

**MINOR MODIFICATION TO PERMIT NO. CA10910003
ISSUED TO NORTHERN CALIFORNIA POWER AGENCY**

In accordance with 40 CFR §144.41, it is understood and agreed that this permit is hereby modified to establish a maximum allowable injection pressure (MAIP) as well as a maximum allowable injection rate (MAIR), based on results of a step-rate test conducted on October 6, 2010. In addition, several clarifications to existing permit terms are included in this minor modification, based on communications with Northern California Power Agency (NCPA).

Portions of pages 15-22 and 24 of the permit are 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**):

Page 15

3. Injection Pressure Limitation

- (a) Maximum allowable injection pressure measured at the wellhead for wells STIG-1, LEC-1 and LEC-2 shall be based on the Step-Rate Test conducted under Section B paragraph 3(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).

Page 16

(i) As determined by the step-rate test conducted under Section B paragraph 3(b) of this part, injection pressure measured at any individual permitted wellhead shall not exceed seven hundred and ten (710) pounds per square inch gauge (psig).

~~(b) Permittee may continue injection into well STIG-1 at a Maximum Available Injection Pressure (MAIP) at the wellhead of 975 psi, as established while injecting under the authority of the original permit (#CA194000002), only until re-establishing the MAIP for the well by conducting a Step-Rate Test in accordance with Section B paragraph 3(b) of this part.~~

(b) 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. In

no case shall injection fluids be allowed to migrate to oilfield production wells.

4. Injection Volume (Rate) Limitation

(a) The injection rate **for any individual permitted** wells ~~LEC-1 and LEC-2~~ shall not exceed the volume determined appropriate through the demonstrations conducted in this section and justified by measured friction factors. EPA will provide written notification of the maximum injection volume allowed under this permit prior to any injection conducted after an approved SRT (see Section B.3(b)).

(i) **The injection rate shall not exceed ten (10) million gallons per month or three hundred and fifty-seven thousand (357,000) gallons per day at any time, based on the step-rate test conducted under Section B paragraph 3(b) of this part. This injection rate limitation may be reduced based on the annual review of the FOT results completed under Section B paragraph 3(c) of this part.**

~~**(b)** — Permittee may continue injection into well STIG-1 at a maximum injection rate of 200 gallons per minute (gpm), as established while injecting under the authority of the original permit (#CA194000002), only until re-establishing the maximum injection rate for the well by conducting a Step Rate Test in accordance with Section B paragraph 3(b) of this part.~~

(b) ~~(c)~~ The Permittee may request an increase in the maximum rate allowed in paragraphs (a) and ~~(b)~~ above. Any such request shall be made in writing and appropriately justified to EPA.

(c) ~~(d)~~ 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.

(d) **The injection rate shall not cause an exceedance of the injection pressure limitation established under item 3(a)(i) of this section.**

...

Page 17

...

6. **5. Tubing/Casing Annulus Requirements**

...

E. MONITORING, RECORDKEEPING, AND REPORTING OF RESULTS

1. **Injection Well Monitoring Program**

...

Page 18

...

(a) **Summary of acceptable analytic Methods:**

...

- (iii)** **General and Physical Parameters** – appropriate USEPA methods for Temperature, Turbidity, pH, Conductivity, Hardness, Specific Gravity, ~~Alkalinity~~ **Alkalinity**, and Biological Oxygen Demand (“BOD”); and Density and Viscosity (See EPA Bulletin 712-C-96-032) under standard conditions.

...

Page 19

...

3. **Monitoring Devices**

(a) **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~~ **at or near** the wellhead. The Permittee shall continuously monitor and record the following parameters at the prescribed frequency, **using the required instruments:**

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

...

Page 20

...

- (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~~ **EPA**, or
 - (ii) written approval from the Regional Administrator to discard the records is obtained.

...

Page 21

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 ~~23~~3(a) of this section;

...

- (e) To be included in the quarterly report due in January each year, the following annual analyses:

- (v) Annual ZEI recalculation for each well as required in Section ~~BC~~3(e)1 of this part.

...

Page 22

...

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

California Division of Oil, Gas, and Geothermal Resources
District 6 Office
Attn: ~~Tim Kustie~~ **District Engineer**
801 K Street, MS 20-22
Sacramento, CA 95814-3530

California Regional Water Quality Control Board
District 5 Office
Attn: ~~Diana Messina~~ **Permit Section**
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

...

Page 24

G. **FINANCIAL RESPONSIBILITY**

1. Demonstration of Financial Responsibility

...

- (c) The Permittee must provide proof to EPA of its bond rating or renewal every year by ~~March 31~~ **January 28**.

All other permit conditions remain unchanged.

This minor modification is effective on

[April 20, 2011]

[signed by]

Alexis Strauss, Director
Water Division