
- (b) **A minimum pressure of one hundred (100) psi at shut-in conditions shall be maintained on the tubing/casing annulus. The Permittee shall determine the range of fluctuation of annular pressure for the well during periods of normal operation and shall include this normal pressure range in their quarterly reports. Any annular pressure outside of the normal range shall be considered a loss of mechanical integrity and shall be reported per Paragraph 3(c) of this section.**

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D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Monitoring Program

Injection fluids must be analyzed to yield representative data on their physical, chemical, or other relevant characteristics. The Permittee shall take samples at or before the wellhead for analysis. Test results shall be submitted to EPA on at least a quarterly basis (see paragraph 5 below).

Samples and measurements shall be representative of the monitored activity. The Permittee shall utilize applicable analytical methods described in Table I of 40 CFR §136.3 or in EPA Publication SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," unless other methods have been approved by EPA.

(a) Summary of acceptable analytic Methods:

- (i) Inorganic Constituents – appropriate USEPA methods for Major Anions and Cations (including an anion/cation balance).**
- (ii) Solids - Standard Methods 2540C and 2540D for Total Dissolved Solids and Total Suspended Solids.**
- (iii) General and Physical Parameters – appropriate USEPA methods for Temperature, Turbidity, pH, Conductivity, Hardness, Specific Gravity, Alkalinity, and Biological Oxygen Demand ("BOD"); and Density and Viscosity (See EPA Bulletin 712-C-96-032) under standard conditions.**
- (iv) Trace Metals - USEPA Method 200.8.**
- (v) Volatile Organic Compounds ("VOCs") - USEPA Method 8260C.**
- (vi) Semi-Volatile Organic Compounds - USEPA Method 8270.**

(b) Analysis of injection fluids.

Quarterly, or whenever there is a significant change in injection fluids, injectate sampling and analyses shall be performed as outlined in paragraph (a) above.

2. Monitoring Information

Records of monitoring activity required under this permit shall include:

- (a) Date, exact location, and time of sampling or field measurements;**
 - (b) Name(s) of individual(s) who performed sampling or measuring;**
 - (c) Exact sampling method(s) used;**
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(d) Date(s) laboratory analyses were performed;

(e) Name(s) of individual(s) who performed laboratory analyses;

(f) Types of analyses; and

(g) Results of analyses.

~~(a) Continuous monitoring devices~~

3. Continuous Monitoring Devices

Temperature, annular pressure, and injection pressure shall be measured at the wellhead: **using equipment of sufficient precision and accuracy. All measurements must be recorded at minimum to a resolution of one tenth of the unit of measure (e.g. injection rate and volume must be recorded to a resolution of a tenth of a gallon; pressure must be recorded to a resolution of a tenth of a psig; injection fluid temperature must be recorded to a resolution of a tenth of a degree Fahrenheit). Exact dates and times of measurements, when taken, must be recorded and submitted.** Injection rate shall be measured in the supply line immediately before the wellhead. The Permittee shall continuously monitor and record the following parameters **at the prescribed frequency:**

Parameter	Recording Frequency	Instrument
injection rate (gallons per minute)	hourly	digital recorder
daily injection volume (gallons)	daily	digital recorder
Injection total volume	daily	digital totalizer
wellhead injection pressure (psig)	hourly	digital recorder
annular pressure (psig)	hourly	digital recorder
injection fluid temperature (degrees Fahrenheit)	hourly	digital recorder

<u>Monitoring Parameter</u>	<u>Frequency</u>	<u>Instrument</u>
<u>Injection rate (gallons per minute)</u>	<u>Hourly</u>	<u>digital recorder</u>
<u>Daily Injection Volume (gallons)</u>	<u>Daily</u>	<u>digital recorder</u>
<u>Total Cumulative Volume (gallons)</u>	<u>Daily</u>	<u>digital totalizer</u>
<u>Well head injection pressure (psig)</u>	<u>Hourly</u>	<u>digital recorder</u>
<u>Annular pressure (psig)</u>	<u>Hourly</u>	<u>digital recorder</u>
<u>Injection fluid temperature (degrees Fahrenheit)</u>	<u>Hourly</u>	<u>digital recorder</u>

The Permittee must adhere to the required format below for reporting injection rate and well head injection pressure. An example of the required electronic data format:

<u>DATE</u>	<u>TIME</u>	<u>INJ. PRESS (PSIG)</u>	<u>INJ. RATE (GPM)</u>
<u>06/27/10</u>	<u>16:33:16</u>	<u>1525.6</u>	<u>65.8</u>
<u>06/27/10</u>	<u>17:33:16</u>	<u>1525.4</u>	<u>66.3</u>

Each data line shall include four (4) values separated by a consistent combination of spaces or tabs. The first value contains the date measurement in the format of mm/dd/yy or mm/dd/yyyy , where mm is the number of the month, dd is the number of the day and yy or yyyy is the number of the year. The second value is the time measurement, in the format of hh:mm:ss, where

hh is the hour, mm are the minutes and ss are the seconds. Hours should be calculated on a 24-hour basis, i.e. 6 PM is entered as 18:00:00. Seconds are optional. The third value is the well head injection pressure in psi. The fourth column is injection rate in gallons per minute.

(ba) Calibration and Maintenance of Equipment

All monitoring and recording equipment shall be calibrated and maintained on a regular basis to ensure proper working order of all equipment.

(b) ~~Quarterly Monitoring.~~

~~Fluids will be analyzed to yield representative data on their characteristics. The Permittee shall take samples at or before the wellhead for analysis. The results of the tests shall be submitted to EPA on a quarterly basis. The Permittee shall not inject any hazardous waste as defined by 40 CFR Part 261~~

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~~at any time. The Permittee shall utilize the applicable analytical methods described in Table I of 40 CFR §136.3, or in Appendix III of 40 CFR Part 261, unless other methods are approved by the EPA Administrator.~~

Methods/Constituents:

~~Geochemical (Appropriate EPA Methods for Sodium, Calcium, Magnesium, Barium, Total Iron, Chloride, Sulfate, Carbonate, Bicarbonate, Sulfide, Total Dissolved Solids, pH, Conductivity, and Specific Gravity)~~

~~Metals (Appropriate EPA Methods for Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc)~~

~~VOCs (EPA Methods 8010/8020 or 8240)~~

~~Semi-VOCs (EPA Method 8270)~~

~~Solids (EPA Methods 160.1 and 160.2 for Total Dissolved Solids and Total Suspended Solids)~~

24. Recordkeeping

~~(a) — The Permittee shall retain records concerning:~~

The Permittee shall retain the following records and shall have them available at all times for examination by an EPA inspector:

- ~~(i) — the nature, volume, and composition of all injected fluids until three (3) years after all the wells have been plugged and abandoned.~~
- ~~(ii) — all monitoring information, including all calibration and maintenance records and all recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least five (5) years after all the wells have been plugged and abandoned.~~
- ~~(b) — The Permittee shall only discard the records described in paragraphs (a)(i) and (a)(ii) after the specified retention periods following written approval from the Director.~~
- ~~(c) — The Permittee shall maintain copies (or originals) of all observation records throughout the operating life of the well and make such records available for inspection at the facility. The Permittee shall continue to retain such records unless it obtains written approval from the Director to discard the records.~~
- (a) All monitoring information, including required observations, calibration and maintenance records, recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the permit application;**
- (b) Information on the physical nature and chemical composition of all injected fluids;**
- (c) Results of the injectate “Hazardous Waste Determination” according to 40 CFR §262.11 (See Section II.D.1.b). Analyses results shall demonstrate that the injectate does not meet the definition of hazardous waste as defined in 40 CFR §261; and**

- (d) Records and results of MITs, any other tests required by EPA, and any well workovers completed.**
- (e) The Permittee shall maintain copies (or originals) of all records described in paragraphs (a) through (d) above during the operating life of the well and shall make such records available at all times for inspection at the facility.**
- (f) The Permittee shall only discard the records described in paragraphs (a) through (d) if:**
 - (i) The records are either delivered to the Regional Administrator, or**
 - (ii) Written approval from the Regional Administrator to discard the records is obtained.**

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3. Reporting of Results

The Permittee shall submit accurate quarterly reports to the Director containing the following information:

- ~~(a) Average, maximum, and minimum monthly values for the continuously monitored parameters specified for the injection wells in Part II, Section D.1.(a), unless more detailed records are requested by the Director.~~
- ~~(b) Fluid characteristic analyses for parameters specified in Part II, Section D.1.(c).~~
- ~~(c) A narrative description of all non-compliance that occurred during the reporting period.~~

5. Reporting

Quarterly, the Permittee shall submit accurate reports to EPA containing, at minimum, the following information:

- (a) Hourly and daily values, submitted in electronic format, for the continuously monitored parameters specified for the injection wells in paragraph 3 of this section;**
- (b) Monthly cumulative total volumes, as well as monthly average, minimum, and maximum values for the continuously monitored rate, pressure, and temperature parameters specified for the injection wells in paragraph 3.a of this section, unless more detailed records are requested by EPA;**
- (c) Analyses to be included in the next quarterly report following completion:**
 - (i) Injection fluid characteristics for parameters specified in paragraph 1 of this section;**
 - (ii) When appropriate, Injectate Hazardous Waste Determination according to Section C, paragraph 1(f) of this part.**
- (d) To be included with the next quarterly report immediately following completion, results of any additional MITs or other tests required by EPA, and any well workovers completed; and**
- (e) To be included in the quarterly report due in January each year, the following annual analyses:**
 - (i) Annual reporting summary (7520-11 in Appendix C);**
 - (ii) FOT results as required in Section C, paragraph 5(b) of this part;**
 - (iii) Shut-in static reservoir pressure cumulative behavior plot of the injection zone, as required in Section B, paragraph 5(b)(i) of this part;**
 - (iv) Annual injection profile survey results as required in Section C paragraph 3(b)(i) of this part; and**

(v) Annual ZEI recalculation as required in Section B paragraph 1(d) of this part.

(f) To be included in the next quarterly report due in January after completion every five years, an internal MIT (pressure test) as required in Section C.3(b)(i) of this part.

(g) A narrative description of all non-compliance that occurred during the reporting period.

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Copies of the monitoring results and all other reports required by the permit shall be submitted to the following addresses:

U.S. Environmental Protection Agency, Region IX
Water Division
Ground Water Office (Mail Code WTR-9)
75 Hawthorne Street
San Francisco, CA 94105-3901

Attn: UIC Engineer
California Division of Oil, Gas, and Geothermal Resources
California Department of Conservation, District 5
466 North 5th Street
Coalinga, CA 93210-1793

Attn: Non-15 WDR Unit
California Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, CA 93706

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F. FINANCIAL RESPONSIBILITY

1. Demonstration of Financial Responsibility

The Permittee is required to demonstrate and maintain financial responsibility and resources sufficient to close, plug, and abandon the underground injection operation as provided in the Plugging and Abandonment Plans.

The Permittee shall post a financial instrument such as a surety bond or other financial assurance for each well in the amount of \$90,000 **174,510** to guarantee closure. Authority to drill and construct any well will not be given until the financial instrument has been posted and approved by EPA.

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APPENDIX A AREA OF INVESTIGATION BASE MAP AND WELL CONSTRUCTION PLANS SCHEMATICS AND AREA OF INVESTIGATION BASE MAP

~~WD-1P Proposed Well Bore Diagram~~

Figure 1 (~~WD-1P Location~~ **general injection well locations**)

Figure 2 (~~WD-1P Location~~)

Well Exhibit – WD-2 (location coordinates)

WD-2 Injection Well Schematic (Attachment 4 from 9/11/2006 completion report)

WD-1P location 1/12/09

WD-1P Injection Well Schematic (Attachment 3 from 2/11/2009 completion report)

WD-3 location 12/28/10

WD-3 Injection Well Schematic (from 3/31/2011 completion report, Attachment 3)

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All other permit conditions remain unchanged.

This minor modification is issued and immediately effective on [original signed July 7 2011]

[original signed]

Alexis Strauss, Director
Water Division