U.S. EPA Underground Injection Control Program

FINAL PERMIT

Class I Nonhazardous Waste Injection Wells

Permit No. CA10500002

Well Names: CSC-1, CSC-2

San Joaquin County, CA

Issued to:

California Specialty Cheeses
14253 South Airport Way
Manteca, CA 95336

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PART I. AUTHORIZATION TO INJECT

Pursuant to the Underground Injection Control (UIC) regulations of the U.S. Environmental Protection Agency (EPA) codified at Title 40 of the Code of Federal Regulations (CFR), §§124, 144, 145, 146, 147, and 148,

California Specialty Cheeses
14253 South Airport Way
Manteca, CA 95336

is hereby authorized to, contingent upon Permit conditions, construct and operate a Class I nonhazardous waste injection well facility with a maximum of two (2) injection wells, known as the CSC-1 and CSC-2 wells. Both wells are located in Section 24, Township 1S, Range 6E, at 121 degrees, 15 minutes, 22.7 seconds Latitude and 37 degrees, 50 minutes, and 0.91 seconds Longitude, on Calfornia Specialty Cheeses facilities in San Joaquin County, California. Exact locations of each well will be established and approved as outlined in this permit.

Authorization to drill and construct the wells will be issued by EPA after the requirements of Financial Responsibility in Part II, Section F of this permit have been met. EPA will grant authorization to inject after the requirements of Part II Sections A-C of this permit have been met. Operation of both wells will be limited to maximum volume and pressure as stated in this permit. Total amounts must not exceed specified limits. If approved, injection will be authorized into either the Miocene Valley Springs Sand or the Cretaceous 2nd Tracy Sand formation, whichever demonstrates that it meets permit requirements**,** for the purpose of disposal of industrial nonhazardous fluids produced during cheese production processes at the California Specialty Cheeses facility in San Joaquin County.

All conditions set forth herein are based on Title 40 §§124, 144, 145, 146, 147 and 148 of the Code of Federal Regulations.

This permit consists of twenty-eight (28) pages plus the appendices, and includes all items listed in the Table of Contents. Further, it is based upon representations made by California Specialty Cheeses (Permittee) and on other information contained in the administrative record. It is the responsibility of the Permittee to read, understand, and comply with all terms and conditions of this permit.

This permit and the authorization to construct, test, and inject are issued for a period of ten (10) years unless terminated under the conditions set forth in Part III, Section B.1 of this permit.

This permit is issued and becomes effective on _____.

_____
Alexis Strauss, Director
Water Division, EPA Region IX

PART II. SPECIFIC PERMIT CONDITIONS

Prior to each demonstration required in the following sections A through C, the Permittee shall submit plans for procedures and specifications to the U.S. Environmental Protection Agency Region IX Ground Water Office ("EPA") for discussion and approval. The submittal address is provided in Section D, paragraph 5. No demonstration in these sections may proceed without prior written approval from EPA. The Permittee shall submit results of each demonstration required in this section to EPA within sixty (60) days of completion.

A. WELL CONSTRUCTION

1. Requirement for Prior Written Permission to Drill, Test, Construct, or Operate

   (a) Financial Assurance

   The Permittee shall supply evidence of financial assurance prior to commencing Injection Well Drilling and Construction, in accordance with Section F of this part.

   (b) Pre-notification

   After approval for any of the approved field demonstrations is provided, notification to EPA at least 30 days prior to performing the demonstration is required, to allow EPA to arrange to witness if so elected.

2. Locations of Injection Wells CSC-1 and CSC-2

   Injection wells authorized under this permit will be located near the California Specialty Cheeses property on South Airport Way northeast of Lathrop, California. The proposed general location for Wells CSC-1 and CSC-2 is found in Appendix A, Figures 1-3.

   (a) Prior to drilling any well, the Permittee must submit proposed field coordinates (Section, Township, Range, with latitude/longitude) for that specific well; for the second well, also provide the distance between the two wells, along with any justification for the separation distance.

   (b) After drilling is completed, the Permittee must submit final field coordinates (Section, Township, Range, with latitude/longitude) of any well constructed under this permit with the Final Well Construction Report required under paragraph 12 of this section. If final well coordinates differ from the proposed coordinates submitted under paragraph (a), justification and

documentation of any communication with and approval by EPA shall be included.

3. Order of Construction for Wells CSC-1 and CSC-2

Well CSC-1 shall be constructed first, and shall meet all conditions of Sections A through C of this part prior to the Permittee receiving approval to construct Well CSC-2**.**

4. Testing during Drilling and Construction

Two injection zones were identified in the permit application as possible targets, a primary target and an alternative target in the case where the primary target does not meet requirements. The shallower Miocene sand will be tested first, and if the zone meets regulatory and operational requirements, the well will be completed at that depth and will not be drilled deeper. Otherwise, the well will be drilled deeper to the alternative Cretaceous 2nd Tracy sand target. Proposed Well Schematics submitted with the application are hereby incorporated for reference into this permit as Appendix B, Figures 21 and 22.

Logs and other tests conducted during drilling and construction shall include, at a minimum, deviation checks, casing logs, and injection formation tests as outlined in 40 CFR §146.12(d). Open Hole logs shall be conducted over the entire open hole sequence.

5. Injection Formation Testing

Injection formation information for Well CSC-1, as described in 40 CFR 146.12 (e), shall be determined through well logs and tests and shall include porosity, permeability, static formation pressure, and effective thickness of the injection zone. A summary of results shall be submitted to EPA with the Final Construction Report required in paragraph 12 of this section. In addition, similar logs and tests may be required in well CSC-2, at the discretion of EPA.

(a) Ground Water Testing

During construction of the wells (CSC-1 and CSC-2), information relating to ground water at these sites shall be obtained and submitted to EPA. This information shall include direct Total Dissolved Solids ("TDS") analysis of target injection formation water to demonstrate either the presence and characteristics of, or the lack of, any Underground Sources of Drinking Water ("USDW"s). A USDW is defined as an aquifer or its portion which supplies any public water system; or which contains a sufficient quantity of ground water to supply a public water system; and currently supplies

drinking water for human consumption; or contains fewer than 10,000 milligrams per liter TDS; and which is not an exempted aquifer (40 CFR §§144.3, 146.4).

(i) The Permittee shall provide well logs and representative ground water sample analyses from the targeted injection aquifer using method(s) approved by EPA as evidence. These anlayses shall be sufficient to confirm compatibility of the injectate with the injection formation.

(ii) EPA may require minor alterations to the construction requirements based upon the information obtained during well drilling and related operations if the proposed casing setting depths will not completely cover the base of the USDWs and the confining formation located immediately above the injection zone.

(b) Step-Rate Test ("SRT")

An SRT will be conducted on Well CSC-1 before injection is authorized, to establish maximum injection pressure. Refer to Society of Petroleum Engineering ("SPE") paper #16798 for test design and analysis. Similar testing may be required in Well CSC-2, at the discretion of EPA. The SRT will be used to establish the injection pressure limitation, in accordance with section C, paragraph 3 of this part.

(i) Prior to testing, shut in the well long enough so that the bottom-hole pressure approximates shut-in formation pressure.

(ii) Measure pressures with a down-hole pressure bomb and coordinate with a surface pressure recorder.

(iii) Use equal-length time step intervals throughout the test; these should be sufficiently long to overcome well bore storage and to achieve radial flow. Typically, use at least thirty (30) minute intervals.

(iv) Record at least three (3) time steps (data points on pressure vs. flow plot) before reaching the anticipated maximum pressure.

(v) At the end of the test, shut down pumps and record the instantaneous shut in pressure.

(c) Fall Off Pressure Test ("FOT")

To determine and to monitor formation characteristics, an FOT shall be run in the well after a radial flow regime has been established. The FOT will be

conducted in accordance with EPA guidance found in Appendix F. The Permittee shall use the test results to recalculate the Zone of Endangering Influence ("ZEI", as defined in 40 CFR §146.6) and to evaluate whether any corrective action is now required (refer to Section B of this part); a summary of the recalculation shall be included with the FOT report.

(i) Initially, the FOT shall be performed approximately six months after start of injection.

(ii) Annually thereafter, the FOT test shall be repeated and results shall be included with the quarterly report due each January, as described in Section E paragraph 5 of this part. The annual FOT should not be less than 9 months or greater than 15 months from the previous test.

(iii) Static reservoir pressure of the injection zone shall be determined and reported with the FOT report in paragraphs (i) and (ii) above.

(d) Particulate Filters may be used upstream of the well, at the discretion of the operator, to prevent formation plugging or damage from particulate matter. Include any filter specifications in the Final Construction Report required in paragraph 12 of this section, including proposed particle size along with any associated justification.

(i) For any particulate filters used, follow appropriate waste analysis and disposal practices.

6. Drilling, Work-over, and Plugging Procedures

Drilling, work-over, and plugging procedures must comply with the California Division of Oil, Gas, and Geothermal Resource's ("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; and

(b) Details and justification for open hole gravel packing.

7. Casing and Cementing

Notwithstanding any other provisions of this permit, the Permittee shall case and cement the wells to prevent the movement of fluids into or between USDWs. Cement evaluation analyses shall be performed as described in Section C paragraph

2(a)(iv) of this part. Casings shall be maintained throughout the operating life of the wells. The following approximate specifications from the permit application apply to both proposed injection wells CSC-1 and CSC-2:

(a) Conductor casing: 24-inch outside diameter ("OD") (36 lb J-55) from ground surface to approximately 40 feet below ground surface ("bgs"), cemented to surface.

(b) Surface casing: 13-3/8 inch OD (48 lb H-40) from ground surface to approximately 650 feet bgs, cemented to surface.

(c) Long String Casing: 8-5/8 inch OD (32 lb J-55) from ground surface to approximately 10 feet below the top of the target injection zone (approximately 2,020 feet for a Miocene sand completion or approximately 5,245 feet for a Cretaceous 2nd Tracy Sand completion), cemented to surface.

(d) Liner and Gravel pack screen - under-ream injection zone to 15 inch diameter, install 5.5 inch gravel pack screen, with blank 5.5 inch liner (15.5 lb J-55) from screen to liner packer.

8. Tubing and Liner Hanger Specifications

For both injection wells CSC-1 and CSC-2, injection will take place through tubing strings and a liner hanger, subject to the following approximate specifications from the permit application:

(a) Tubing: 4.5 inch OD (12.75 lb J-55) from ground surface to approximately 1,900 feet bgs for the Miocene Sand completion or 5,100 feet bgs for the Cretaceous 2nd Tracy Sand completion.

(b) Liner Hanger: A liner hanger will extend from a liner packer to the gravel pack screen. The liner packer will seal off the annulus between the 5.5 inch lower extension blank and the 8-5/8 inch casing.

9. Injection Intervals

Injection for both wells shall be permitted for either the Miocene Valley Springs Sand formation, expected to occur at depths estimated from about 2,010 feet bgs to about 2,382 feet (372 feet) or, alternatively, for the Cretaceous 2nd Tracy Sand formation, at depths estimated from about 5,235 feet bgs to about 5,502 feet bgs (267 feet). Minor alterations of the depths of injection zone intervals and therefore, the casing setting depths for CSC-1 and CSC-2 are expected to be realized upon drilling. These alterations and other rework operations that may occur later in the course of operation of the wells must be properly reported (use EPA Form 7520-12),

and the Permittee must demonstrate that each well has mechanical integrity, in accordance with Section C paragraphs 1(a) and 2 of this part, before any injection is authorized.

10. Confining Layer

Field information on the confining layer (either the Miocene or Cretaceous Confining Layer), such as its characteristics, its thickness and its local structure will be obtained during drilling of the injection wells and and shall be included in the Final Well Construction Report required in paragraph 12 of this section.

11. Monitoring Devices

The Permittee shall install and maintain in good operating condition:

(a) A tap on the discharge line between the injection pump and the wellhead for the purpose of obtaining representative samples of injection fluids; and

(b) Devices to continuously measure and record injection pressure, annulus pressure, flow rate, and injection volumes, subject to the following:

(i) Pressure gauges shall be of a design to provide:

(1) A full pressure range of 100 percent greater than the anticipated operating pressure; and

(2) A certified deviation accuracy of five (5) percent or less throughout the operating pressure range.

(ii) Flow meters shall measure cumulative volumes and be certified for a deviation accuracy of five (5) percent or less throughout the range of injection rates allowed by the permit.

12. Final Well Construction Report and Completion of Construction Notice

(a) The Permittee must submit a final well construction report, including logging, coring, and other results, with a schematic diagram and detailed description of construction, including driller's log, materials used (i.e., tubing tally), and cement (and other) volumes, to EPA within sixty (60) days after completion of either Injection Well CSC-1 or CSC-2**.**

(b) The Permittee must also submit a notice of completion of construction to EPA (see EPA Form 7520-9 in Appendix C). Injection operations may not commence until EPA has inspected or otherwise reviewed the injection wells

and notified the Permittee that it is in compliance with the conditions of the permit.

13. Proposed Changes and Workovers

The Permittee shall give advance notice to EPA, as soon as possible, of any planned physical alterations or additions to the permitted injection wells. Any changes in well construction require prior approval of EPA and may require a permit modification under the requirements of 40 CFR §§144.39 and 144.41. In addition, the Permittee shall provide all records of well workovers, logging, or other subsequent test data, including required mechanical integrity testing, to EPA within sixty (60) days of completion of the activity. Appendix C contains samples of the appropriate reporting forms. Demonstration of mechanical integrity shall be performed within thirty (30) days of completion of workovers or alterations and prior to resuming injection activities, in accordance with Section C paragraphs 1(a) and 2 of this part.

B. CORRECTIVE ACTION

Corrective action to 40 CFR §§144.55 and 146.7 may be necessary for existing wells in the Area of Review ("AOR", defined in 40 CFR §146.6) that penetrate the injection zone, or which may otherwise cause movement of fluids into USDWs. No corrective action plan is currently required, since no known wells located within the AOR penetrate the proposed zones of injection. See Appendix A, Figure 3 and Tables 1 and 2.

1. Initial ZEI re-evaluation with Field Data

Data resulting from testing performed under Section A paragraphs 4 and 5, or Section C paragraph 2, in this part will be used to confirm or modify assumptions used to calculate the original ZEI and to set the AOR. If new field data results in a ZEI larger than the AOR which includes wells penetrating the proposed zones of injection, a corrective action plan shall accordingly be proposed for approval and implemented as described in paragraph 3 of this section.

2. Annual ZEI Review

Annually, the ZEI calculation shall be reviewed, based on any new data obtained from the FOT and static reservoir pressure tests required in Section A, paragraphs 5(d) and (e) 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 5 of this part.

3. Implementation of Corrective Actions

(a) If any wells requiring corrective action are found within the modified ZEI, a list of these wells along with their locations shall be provided to EPA as soon as possible.

(b) If requested by EPA, the Permittee shall submit a plan to re-enter, plug, and abandon the wells listed in paragraph (a) above in such a manner to prevent the migration of fluids into a USDW.

(c) The Permittee may not commence corrective action activities without prior written approval from EPA.

C. WELL OPERATION

1. Demonstrations Required Prior to Injection

Injection operations may not commence until construction is complete and the Permittee has complied with following paragraphs (a) and (b):

(a) Mechanical Integrity

The Permittee shall demonstrate that all wells have and maintain mechanical integrity consistent with CFR §146.8 and with paragraph 2 of this section. The Permittee shall demonstrate that there are not significant leaks in the casing and tubing and that there is not significant fluid movement into or between USDWs through the casing wellbore annulus or vertical channels adjacent to the injection wellbore. The Permittee may not commence injection until it has received written notice from EPA that such a demonstration is satisfactory.

(b) Injectate Hazardous Waste Determination

The Permittee shall perform a hazardous waste determination on the injectate according to 40 CFR §262.11. The results of the analyses shall demonstrate that the injectate does not meet the definition of hazardous waste as defined in 40 CFR §261.

(i) A sample of the injectate shall be taken by an individual with the proper expertise and sent to a laboratory with proof of certification from the State of California. Sampling must occur quarterly or every time there's a significant change in injection fluid, and shall be reported per section D paragraph 5(b)(ii) of this part.

(ii) Operation of the injection facility is temporarily granted for the two (2) weeks following initial operations to allow for sample analyses to be performed and for the results to be submitted to EPA.

(iii) The Permittee shall maintain copies (or originals) of all records relating to the hazardous waste determination and make such records available for inspection.

(iv) The Permittee shall perform an additional hazardous waste determination whenever there is a process change or a change in fluid chemical constituents or characteristics.

2. Mechanical Integrity

(a) Mechanical Integrity Tests ("MITs")

(i) Casing/tubing annular pressure (internal MIT)

A demonstration of the absence of significant leaks in the casing, tubing and/or liner hanger shall be made by performing a pressure test on the annular space between the tubing and long string casing. This test shall be for a minimum of thirty (30) minutes at a pressure equal to or greater than the maximum allowable injection pressure. A well passes the MIT if there is less than a five (5) percent change in pressure over the thirty (30) minute period. A pressure differential of at least 350 pounds per square inch ("psi") between the tubing and annular pressures shall be maintained throughout the MIT.

(ii) Continuous pressure monitoring

The tubing/casing annulus pressure and injection pressure shall be monitored and recorded continuously to an accuracy within one (1) psi. The average, maximum, and minimum monthly results shall be included in the quarterly report to EPA unless more detailed records are requested by EPA.

(iii) Injection profile survey (external MIT)

In conjunction with the initial FOT required in Section A paragraph 5(c), a demonstration that the injectate is confined to the proper zone shall be conducted and presented by the Permittee and subsequently approved by EPA. This demonstration shall consist of a radioactive

tracer and a temperature log (as specified in Appendix E) or other diagnostic tool or procedure as approved by EPA.

(iv) Cement Evaluation Analysis

After casing is installed, or after conducting a cement squeeze job in an open hole, for any well constructed under this permit, the Permittee shall submit cementing records and cement logs that demonstrate the isolation of the injection interval and other formations from underground sources of drinking water by means of cementing the surface casing and the long string casing well bore annuli to surface. The analysis shall include a spherically-focused tool which enables the evaluation of the bond between cement and casing as well as of the bond between cement and formation. The Permittee may not commence injection until it has received written notice from EPA that such a demonstration is satisfactory.

(b) Subsequent MITs

It is the Permittee's responsibility to arrange and conduct MITs.

(i) At least once every five (5) years during the life of the well, in accordance with 40 CFR §146.8 and paragraph (a)(i) above**,** an internal pressure MIT shall be conducted on each injection well authorized under this permit. An MIT shall also be conducted within thirty (30) days from completion of any work-over, if the liner hanger is unseated, if the seal is broken at the wellhead assembly, if the construction of the well is modified, or when any loss of mechanical integrity becomes evident during operation. In addition, EPA may require that an MIT be conducted at any time during the permitted life of the wells.

(ii) At least annually for the life of the well, an injection profile survey external MIT, in accordance with 40 CFR §146.8 and paragraph (a)(ii) above, shall be conducted.

(iii) At least annually for the life of the well, an FOT shall be conducted in accordance with Section A paragraph 5(d) of this part, unless other information demonstrates the need for additional tests and/or an increased frequency of tests. 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 F contains EPA regional guidance.

(c) Loss of Mechanical Integrity

The Permittee shall notify EPA, in accordance with Part III, Section E paragraph 10 of this permit, under any of the following circumstances:

(i) The well fails to demonstrate mechanical integrity during a test, or

(ii) A loss of mechanical integrity becomes evident during operation, or

(iii) A significant change in the annulus or injection pressure occurs during normal operating conditions.

Furthermore, in the event of (i), (ii), or (iii), injection activities shall be terminated immediately and operation shall not be resumed until the Permittee has taken necessary actions to restore mechanical integrity to the well and EPA gives approval to recommence injection.

(d) Prohibition without Demonstration

After the permit effective date, injection into wells may continue only if:

(i) The well has passed an internal pressure MIT in accordance with paragraph 2(a) of this section; and

(ii) The Permittee has received written notice from EPA that the internal pressure MIT demonstration is satisfactory.

3. Injection Pressure Limitation

Maximum allowable injection pressure measured at the wellhead shall be based on the step-rate test conducted under Section C paragraph 5(b) of this part. EPA will provide the Permittee written notification of the maximum allowable injection pressure for each injection well constructed and operated under this permit, along with a minor modification of the permit under 40 CFR §144.41(e). In no case shall pressure in the injection zone during injection initiate new fractures or propagate existing fractures in the injection zone or the confining zone. In no case shall injection pressure cause the movement of injection or formation fluids into or between underground sources of drinking water.

4. Injection Volume (Rate) Limitation

(a) The injection rate shall not exceed the volume determined appropriate through the demonstrations conducted in this section. EPA will provide

written notification of the maximum injection volume allowed under this permit prior to any injection activities.

(b) The Permittee may request an increase in the maximum rate allowed in paragraph (a) above. Any such request shall be made in writing to EPA.

(c) Any request for an increase in injection rate shall demonstrate to the satisfaction of EPA that the increase in volume will not interfere with the operation of the facility, its ability to meet conditions described in this permit, change its well classification, or cause migration of injectate or pressure buildup to occur beyond the Area of Review.

5. Injection Fluid Limitation

(a) The Permittee shall not inject any hazardous waste, as defined by 40 CFR Part 261, at any time. See also paragraph 1(b) of this section.

(b) Injection fluids shall be limited to only waste fluids authorized by this permit and produced at the California Specialty Cheeses facility. No fluids shall be accepted from other sources.

(i) Any well stimulation, performed at the discretion of the operator, shall be proposed and submitted for approval prior to implementation.

(ii) Corrosion-inhibiting annular fluid shall be used and maintained during well operation.

D. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. Injection Well Monitoring Program

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 Appendix III of 40 CFR §261, unless other methods have been approved by EPA.

(a) Summary of acceptable analytic Methods:

(i) Inorganic Constitutents – appropriate USEPA methods for Major Anions and Cations (including an anion/cation balance).

(ii) Solids - USEPA Methods 160.1 and 160.2 for Total Dissolved Solids and Total Suspended Solids.

(iii) General and Physical Parameters – appropriate USEPA methods for Turbidity, pH, Conductivity, Hardness, Specific Gravity, Alkilinity, and Biological Oxygen Demand ("BOD").

(iv) Trace Metals - USEPA Method 200.8 for trace metals analysis.

(v) Volatile Organic Compounds ("VOCs") - USEPA Methods 8010/8020 or 8240.

(vi) Semi-Volatile Organic Compounds - USEPA Method 8270.

(b) Analysis of injection fluids.

Annually, or whenever there is a change in injection fluids, the following analyses shall be performed :

(i) Total Dissolved Solids ("TDS");

(ii) Major ions;

(iii) pH;

(iv) Specific Conductance;

(v) Specific Gravity;

(vi) Viscosity, density, and temperature under standard conditions.

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;

(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.

3. Monitoring Devices

(a) Continuous monitoring devices

Temperature, annular pressure, and injection pressure shall be measured at the wellhead using equipment of sufficient sensitivity and accuracy. Injection rate shall be measured in the supply line immediately before the wellhead. The Permittee shall continuously monitor and record the following parameters:

Monitoring Parameter	Frequency	Instrument
injection rate (gallons per minute)	Continuous	digital recorder
injection total volume (gallons)	Continuous	digital totalizer
injection pressure (psig)	Continuous	digital recorder
annular pressure (psig)	Continuous	digital recorder
injection fluid temperature (degrees Fahrenheit)	Continuous	digital recorder

(b) Injection Fluid Monitoring.

Injection fluids will be analyzed to yield representative data on their physical, chemical, and other relevant 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.

(c) 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.

4. Recordkeeping

The Permittee shall retain the following 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; and

(b) Information on the nature and composition of all injected fluids;

(c) Results of MITs, any other tests required by EPA, and any well work overs completed.

(d) The Permittee shall maintain copies (or originals) of all records described in paragraphs (a) through (c) above during the operating life of the well and shall make such records available for inspection at the facility.

(e) The Permittee shall only discard the records described in paragraphs (a) through (c) if:

(i) the records are either delivered to the Regional Administrator or

(ii) if written approval from the Regional Administrator to discard the records is obtained.

5. Reporting

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

(a) Monthly average, maximum, and minimum values for the continuously monitored parameters specified for the injection wells in paragraph 3(a) of this section, unless more detailed records are requested by EPA;

(b) Quarterly analyses, to be included in the next quarterly report following completion:

(i) Injection fluid characteristics for parameters specified in paragraph 3(b) of this section;

(ii) Hazardous waste injectate determination, according to Section C, paragraph 1(c)(i) of this part.

(c) 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

(d) 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 A, paragraph 5(c) of this part;

(iii) Shut-in static reservoir pressure of the injection zone, as required in Section A, paragraph 5(d) of this part;

(iv) Annual injection profile survey results as required in Section C paragraph 2(a)(iii) of this part; and

(v) Annual ZEI recalculation as required in Section B paragraph 2 of this part.

(e) To be included in the next quarterly report due in January after completion every five years, an internal MIT as required in Section C paragraph (a)(i) of this part.

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

Quarterly report forms as specified in Appendix C shall be submitted for the reporting periods by the respective due dates as listed below:

Reporting Period	Report Due
Jan, Feb, Mar	Apr 28
Apr, May, June	July 28
July, Aug, Sept	Oct 28
Oct, Nov, Dec	Jan 28

Monitoring results and all other reports required by this permit shall be submitted to the following address:

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

Copies of all reports shall also be provided to the following:

California Regional Water Quality Control Board
Central Valley Region
1685 E Street
Fresno, CA 93706

E. PLUGGING AND ABANDONMENT

1. Notice of Plugging and Abandonment

The Permittee shall notify EPA no less than sixty (60) days before conversion, workover, or abandonment of the well. EPA may require that the plugging and abandonment be witnessed by an EPA representative.

2. Plugging and Abandonment Plans

The Permittee shall plug and abandon the well(s) as provided in Appendix F, the general Plugging and Abandonment Program submitted as Attachment Q to the application, and consistent with CDOGGR requirements and 40 CFR §146.10. EPA reserves the right to change the manner in which a well will be plugged if the well is modified during its permitted life or if the well is not consistent with EPA requirements for construction or mechanical integrity. EPA may require the Permittee to estimate and to update the estimated plugging cost periodically. Such estimates shall be based upon costs which a third party would incur to plug the wells, including mud and disposal costs, with appropriate contingencies.

3. Cessation of Injection Activities

After a cessation of injection operations for two (2) years, the Permittee shall plug and abandon the inactive well(s) in accordance with the Plugging and Abandonment Plans, unless it:

(a) Provides notice to EPA;

(b) Has demonstrated that the well(s) will be used in the future; and

(c) Has described actions or procedures, satisfactory to EPA, that will be taken to ensure that the well(s) will not endanger underground sources of drinking water during the period of temporary abandonment.

4. Plugging and Abandonment Report

Within sixty (60) days after plugging any well, the Permittee shall submit a report on Form 7520-13, provided in Appendix C, to EPA. The report shall be certified as accurate by the person who performed the plugging operation and shall consist of either:

(a) A statement that the well was plugged in accordance with the Plugging and Abandonment Plans, or

(b) Where actual plugging differed from the Plugging and Abandonment Plans, a statement specifying the different procedures followed.

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 and consistent with 40 CFR §144 Subpart D, which the Director has chosen to apply.

(a) The Permittee shall post a financial instrument such as a surety bond with a standby trust agreement or arrange other financial assurance for each well constructed in the amount of $180,000, 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.

(b) The financial responsibility mechanism shall be reviewed and updated periodically, upon request of EPA. The permittee may be required to change to an alternate method of demonstrating financial responsibility which names EPA as the beneficiary. Any such change must be approved in writing by EPA prior to the change.

2. Insolvency of Financial Institution

The Permittee must submit an alternate instrument of financial responsibility acceptable to EPA within sixty (60) days after either of the following events occurs:

(a) The institution issuing the bond or financial instrument files for bankruptcy; or

(b) The authority of the trustee institution to act as trustee, or the authority of the institution issuing the financial instrument, is suspended or revoked.

Failure to submit an acceptable financial demonstration will result in the termination of this permit pursuant to 40 CFR §144.40(a)(1).

3. Insolvency of Owner or Operator

An owner or operator must notify EPA by certified mail of the commencement of voluntary or involuntary proceedings under U.S. Code Title 11 (Bankruptcy), naming the owner or operator as debtor, within ten (10) business days. A guarantor of a corporate guarantee must make such a notification if he/she is named as debtor, as required under the terms of the guarantee.

G. DURATION OF PERMIT

This permit and the authorization to inject are issued for a period of up to ten (10) years unless terminated under the conditions set forth in Part III, Section B.1 of this permit.

PART III. GENERAL PERMIT CONDITIONS

A. EFFECT OF PERMIT

The Permittee is allowed to engage in underground injection well construction and operation in accordance with the conditions of this permit. The Permittee shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of fluid containing any contaminant (as defined by 40 CFR §144.3) into underground USDWs (as defined 40 CFR §§144.3, 146.4), if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 CFR Part 141 or may otherwise adversely affect the health of persons.

Furthermore, any underground injection activity not specifically authorized in this permit is prohibited. The Permittee must comply with all applicable provisions of the Safe Drinking Water Act ("SDWA") and 40 CFR Parts 144, 145, 146, and 124. Such compliance does not constitute a defense to any action brought under Section 1431 of the SDWA, 42 U.S.C. § 300(i), or any other common law, statute, or regulation other than Part C of the SDWA. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulations. Nothing in this permit shall be construed to relieve the Permittee of any duties under all applicable laws or regulations.

B. PERMIT ACTIONS

1. Modification, Revocation and Reissuance, or Termination

EPA may, for cause or upon request from the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 CFR §§124.5, 144.12, 144.39, and 144.40. The permit is also subject to minor modifications for cause as specified in 40 CFR §144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance by the Permittee, does not stay the applicability or enforceability of any permit condition. EPA may also modify, revoke and reissue, or terminate this permit in accordance with any amendments to the SDWA if the amendments have applicability to this permit.

2. Transfers

This permit is not transferable to any person unless notice is first provided to EPA and the Permittee complies with requirements of 40 CFR §144.38. EPA may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the SDWA.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

D. CONFIDENTIALITY

In accordance with 40 CFR §§2 and 144.5, any information submitted to EPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, EPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures contained in 40 CFR §2 (Public Information). Claims of confidentiality for the following information will be denied:

1. Name and address of the Permittee, or

2. Information dealing with the existence, absence, or level of contaminants in drinking water.

E. GENERAL DUTIES AND REQUIREMENTS

1. Duty to Comply - The Permittee shall comply with all applicable UIC Program regulations and all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 CFR §144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Such noncompliance may also be grounds for enforcement action under the Resource Conservation and Recovery Act (“RCRA”).

2. Penalties for Violations of Permit Conditions - Any person who violates a permit requirement is subject to civil penalties, fines, and other enforcement action under

the SDWA and may be subject to enforcement actions pursuant to RCRA. Any person who willfully violates a permit condition may be subject to criminal prosecution.

3. Need to Halt or Reduce Activity Not a Defense - It shall not be a defense, for the Permittee in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to Mitigate - The Permittee shall take all reasonable steps to minimize and correct any adverse impact on the environment resulting from noncompliance with this permit.

5. Proper Operation and Maintenance - The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.

6. Property Rights - This permit does not convey any property rights of any sort, or any exclusive privilege.

7. Duty to Provide Information - The Permittee shall furnish to EPA, within a time specified, any information which EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to EPA, upon request, copies of records required to be kept by this permit.

8. Inspection and Entry - The Permittee shall allow EPA, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

   (a) Enter upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;

   (b) Have access to and copy, at reasonable times, any records that are kept under the conditions of this permit;

(c) Inspect and photograph at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any location.

9. Signatory Requirements - All applications, reports, or other information submitted to EPA shall be signed and certified by a responsible corporate officer or duly authorized representative according to 40 CFR §§122.22 and 144.32.

10. Additional Reporting

(a) Planned Changes – The Permittee shall give notice to EPA as soon as possible of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance - The Permittee shall give advance notice to EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Compliance Schedules - Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted to EPA no later than thirty (30) days following each schedule date.

(d) Twenty-four Hour Reporting

(i) The Permittee shall report to EPA any noncompliance which may endanger health or the environment. Information shall be provided orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The following information must be reported orally within twenty-four (24) hours:

(1) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; and

(2) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between underground sources of drinking water.

(ii) A written submission of all noncompliance as described in paragraph (c)(i) shall also be provided to EPA within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

(e) Other Noncompliance - At the time monitoring reports are submitted, the Permittee shall report in writing all other instances of noncompliance not otherwise reported. The Permittee shall submit the information listed in Part III, Section E.10(c) of this permit.

(f) Other Information - If the Permittee becomes aware that it failed to submit all relevant facts in the permit application, or submitted incorrect information in the permit application or in any report to EPA, the Permittee shall submit such facts or information within two (2) weeks of the time such facts or information becomes known.

11. Continuation of Expiring Permit

(a) Duty to Reapply - If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a complete application for a new permit at least 180 days before this permit expires.

(b) Permit Extensions - The conditions and requirements of an expired permit continue in force and effect in accordance with 5 U.S.C. §558(c) until the effective date of a new permit, if:

(i) The Permittee has submitted a timely and complete application for a new permit; and

(ii) EPA, through no fault of the Permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

APPENDIX A - PROJECT MAPS

APPENDIX B – WELL SCHEMATIC(S)

APPENDIX C – EPA REPORTING FORMS

Form 7520-7: Application toTransfer Permit

Form 7520-9: Completion of Construction

Form 7520-10: Well Completion Report

Form 7520-11: Annual Well Monitoring Report

Form 7520-12: Well Rework Record

Form 7520-14: Plugging and Abandonment Plan

APPENDIX D – TEMPERATURE LOGGING PROCEDURES
U.S.E.P.A. REGION IX

A Temperature "Decay" Log (two separate temperature logging passes) must satisfy the following criteria to be considered a valid Mechanical Integrity Test ("MIT") as specified by 40 CFR §146.8(c)(1). Variances to these requirements are expected for certain circumstances, but they must be approved prior to running the log. As a general rule, the well shall inject for approximately six (6) months prior to running a temperature decay progression sequence of logs.

1. With the printed log, provide also raw data for both logging runs (one data reading per foot depth) unless the logging truck is equipped with an analog panel as the processing device.
2. The heading on the log must be complete and include all the pertinent information, such as correct well name, location, elevations, etc.
3. The total shut-in times must be clearly shown in the heading. Minimum shut-in time for active injectors is 12 hours for running the initial temperature log, followed by a second log, a minimum of 4 hours later. These two log runs will be superimposed on the same track for final presentation.
4. The logging speed must be kept between 20 and 50 ft. per minute (30 ft/min optimum) for both logs. The temperature sensor should be located as close to the bottom of the tool string as possible (logging downhole).
5. The vertical depth scale of the log should be 1 or 2 in. per 100 ft. to match lithology logs (see 7(b)). The horizontal temperature scale should be no more than one Fahrenheit degree per inch spacing.
6. The right hand tracks must contain the "absolute" temperature and the "differential" temperature curves with both log runs identified and clearly superimposed for comparison and interpretation purposes.
7. The left hand tracks must contain (unless impractical, but EPA must pre-approve any deviations):
   (a) a collar locator log,
   (b) a lithology log:
      i. an historic Gamma Ray that is "readable", i.e. one that demonstrates lithologic changes without either excessive activity by the needle or severely dampened responses; or
      ii. a copy of an original SP curve from either the subject well or from a representative, nearby well.
   (c) A clear identification on the log showing the base of the lowermost Underground Source of Drinking Water ("USDW"). A USDW is basically a formation that contains less than 10,000 ppm Total Dissolved Solids ("TDS") and is further defined in 40 CFR §144.3.

APPENDIX E - PRESSURE FALLOFF TEST GUIDANCE

APPENDIX F - PLUGGING AND ABANDONMENT PLANS

Upon completion of injection activities the well(s) shall be abandoned according to State and Federal regulations to ensure protection of Underground Sources of Drinking Water.

APPENDIX G – SOCIETY OF PETROLEUM ENGINEERS PAPER #16798, Systematic Design and Analysis of Step-Rate Tests To Determine Formation Parting Pressure

This paper may be obtained from the Society of Petroleum Engineers.