

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION COMMISSION**

**APPLICATION OF AGAVE ENERGY COMPANY  
FOR AUTHORITY TO INJECT, LEA  
COUNTY, NEW MEXICO**

**CASE NO. 14720**

**ORDER NO. R-13507-D**

**ORDER OF THE COMMISSION**

**THIS MATTER** comes before the New Mexico Oil Conservation Commission ("Commission") on Agave Energy Company's ("Agave") Amended Second Motion to Amend Order No. R-13507. The Commission, having conducted a hearing on October 25, 2012, in Santa Fe, New Mexico, and having considered the testimony and the record in this case, enters the following findings, conclusions and order.

**THE COMMISSION FINDS THAT:**

1. Due public notice has been given, and the Commission has jurisdiction over this case and its subject matter.

2. On January 23, 2012, the Commission issued Order No. R-13507 ("Order") authorizing Agave to drill and operate an acid gas injection ("AGI") well called the Red Hills AGI #1, in Lea County, New Mexico. Order No. R-13507 authorizes Agave to use the Red Hills AGI #1 well to dispose of treated acid gas ("TAG") containing carbon dioxide (" $\text{CO}_2$ ") and hydrogen sulfide (" $\text{H}_2\text{S}$ ") from Agave's Red Hills Gas Processing Plant into the Cherry Canyon formation at an open hole depth interval between 6,200 and 6,530 feet below the surface.

3. In the Order, the Commission imposed certain conditions on Agave including the requirement to (i) reenter the plugged and abandoned Sims #001 (API 30-025-2695), Government L Com #001 (API 30-025-25604), and Smith Federal #001 (API 30-025-027491) wells, perforate and squeeze cement across the injection zone in each well, and replug the wells in accordance with current Oil Conservation Division ("Division") requirements, and (ii) reenter the plugged and abandoned Government L Com #002 (API 30-025-26369) well, place a balanced cement plug across the injection zone, and replug the well in accordance with current Division requirements.

4. The Order provided that "Agave may request relief from the Commission in the event that it encounters problems upon reentering the plugged and abandoned wells or has new data to present to the Commission regarding the wells."

5. On May 14, 2012, Agave filed a Motion to Amend Order No. R-13507, which requested the Commission to eliminate the requirement that Agave reenter and replug the Smith Federal #001 well. On July 18, 2012, the Commission issued Order No. R-13507-A granting Agave's motion and amending Order No. R-13507 to remove the Smith Federal #001 well from the list of wells that the Commission required to be reentered and replugged.

6. On August 13, 2012, Agave filed its Amended Second Motion to Amend Order No. R-13507 requesting the Commission to (i) eliminate the requirement that Agave place a balanced plug across the injection zone in the Government L Com #002 well, (ii) eliminate the requirement that Agave reenter the Government L Com #001 well, perforate and squeeze cement across the injection zone, and replug the well, and (iii) reduce either the thirty-year life span of Agave's injection authority or the total volume of TAG to be injected over that time period.

7. Agave's motion was set for hearing before the Commission pursuant to the Commission's rules. Kaiser-Francis Oil Company, which opposed Agave's initial application, was given notice of the hearing. The case was heard by the Commission on October 25, 2012. The only testimony was presented by Agave.

8. At the hearing, Agave withdrew its request that the Commission amend the Order to reduce either the thirty-year life span of Agave's injection authority or the total volume of TAG to be injected.

9. Agave produced two witnesses at hearing, Ivan Villa and Alberto Gutierrez. Mr. Villa is Agave's engineering manager. Mr. Gutierrez, a professional petroleum geologist and hydrogeologist, is the President of Geolex, Inc. ("Geolex").

10. Mr. Villa testified that Agave will commission the Red Hills Gas Processing Plant in December of this year and commence the drilling of the Red Hills AGI #1 well in the second or third quarter of 2013. He further testified that, based on Agave's new engineering evaluation of the composition and volume of the TAG to be injected and the new modeling of the radius of the injection plume performed by Geolex, Agave withdrew the request that the Commission reduce either the thirty-year life-span of Agave's injection authority or the total volume of TAG to be injected. Mr. Villa's testimony in support of Agave's request included the following, which is also supported by certain slides in Mr. Gutierrez's PowerPoint presentation, submitted as Agave Exhibit No. 2:

a. In June of 2012, Mr. Villa performed updated calculations of the volume and composition of the gas to be processed at the Red Hills Gas Processing Plant based on his engineering assessment of new gas wells coming online and the inlet gas to be transported to the plant. His new calculations revealed that the average volume of TAG to be injected over thirty years will be 6.74 MMSCFD, rather than the 7.46 MMSCFD average indicated in Order No. R-13507, and that the composition of the TAG will be 99.8% CO<sub>2</sub> and 0.2% H<sub>2</sub>S, rather than the 95% CO<sub>2</sub> and 5% H<sub>2</sub>S ratio indicated in

the order. In response to questions, Mr. Villa indicated that there could be a variation of 0.5% to 1.0% in the TAG and H<sub>2</sub>S composition.

b. At Mr. Villa's direction, Geolex performed the required work on the Sims #001 well. Geolex successfully reentered and replugged the well. The Division has approved the replugging.

c. Also at Mr. Villa's direction, Geolex performed reentry work on the Government L Com #002 well. Despite its best efforts, Geolex was unable to reenter the well to a sufficient depth to place a balanced plug across the injection zone.

11. Mr. Gutierrez testified concerning the attempt to reenter the Government L Com #002 well and the revisions to projected injection plume based on new data. Mr. Gutierrez recommended that the Commission eliminate the requirements in Order No. R-13507 that Agave replug the Government L Com #001 well and place a balanced cement plug in the Government L Com #002. Mr. Gutierrez's recommendation is based on the following, which is set forth in his testimony and in his PowerPoint presentation:

a. Geolex spent 22 days attempting to reenter the Government L Com #002 well before concluding that, due to the condition of the wellbore, it was not possible to go deeper than 2,731 feet below the surface. Mr. Gutierrez concluded that reaching the depth necessary to place a balanced plug in the Government L Com #002 well across the injection zone is technically infeasible. Throughout the reentry process, Geolex communicated with Division representatives in the District I and Santa Fe offices, who agreed with Geolex's conclusion.

b. Geolex then submitted an alternative plugging plan for the Government L Com #002 well, which the Division has indicated will be approved. Geolex has held the alternative plugging plan in abeyance pending the Commission's ruling on Agave's motion.

c. During the reentry of the Sims #001 well, Geolex conducted injection testing in the reservoir approved by the Commission in the Order. The injection testing revealed that the capacity of the reservoir is significantly greater than Geolex originally anticipated and has greater capacity and porosity than earlier estimated. According to Mr. Gutierrez, the underpressured condition of the reservoir virtually guarantees that injected TAG will not leave the reservoir, even if it were to encounter a potential conduit.

d. Geolex conducted new modeling of the radius of the injection plume after thirty years utilizing the new injection data and the new engineering data provided by Mr. Villa. The modeling revealed that the radius of the plume after thirty years of injection is estimated to be 0.30 miles, instead of the estimated radius of 0.39 miles listed in the Order.

e. The Government L Com #001 well is located 0.72 miles east of the approved location for the Red Hills AGI #1 well. It is approximately the same distance from the Red Hills AGI #1 well as the Smith Federal #001 well.

12. Kaiser-Francis Oil Company, which opposed Agave's initial application, does not oppose Agave's motion.

**THE COMMISSION CONCLUDES THAT:**

1. The Commission is empowered to regulate the disposition of nondomestic waste resulting from the treatment of natural gas or the refinement of crude oil to protect public health and the environment. NMSA § 70-2-12(B)(22) (1978). The Commission has a statutory duty to prevent waste and protect correlative rights. NMSA § 70-2-11(A) (1978).

2. The Order provided that Agave may request relief from the Commission in the event that it encounters problems upon reentering the plugged and abandoned wells identified in the order or has new data to present to the Commission regarding those wells.

3. Agave has provided substantial evidence that it is technically infeasible for Agave to reenter the Government L Com #002 well to the depth necessary to place a balanced cement plug across the injection plume as required in the Order. The Division has approved an alternative plugging plan for the Government L Com #002 well.

4. Agave has provided substantial evidence that, based on the current, updated estimates of the injection plume, the Government L Com #001 well does not present a threat of becoming a conduit for injected TAG or otherwise presents a significant hazard to public health, the environment or correlative rights if Agave operates the Red Hills AGI #1 well in accordance with the Order.

5. The development of the Red Hills AGI #1 well and the operation of the acid gas injection program authorized in this Order will provide Agave the opportunity to obtain additional information on the injection zone that will allow the Commission to render a final decision on whether to replug the Government L Com #001 well.

**IT IS THEREFORE ORDERED THAT:**

1. The Amended Second Motion to Amend Order No. R-13507 is granted in part. Order No. R-13507 is amended to (i) remove the requirement that Agave place a balanced cement plug in the Government L Com #002 well across the injection zone, and (ii) hold in abeyance for five years the requirement that Agave reenter and replug the Government L Com #001 well.

2. The Commission adds to the Order the following conditions:

a. Agave shall proceed with its alternative plugging program for the Government L Com #002 well;

b. The requirement to reenter and replug the Government L Com #001 is delayed for five years from the date Agave commences injecting TAG into the Red Hills AGI # 1 well;

c. Six months prior to the end of the five-year period, Agave shall submit to the Commission (1) injection data covering the first four years of Agave's operation of the Red Hills AGI #1 well and, (2) an updated model of the projected scope of the injection plume after 30 years of injection, which update shall be based on the injection data and any other relevant data concerning the reservoir;

d. After submitting the injection data and updated model, Agave may renew its request that the Commission eliminate the Government L Com #001 replugging requirement;

e. Agave shall report to the Commission the drilling of any new wells within a one-mile radius of the Red Hills AGI #1 well; and

f. Agave shall report to the Commission any injection of TAG that has an H<sub>2</sub>S content exceeding 5%.

3. All other terms and conditions of Order No. R-13507 remain in force and effect.

4. The Commission retains jurisdiction over this case for the entry of such further orders as may be necessary for the prevention of waste or protection of correlative rights or upon Agave's operation of the Red Hills AGI #1 well in a manner that (i) fails to protect fresh water or (ii) is inconsistent with the requirements of this Order, whereupon the Commission may, after notice and hearing, terminate Agave's injection authority.

DONE at Santa Fe, New Mexico on the 6<sup>th</sup> of December 2012.

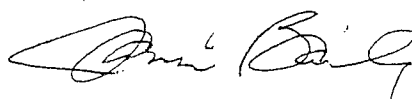
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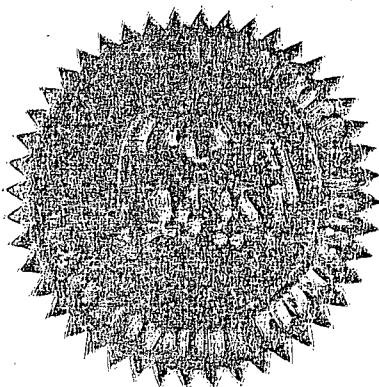
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