

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

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

**APPLICATION OF ENSTOR GRAMA RIDGE
STORAGE AND TRANSPORTATION, LLC
FOR APPROVAL OF A GAS STORAGE WELL,
GRAMA RIDGE MORROW STORAGE UNIT,
LEA COUNTY, NEW MEXICO.**

**CASE NO. 14332
ORDER NO. R-13174**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on July 23, 2009 at Santa Fe, New Mexico, before Examiners Terry G. Warnell and Richard Ezeanyim.

NOW, on this 29th day of September 2009, the Division Director, having considered the testimony, the record and the recommendations of the Examiners,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and of the subject matter.

(2) The applicant, Enstor Grama Ridge Storage and Transportation, LLC ("Enstor" OGRID 234255), seeks authorization to convert the Grama Ridge Federal 8817 JV-P Well No. 1 (API No. 30-025-30686), (the "proposed well") located 660 feet from the North line and 1980 feet from the East line (Unit B) of Section 9, Township 22 South, Range 34 East, N.M.P.M. for injection, storage and withdrawal of natural gas in the Grama Ridge Storage Area.

(3) This case was consolidated for hearing with Case No. 14333, which is the application of Enstor for an order expanding the area subject to the Special Project Rules and Operating Procedures for the Grama Ridge Morrow Storage Unit to include Section 9, Township 22 South, Range 34 East, N.M.P.M. However, separate orders will be issued in each case.

(4) The Grama Ridge Storage Area encompasses 5 sections of land located in Lea County, New Mexico, more particularly described as follows:

Township 21 South, Range 34 East, N.M.P.M.

Section 33: All
Section 34: All

Township 22 South, Range 34 East, N.M.P.M.

Section 3: All
Section 4: All
Section 10: All

(5) Sections 33 and 34, Township 21 South, Range 34 East, N.M.P.M. and Section 3, Township 22 South, Range 34 East, N.M.P.M. are state and fee lands. These state and fee lands have been operated as part of this Storage Project pursuant to the "Unit Agreement for the Operation of the Grama Ridge Morrow Unit Area, Lea County, New Mexico" ("the Unit Agreement"). This unit agreement was approved by Division Order No. R-4473, dated January 29, 1973, as amended.

(6) By Order No. R-4491, dated March 16, 1973, the Division approved injection of purchased gas into the State GRA Well No. 1 located in Section 3, Township 22 South, Range 34 East, N.M.P.M. and into the GRA Well No. 2 located in Section 34, Township 21 South, Range 34 East, N.M.P.M. .

(7) In 1976, by amendment to the Unit Agreement, Section 33, Township 21 South, Range 34 East, N.M.P.M. was added to the Grama Ridge Storage Project on which was located an additional injection well: the State GRA Well No. 3. All injection wells on State and Fee lands were committed to the Storage Project on or before September 1, 1976.

(8) Sections 4 and 10, Township 22 South, Range 34 East, N.M.P.M. are federal lands on which two injection wells are located: the GRU Well No. 4 in Section 4 and the Government "A" Well No. 1 in Section 10. These lands and wells have been operated as part of this Storage Project pursuant to an "Agreement for Subsurface Storage of Gas, Morrow Formation, Grama Ridge Area, Lea County, New Mexico" with the Bureau of Land Management, dated November 24, 1975, as amended ("Storage Agreement"). All injection wells on Federal lands were committed to the Storage Project on or before April 15, 1981.

(9) Enstor acquired its interest in the Grama Ridge Storage Area and became the operator of this Storage project in 2005. Division records show the subject well is currently operated by BTA Oil Producers, LLC (OGRID 260297).

(10) Pursuant to the provisions of the Storage Agreement, Enstor proposes to add Section 9, Township 22 South, Range 34 East, N.M.P.M. to the Grama Ridge Storage Area. It also proposes to convert to injection the Grama Ridge Federal 8817 JV-P Well No. 1 located thereon.

(11) Enstor is entering a new Agreement for Subsurface Storage of Gas,

Morrow Formation, Grama Ridge Area, Lea County, New Mexico with the Bureau of Land Management. This agreement will add to the Storage Project, Section 9, Township 22 South, Range 34 East, N.M.P.M and will govern the injection, withdrawal and storage of gas under Sections 4, 9 and 10, Township 22 South, Range 34 East, N.M.P.M.

(12) Enstor proposes to recomplete its Grama Ridge Federal 8817 JV-P Well No. 1 located 660 feet from the North line and 1980 feet from the East line of Section 9, Township 22 South, Range 34 East, N.M.P.M. for the purpose of injection, storage and withdrawal of natural gas into the Morrow formation as part of the Grama Ridge Storage project.

(13) Enstor presented geological evidence that established:

(A) the Morrow formation under Section 9 is a typical Morrow sand that demonstrates wide variations in porosity and permeability;

(B) the Morrow Sandstones are 10 to 30 feet thick, discontinuous and less than a mile wide;

(C) the gas storage interval includes the Morrow "A" through "D" sands although only the "A" (12,844'-48') sand and "C" (13019'-39') sand are currently perforated; and

(D) the reservoir demonstrates geological containment and the Morrow formation under Section 9 is therefore a geologically suitable structure for the storage of natural gas.

(14) Enstor will squeeze the perforated Morrow Lime interval 12,677-12,699 feet.

(15) Enstor seeks authorization to inject natural gas into the Morrow formation in its Grama Ridge Federal 8817 JV-P Well No. 1 at surface pressures up to 5000 psi.

(16) The original Morrow formation bottomhole reservoir pressure in the Grama Ridge Storage Area was 7,557 psi and the operators of this storage project have successfully injected natural gas at reservoir pressures up to approximately 5,240 psi (surface equivalent pressures of up to approximately 4,000 psig).

(17) Injection at surface pressures not exceeding 5000 psig can occur in the Morrow formation, Grama Ridge Storage Area, without exceeding the reservoir parting pressure and should be approved.

(18) Enstor's application for injection into the Morrow formation in its Grama Ridge Federal 8817 JV-P Well No. 1 (Oil Conservation Division Form C-108) should be granted.

(19) Apache appeared at the hearing through counsel but presented no testimony. No other party appeared at the hearing to oppose the granting of this application.

(20) The proposed Gas Storage Project should be approved.

IT IS THEREFORE ORDERED THAT:

(1) The application of Enstor Grama Ridge Storage and Transportation, LLC for authorization to convert the Grama Ridge Federal 8817 JV-P Well No. 1 (API No. 30-025-30686) located 660 feet from the North line and 1980 feet from the East line (Unit B) of Section 9, Township 22 South, Range 34 East, N.M.P.M. for injection, storage and withdrawal of natural gas into the Morrow formation in the Grama Ridge Storage Area is hereby approved.

(2) The operator shall take all steps necessary to ensure that the injected gas enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(3) Injection shall be accomplished through carbon steel tubing installed in a packer set within 100 feet of the uppermost injection perforation in the injection well. The casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(4) The injection well shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no more than 5000 pounds.

(5) The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in the fracturing of the confining strata.

(6) Prior to commencing injection operations, the casing in the well shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of such casing.

(7) The operator shall give advance notice to the supervisor of the Division's Hobbs District Office of the date and time (i) injection equipment will be installed, and (ii) the mechanical integrity pressure tests will be conducted on the proposed injection well, so these operations may be witnessed.

(8) The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of the tubing, casing or packer in this injection well, or the leakage of water, oil or gas from or around any producing or plugged and abandoned well within the project area, and shall take all steps as may be timely and

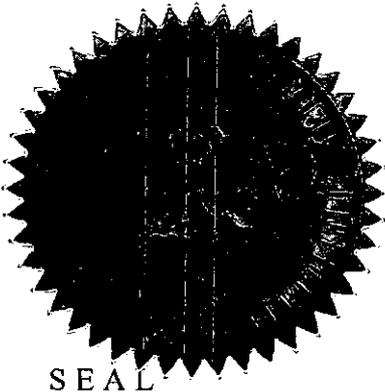
necessary to correct such failure or leakage.

(9) The proposed Gas Storage Project should be approved and be governed by Division Rules 26.8.C.

(10) The injection authority granted herein shall terminate one year after the date of this order if the operator has not commenced injection operations into the well; provided, however, the Division, upon written request by the operator, may grant an extension for good cause.

(11) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (i) to protect fresh water or (ii) in a manner consistent with the requirements of this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein, or without notice or hearing in case of emergency, subject to the provisions of NMSA 1978 Section 70-2-23.

DONE in Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P. E.
Director