

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

**IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION COMMISSION FOR
THE PURPOSE OF CONSIDERING:**

**APPLICATION OF FRONTIER FIELD
SERVICES, LLC FOR APPROVAL OF
AN ACID GAS DISPOSAL WELL,
LEA COUNTY, NEW MEXICO**

**CASE NO. 14664
ORDER NO. R-13443-A**

ORDER OF THE COMMISSION

THIS MATTER comes before the New Mexico Oil Conservation Commission ("Commission") on Frontier Field Services, LLC's ("Frontier's") Motion to Amend Order No. R-13443. The Commission, having conducted a hearing on February 14, 2013, 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 August 11, 2011, the Oil Conservation Division ("Division") issued Order No. R-13443 ("Order") authorizing Frontier to drill and operate an acid gas injection well called the Maljamar AGI Well #1 in Lea County, New Mexico. Order No. R-13443 authorizes Frontier to use the Maljamar AGI Well #1 to dispose of treated acid gas ("TAG") containing carbon dioxide and hydrogen sulfide ("H₂S") from Frontier's Maljamar Gas Plant into the Lower Leonard and Wolfcamp Formations through perforations from approximately 9,300 feet to 10,000 feet below ground surface through tubing and a packer set within 100 feet above the permitted disposal interval.
3. The Division imposed certain conditions in the Order, including requirements that Frontier (i) ensure that eight identified wells, and any other wells completed in the Upper or Lower Wolfcamp Formation and located within 1.5 miles of the Maljamar AGI Well #1, are equipped with H₂S warning flags or other safety indicators, and (ii) plug any of the identified wells in which the H₂S level exceeds 100 ppm.

4. On January 11, 2013, Frontier filed its Motion to Amend Order No. R-13443 requesting the Commission to (i) eliminate the requirements that Frontier place H₂S warning flags or other safety indicators on the identified and any later-completed wells and plug any of the identified wells in which the H₂S level exceeds 100 ppm, and (ii) lower the uppermost elevation of the permitted injection interval from approximately 9,300 feet to 9,550 feet.

5. Frontier's motion was set for hearing before the Commission pursuant to the Commission's rules. The operators of the eight offset wells identified in Order No. R-13443 were given notice of the hearing by Frontier. (Frontier Exh. 1). The case was heard by the Commission on February 14, 2013.

6. Division counsel appeared at the hearing. The Division had submitted with its Pre-Hearing Statement the Pre-Filed Testimony of William V. Jones, P.E. The Division did not produce any witnesses or introduce any exhibits at the hearing.

7. Frontier presented one witness at the hearing, Alberto A. Gutierrez. Mr. Gutierrez, a professional geologist and hydrogeologist, is the President of Geolex, Inc. ("Geolex").

8. Mr. Gutierrez testified concerning the drilling and completion of the Maljamar AGI Well #1, the testing done and data obtained by Geolex during the well drilling and completion, and Frontier's determination that it would restrict its injection of TAG to the Wolfcamp Formation. Mr. Gutierrez recommended that the Commission (i) eliminate the requirement in Order No. R-13443 that Frontier ensure that the eight identified wells, and any later-completed wells, within a 1.5 mile radius of the Maljamar AGI #1 well, are equipped with H₂S warning flags or other safety indicators, (ii) eliminate the requirement that Frontier plug any of the eight wells whose H₂S level exceeds 100 ppm, and (iii) lower the uppermost elevation of the injection interval to 9,550 feet and lower the bottom elevation to 10,230 feet. His recommendations are based on the following, which is set forth in his testimony and in his Power Point Presentation (Frontier Exh. 2):

a. In its initial application, Frontier requested that the interval for the injection of TAG include the Lower Leonard Formation as a secondary injection interval, with the Wolfcamp Formation being the primary injection interval.

b. Frontier subsequently determined that the Wolfcamp interval would provide sufficient capacity for the volume of TAG to be injected over a thirty-year period. Frontier then drilled and completed the well with an actual completion injection interval of 9,550 feet to 10,130 feet below ground surface. Thus, Frontier's request that the Commission lower the upper and bottom elevations of the injection interval is based on the actual depths encountered for the Wolfcamp interval during the drilling of the well and the "as built" specifications of the Maljamar AGI #1 well.

c. During the completion of the well, Frontier communicated with the Division's District 1 Manager, E.L. Gonzales, regarding the setting depth of the packer, which is 9,452 feet below ground surface. Based on his review of the geophysical logs, Mr. Gonzales verbally approved a setting depth of 9,452 feet below ground surface, or 127 feet above the uppermost perforation. Frontier set the packer at the depth because the zone which is perforated at 9,579 feet below ground surface is part of a porous zone that extends up to 9,550 feet below ground surface, within 98 feet of the packer.

d. The offset wells identified in the Order are currently operated by other entities. Consistent with the Order, Frontier placed H₂S warning signs on all of the offset wells in November 2012.

e. Frontier has tested the H₂S levels in a number of the offset wells. Five of the wells had H₂S levels ranging from 450 ppm to 11,000 ppm prior to any injection of TAG by Frontier.

f. Frontier is not authorized to plug the offset wells as it has no legal interest in the wells. Six of the wells are economically producing oil and gas and the other two are being utilized for disposal of sour produced water and pressure maintenance. Therefore, plugging the wells would result in waste and impair the correlative rights of the well operators.

9. Mr. Gutierrez further testified that he had no objection to the language change proposed by the Division for paragraph 1 of the Order, and that he did not object to annual mechanical integrity testing and to other conditions placed on similar AGI wells such as corrosion resistant tubing, corrosion resistant packer, temperature monitoring and annular diesel fluid with corrosion inhibitors and biocides.

10. In his Pre-Filed Testimony, Mr. Jones similarly recommended that the Commission eliminate the offset well requirements and lower the uppermost elevation of the approved injection interval. Mr. Jones' recommendation is based on the following, which is set forth in his Pre-Filed Testimony:

a. The Lower Leonard, or "Upper Wolfcamp" as it is referred to in Division record, is not needed by Frontier for injection.

b. The data obtained by Frontier during the drilling and completion of the Maljamar AGI #1 well support Frontier's pre-drilling 3-D seismic data outlining the extent of the Lower Wolfcamp Formation porosity and further demonstrate that the TAG injection plume will be contained and will not extend to any of the surrounding wells.

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 § 79-2-11(A)(1978).

2. Frontier has provided substantial evidence that the uppermost elevation of the injection interval approved in Order No. R-13443 should be lowered to 9,550 feet below ground surface and that the bottom elevation of the injection interval should be designated as 10,130 feet below ground surface.

3. Frontier has provided substantial evidence that the requirement in Order No. R-13443 that Frontier plug offset wells in which the H₂S level exceeds 100 ppm is neither necessary nor practicable and would result in waste and the impairment of correlative rights.

4. Given the toxic nature of acid gas and the experience with similar wells, the Commission concludes that additional protections are necessary to ensure protection of public health, the environment and correlative rights.

IT IS THEREFORE ORDERED THAT:

1. The Motion to Amend Order No. R-13443 is granted in part. Order No. R-13443 is amended to (i) establish an authorized injection interval from 9,550 feet to 10,130 feet below ground surface, and (ii) remove the requirement that Frontier monitor the H₂S levels in the offset wells and plug offset wells in which the H₂S level exceeds 100 ppm. Ordering Paragraphs (1) and (7) of Order No. R-13443 are amended as follows:

(1) Frontier Field Services, LLC ("Frontier" or "operator") is hereby authorized to utilize its Maljamar AGI Well No. 1 (API No. 30-025-40420) located 130 feet from the South line and 1813 feet from the East line, Unit Letter O of Section 21, Township 17 South, Range 32 East, NMPM, Lea County, New Mexico, for disposal of Acid Gas and CO₂ from its gas processing plant into the Wolfcamp formation through perforations from 9579 feet to 10130 feet through tubing and a packer set within the CRA casing joint of pipe located from 9437 feet to 9467 feet. This well is not permitted for disposal of waste waters.

(7) The operator shall take all steps necessary to ensure that the disposed fluids enter only the permitted disposal interval depths and are not permitted to escape to other formations or onto the surface through this well or any surrounding wells.

2. Ordering Paragraph 9 of Order No. R-13443 is amended as follows:

(9) The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT testing procedures and schedules shall follow the requirements in Division Rule 19.15.26.11.A NMAC with

the exception that this well shall be MIT tested every year or more often as the Division and/or the U.S. Bureau of Land Management deems necessary.

3. The Commission adds to Order No. R-13443 the following conditions:

a. Frontier's authorization to inject shall automatically terminate 30 years after the date of this Order, and any extension of the injection authority shall require an application to and approval by the Commission.

b. The maximum daily injection rate of TAG is 1.8 MMSCFD.

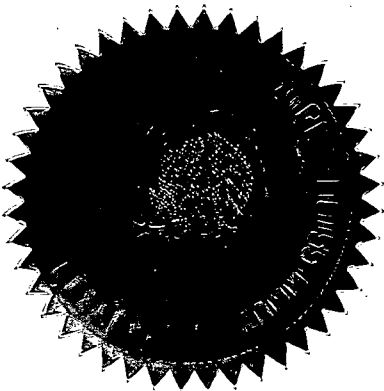
c. The well shall have corrosion-resistant tubing, a corrosion-resistant packer, a corrosion-resistant tree, and corrosion-inhibited, biocide-treated diesel annular fluid with a packer set at 9,452 feet below ground surface in a corrosion-resistant alloy joint of casing.

d. Frontier shall monitor the temperature and injection pressure of the TAG stream that it injects.

4. All other terms and conditions of Order No. R-13443 shall remain in full force and effect.

5. 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 Frontier's operation of the Maljamar 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 Frontier's injection authority.

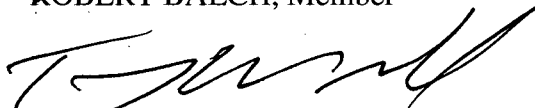
DONE at Santa Fe, New Mexico on the 19th day of March, 2013.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


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TERRY WARNELL, Member


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