

**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:**

**CASE NO. 12843
ORDER NO. R-11389-A**

**APPLICATION OF EOG RESOURCES, INC. FOR AMENDMENT OF DIVISION
ORDER NO. R-11389 TO AUTHORIZE A PRESSURE MAINTENANCE PROJECT
IN THE RED HILLS NORTH UNIT AREA, TO ESTABLISH PROCEDURES FOR
APPROVAL OF ADDITIONAL INJECTION WELLS, AND FOR QUALIFICATION
OF THE PROJECT AREA FOR THE RECOVERED OIL TAX RATE PURSUANT
TO THE NEW MEXICO ENHANCED OIL RECOVERY ACT, LEA COUNTY, NEW
MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on March 21, 2002 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 16th day of October, 2002, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

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

(2) The applicant, EOG Resources, Inc. ("EOG") seeks amendment of Division Order No. R-11389, issued in Case No. 12399 on May 26, 2000, which order approved a one-well pilot pressure maintenance project in the Red Hills North Unit Area, to authorize expansion of its operations and injection of water into the Third Bone Spring Sand of the Red Hills Bone Spring Pool (unitized interval) through new horizontal wells drilled for the purpose of injection and existing horizontal wells to be converted to injection. Further, EOG seeks to qualify the current injection operations and proposed expansion of this pressure maintenance project as a qualified Enhanced Oil Recovery Project ("EOR") to be eligible for the Recovered Oil Tax Rate pursuant to the "New Mexico Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(3) EOG proposes to drill its Red Hills North Unit Well No. 606 from a surface location 530 feet from the South line and 1650 feet from the East line (Unit O) of Section 6, Township 25 North, Range 34 East, NMPM, Lea County, New Mexico, vertically to a depth of approximately 12,200 feet, kick-off in a west-southwesterly direction, and drill horizontally a distance of approximately 7,000 feet in the Third Bone Spring Sand, bottoming the well at a target point 1400 feet from the North line and 2150 feet from the West line (Unit C) of Section 12, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico all within the Red Hills North Unit Area.

(4) EOG also seeks with this application an administrative procedure whereby additional horizontal injection wells within the Red Hills North Unit Area may be drilled and/or current horizontal producing wells may be recompleted as injection wells without the necessity of additional hearings. In as much as Division Rule 111.A adequately addresses such high angle/horizontal development within secondary recovery projects, this portion of EOG's application should be dismissed.

(5) By Order No. R-11388 issued in Case No. 12329 on May 25, 2000, the Division, upon application of EOG, approved Statutory Unitization for the Red Hills North Unit Area comprising the following-described 3,551.81 acres, more or less, of state (80.00 acres or 2.25 %) and federal (3,475.81 acres or 97.75 %) lands in Lea County, New Mexico:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM

Section 1:	Lots 2 and 3, SW/4 NE/4, SE/4 NW/4, and S/2
Section 12:	All
Section 13:	N/2 and E/2 SE/4

TOWNSHIP 25 SOUTH, RANGE 34 EAST, NMPM

Section 6:	Lots 6 and 7, E/2 SW/4, and W/2 SE/4
Section 7:	All
Section 8:	W/2 SW/4
Section 17:	SW/4 NE/4, W/2, and W/2 SE/4
Section 18:	All.

(6) Pursuant to Section 70-7-8 NMSA 1978, sufficient ratifications of the Division's statutory unitization order were obtained from the interest owners in the Red Hills North Unit Area, and the Unit became effective on July 1, 2000.

(7) Division Order No. R-11389 approved a one-well pilot secondary recovery project for the Vaca "13" Federal Well No. 2 (**API No. 30-025-32182**), which is a vertical well located 660 feet from the North line and 1980 feet from the East line (Unit B) of Section

13, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico, for the re-injection of produced water into the Third Bone Spring Sand of the Red Hills-Bone Spring Pool.

(8) At the May, 2000 hearing EOG introduced plans for future development of the Unit Area with its proposed secondary recovery operations that included a combination of vertical and horizontal wellbores. Division Order No. R-11389 designated the project as the *"Red Hills North Unit Pressure Maintenance Project."*

(9) EOG commenced injection operations in the Vaca "13" Federal Well No. 2 on July 1, 2001 but, due to the tight character of the reservoir, was unable to inject sufficient volumes to even replace production from offset wells and, therefore, the pilot pressure maintenance project using this vertical injection well was deemed unsuccessful.

(10) Information acquired from the pilot injection well shows that for secondary recovery operations to be successful in the Unit Area, significant changes or modifications in the pressure maintenance process used to produce crude oil from this reservoir are required. Due to the tight nature of this formation, injection through horizontal injection wells would serve to put a substantial volume of water over a large face in the reservoir, thereby increasing the efficiency of the pressure maintenance operations.

(11) EOG now is proposing to modify its plans as presented at the May, 2000 examiner hearing and intends to proceed to develop its pressure maintenance project by injecting through horizontal wellbores throughout the Unit Area.

(12) EOG proposes to implement pressure maintenance operations as follows:

(A) Horizontal Producing Wells: The Red Hills North Unit Area currently contains five horizontal producing wells, and EOG proposes to drill five additional horizontal producing wells in the Unit Area; and

(B) Horizontal Injection Wells: EOG proposes to immediately drill its North Red Hills Unit Well No. 606 as a horizontal injection well and thereafter to add eight additional horizontal injection wells to implement pressure maintenance operations in the Unit Area.

(13) EOG presented evidence showing that injection through the Red Hills Unit North Well No. 606 is needed in the north half of the Unit Area due to the high gas-oil ratios being encountered in wells in this area, especially its offsetting Red Hills North Unit Well No. 212 (**API No. 30-045-35363**) located 202 feet from the North line and 2189 feet from the West line (Unit C) of Section 12, Township 25 South, Range 34 East, NMPM, Lea

County, New Mexico.

(14) At the time of the hearing EOG requested that the pressure limitation of 2,450 psi included in Division Order No. R-11389 [see Ordering Paragraph No. (8) on page 6] be increased for the Red Hills North Unit Pressure Maintenance Project.

(15) A step-rate test run on the Vaca "13" Federal Well No. 2 demonstrated that injection at a surface pressure of 3,265 psi will not damage the reservoir and is needed to create a proper sweep for the proposed horizontal injection wells.

(16) Testimony presented by EOG indicates that the proposed pressure maintenance should yield an additional 17 million barrels of oil above the primary 15 million barrels that is anticipated to be produced. This represents an estimated \$369,000,000.00 worth of production over the lifetime of the project.

(17) EOG estimates that the initial cost to fully implement this project is \$40,000,000.00.

(18) The evidence presented by EOG indicates that the subject pressure maintenance project meets all criteria for approval by the Division as a qualified Enhanced Oil Recovery Project ("EOR") pursuant to the "Enhanced Oil Recovery Act" [NMSA Sections 7-29A-1 through 7-29A-5].

(19) At the request of the applicant the proposed EOR Project Area should be approved in two phases with Phase I comprised of all unitized lands in Section 1 and the N/2 of Section 12 of Township 25 South, Range 33 East, NMPM, Lea County, New Mexico, and all unitized lands in Section 6 and the N/2 of Section 7 of Township 25 South, Range 34 East, NMPM, Lea County, New Mexico and Phase II comprised of all unitized lands in the S/2 of Section 12 and the N/2 of Section 13 of Township 25 South, Range 33 East and the unitized lands in the S/2 of Section 7, and in Sections 8, 17 and 18, Township 25 South, Range 34 East, NMPM, Lea County, New Mexico.

(20) To be eligible for the EOR tax rate, prior to commencing pressure maintenance operations in each phase, the operator must request from the Division a Certificate of Qualification, which certificate will specify the area in the proposed project phase area as described above.

(21) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of a positive production response, which application shall identify the area actually benefiting from enhanced recovery operations, and identify the specific wells the

operator believes are eligible for the EOR tax rate. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the New Mexico Department of Taxation and Revenue those lands and wells which are eligible for the EOR tax rate.

(22) The injection authority granted herein for each of the proposed injection wells should terminate one year after the effective 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 thereof for good cause.

(23) The application of EOG for amendment of Division Order No. R-11389 to authorize a pressure maintenance project by water injection in the Red Hills North Unit through horizontal injection wells is reasonable, serves to effectively increase the ultimate recovery of oil and gas from the unit area, is in the best interest of conservation, exhibits sound engineering practices, prevents waste, will not impair correlative rights and should be approved.

IT IS THEREFORE ORDERED THAT:

(1) The application of EOG Resources, Inc. ("EOG") to amend Division Order No. R-11389, issued in Case No. 12399 on May 26, 2000, to authorize expansion of its operations and injection of water into the Third Bone Spring Sand of the Red Hills Bone Spring Pool (unitized interval) through new horizontal wells drilled for the purpose of injection and existing horizontal wells to be converted to injection as are subsequently permitted pursuant to the rules of the Division, is hereby approved.

(2) The application of EOG for approval to drill its Red Hills North Unit Well No. 606 as an injection well from a surface location 530 feet from the South line and 1650 feet from the East line (Unit O) of Section 6, Township 25 North, Range 34 East, NMPM, Lea County, New Mexico, vertically to a depth of approximately 12,200 feet, kick-off in a west-southwesterly direction, and drill horizontally a distance of approximately 7,000 feet in the Third Bone Spring Sand, bottoming the well at a target point 1400 feet from the North line and 2150 feet from the West line (Unit C) of Section 12, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico all within the Red Hills North Unit Area is hereby approved.

(3) Additional horizontal injection wells within the Red Hills North Unit Area may be drilled, and/or current horizontal producing wells may be recompleted as injection wells, in accordance with the provisions of Division Rules 111.A and 701.

(4) EOG's request for a special surface injection pressure for the Red Hills North

Unit Pressure Maintenance Project of 3,265 psi is hereby approved.

(5) All other provision of Order No. R-11389 shall remain in force and effect until further notice.

(6) The operator shall conduct injection in the Red Hills North Unit Pressure Maintenance Project in accordance with Division Rules No. 701 and 708 and shall submit monthly progress reports in accordance with Division Rules No. 706 and 1115.

IT IS FURTHER ORDERED THAT:

(7) The Red Hills North Unit Pressure Maintenance Project is hereby qualified as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" [NMSA Sections 7-29A-1 through 7-29A-5].

(8) The certified "project area" shall initially comprise the area located in Lea County, New Mexico approved for statutory unitization by Division Order No. R-11388, and described as follows, provided however, the Phase I and Phase II areas within the project may be independently certified by the Division to the New Mexico Taxation and Revenue Department:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM

Section 1:	Lots 2 and 3, SW/4 NE/4, SE/4 NW/4, and S/2
Section 12:	All
Section 13:	N/2 and E/2 SE/4

TOWNSHIP 25 SOUTH, RANGE 34 EAST, NMPM

Section 6:	Lots 6 and 7, E/2 SW/4, and W/2 SE/4
Section 7:	All
Section 8:	W/2 SW/4
Section 17:	SW/4 NE/4, W/2, and W/2 SE/4
Section 18:	All.

(9) To be eligible for the EOR tax rate, the operator shall advise the Division of the date and time water injection commences within each phase area in the pressure maintenance project. At such time the Division will certify that portion of the project area to the New Mexico Taxation and Revenue Department.

(10) At such time as a positive production response occurs and within five years from the date the project area was certified to the New Mexico Taxation and Revenue Department, the applicant must apply to the Division for certification of a positive

production response. This application shall identify the area actually benefiting from enhanced oil recovery operations and shall identify the specific wells eligible for the tax rate. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the EOR tax rate.

(11) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

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