

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

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

APPLICATION OF APACHE CORPORATION
FOR STATUTORY UNITIZATION, LEA
COUNTY, NEW MEXICO.

Case No. 14125

APPLICATION OF APACHE CORPORATION FOR
APPROVAL OF A WATERFLOOD PROJECT AND
TO QUALIFY THE PROJECT FOR THE RECOVERED
OIL TAX RATE, LEA COUNTY, NEW MEXICO.

Case No. 14126

ORDER NO. R-12981

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on May 15, 2008 and May 29, 2008 at Santa Fe, New Mexico, before Examiners Terry G. Warnell, Richard Ezeanyim and David K. Brooks.

NOW, on this 11th day of August, 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 these cases and of their subject matter.

(2) Case Nos. 14125 and 14126 were consolidated at the hearing for the purpose of testimony. Because the cases involve the same property and subject matter, a single order is being issued for both cases.

(3) In Case No. 14125, Apache Corporation ("Apache" or "Applicant") seeks: (i) the statutory unitization, pursuant to the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, as amended, NMSA (1978), for the purpose of instituting secondary recovery operations within the North Eunice Blinebry-Tubb-Drinkard Pool (22900), comprised of 2,480 acres of land, more or less, in Lea County, New Mexico, to henceforth be known as the West Blinebry Drinkard Unit (the "Unit Area"); and (ii)

approval of the "*Unit Agreement*" and "*Unit Operating Agreement*", which were submitted at hearing as Exhibits B and C.

(4) In Case No. 14126, applicant seeks authority:

(a) to institute a waterflood project within its proposed West Blinebry Drinkard Unit Area by the injection of water into the Blinebry and Drinkard formations within the North Eunice Blinebry-Tubb-Drinkard Pool through the conversion to injection of twenty seven (27) existing wells, shown on Exhibit A attached to this order; and

(b) to qualify this proposed project for the recovered oil tax rate pursuant to the "Enhanced Oil Recovery Act", NMSA 1978 Sections 7-29A-1 through 7-29A-5, as amended.

(5) The proposed West Blinebry Drinkard Unit Area consists of the following described Federal, State and Fee lands in Lea County, New Mexico:

Township 21 South, Range 37 East, N.M.P.M.

Section 4: Lot 15, S/2 SW/4, and SE/4
Section 8: E/2, NE/4 NW/4, and E/2 SW/4
Section 9: All
Section 16: All
Section 17: E/2 and E/2 SW/4
Section 21: E/2 NE/4

Containing a total of 2,480 acres;

Federal lands:	1040 acres	41.94 %
State lands:	640 acres	25.81 %
Fee lands:	800 acres	32.25 %

(6) The proposed vertical extent of the Unitized Formation is that interval underlying the Unit Area occurring from a depth 75 feet above the stratigraphic Blinebry marker down to the top of the Abo formation, as found on the Type Log for the Hawk B-1 Well No. 34 (API No. 30-025-36344), located 1,040 feet from the south line and 1,470 feet from the west line of Section 9, Township 21 South, Range 37 East, N.M.P.M., which is that interval correlative to the interval from 5,584-6,690 feet below the surface measured from the derrick floor as shown on the Type Log (attached to the Unit Agreement as Exhibit "C"). The Blinebry marker is defined by the New Mexico Oil Conservation Division as a depth of 5,457 feet below the surface (elevation: 3380 feet; subsea datum -2,077 feet) in the Exxon State S Well No. 20 (API No. 30-025-09969), located in the SW/4 NW/4 of Section 2, Township 22 South, Range 37 East, N.M.P.M.

(7) The proposed Unit Area lies wholly within the horizontal extent of the North Eunice Blinbry-Tubb-Drinkard Pool, which was created by Division Order No. R-8538 on November 9, 1987. Under Division Order No. R-8539-A, wells drilled and completed in the pool are developed on the Division's statewide rules, which provide for 40 acre well units, with wells to be located no closer than 330 feet to a quarter-quarter section line.

(8) No other interest owner or offset operator entered an appearance in this case, or otherwise objected to this application.

(9) Applicant presented land, geological, and engineering testimony as follows:

(a) The Unit Area contains 16 separate tracts of land owned by 10 working interest owners, 150 royalty owners, and 88 overriding royalty owners. One tract is operated by Chevron U.S.A. Inc., one tract is operated by Campbell & Hedrick, and the remaining tracts are operated by applicant.

(b) Notice was provided to all owners of interests in the Unit Area who had not ratified the Unit Agreement.

(c) Notice was also provided to all operators or working interest owners, within the one-half mile area of review surrounding all proposed injection wells as required by Division Rule 702.B(2), of applicant's intent to inject into the proposed Unitized Formation.

(d) The New Mexico State Land Office ("Land Office") and the Bureau of Land Management ("BLM") have preliminarily approved applicant's unitization proposal.

(e) As of the date of hearing, 99.4% of the working interest owners and 92.8% of the royalty owners and overriding royalty owners (including the Land Office and the BLM) had ratified or consented to the Unit Agreement. The ratifying working interest owners had also signed or ratified the Unit Operating Agreement.

(f) The Unit Operating Agreement contains a provision for carrying working interest owners, but does not contain a non-participation penalty provision for working interest owners who do not elect to participate in operations.

(g) The North Eunice Blinbry-Tubb-Drinkard Pool within the Unit Area has been reasonably defined by development, and is continuous across the Unit Area. The reservoir is complex, with two main oil producing zones, one in

the Blinebry formation and the second in the Drinkard formation. These two zones will be the primary injection zones.

(h) The Unit Area is defined by the Northeast Drinkard Unit immediately to the east, and porosity pinchouts and poor producing wells on the north, west, and southwest borders of the Unit Area

(i) The proposed tract participation formula will be in effect during all secondary recovery operations, and the formula allocates unitized substances to all tracts on a fair, reasonable, and equitable basis. Section 13 of the Unit Agreement, provides for a two phase formula; Phase I based on current BOE production and Phase II based on cumulative production. Tract participation factors in each phase are set forth in Exhibits "B-2" and "B-3" attached to the Unit Agreement.

(j) The waterflood project will be instituted with 27 injection wells, all of which are existing producing wells. As the project continues, additional injection wells may be added.

(k) The production within the Unit Area is in an advanced state of depletion, with 91 wells producing approximately 812 barrels of oil per day as of September 2007. Cumulative production within the Unit Area as of August 2007 was 14,297,974 barrels of oil and 209,390,277 mcf of gas.

(l) The estimated total capital cost associated with initiating the project is approximately \$10,500,000.00.

(m) There are four existing Blinebry and/or Drinkard waterflood units near the proposed Unit Area, which show the geological and engineering suitability of instituting a secondary recovery project in the Unit Area.

(n) Based on the performance of offset waterflood projects, and using a 0.4:1 secondary to primary recovery ratio, the projected secondary recovery from the waterflood project is estimated to be approximately 5,900,000 barrels of oil, with estimated net revenues of \$433,000,000.00 to the working interest owners.

(o) The deepest fresh water in this area is at 163 feet subsurface. Wells in the Unit Area have surface casing and cement across any fresh water zones.

(p) There are 164 active wells and 6 plugged and abandoned wells which penetrate the injection zone within the area of review. The wells are properly drilled and completed, or plugged and abandoned, so as to prevent any

movement of fluids between zones and prevent contamination of underground sources of drinking water.

(q) Each proposed injection well is expected to take up to 490 barrels of produced and recycled water per day, with makeup water from San Andres wells in the area. Initial injection pressures will conform to the Division's requirement of 0.2 psi per foot of depth to the top injection perforations, or approximately 1120 psi. If applicant desires higher injection pressures it will conduct step rate tests and seek Division approval.

The Division concludes that:

(10) Applicant already has over 75% of the working interests committed, and after final approval by the Land Office and the BLM, will have over 75% of the royalty interest committed to the proposed unit.

(11) The proposed Unit Agreement and Unit Operating Agreement, Exhibit B and C respectively, should be incorporated by reference in this order.

(12) Applicant has made a good faith effort to secure voluntary unitization within the Unit Area.

(13) The tract participation formula contained in the proposed Unit Agreement allocates costs, revenues, and unitized substances to all separately owned tracts in the Unit Area on a fair, reasonable, and equitable basis.

(14) The proposed Unit Agreement and Unit Operating Agreement prescribe a plan for unit operations which is necessary in order to efficiently manage the Blinebry-Tubb-Drinkard reservoir within the Unit Area.

(15) Statutory unitization and the adoption of applicant's proposed unitized method of operation is necessary to effectively carry on secondary recovery operations, to substantially increase the ultimate recovery of oil and gas from the Unit Area, will benefit the working interest and royalty interest owners within the proposed Unit Area, and will prevent waste and protect the correlative rights of all interest owners.

(16) The West Blinebry Drinkard Unit should be approved for statutory unitization, conditional subject to final approval by the Land Office and the BLM.

(17) Applicant proposes to institute a waterflood or secondary recovery project within the Unit Area. The Blinebry-Tubb-Drinkard reservoir within the Unit Area has been depleted to stripper status by primary operations, and it is prudent to apply

waterflood operations to extend the life of the reservoir and maximize the ultimate recovery of crude oil from the reservoir.

(18) The "project area" should comprise the entire Unit Area approved for statutory unitization.

(19) The proposed waterflood project within the project area is feasible and will, with reasonable probability, result in the recovery of substantially more oil and gas than will otherwise be recovered.

(20) The estimated additional costs of the proposed waterflood project will not exceed the estimated value of the additional oil and gas recovered by unit operations, plus a reasonable profit.

(21) The proposed waterflood project will prevent waste and protect correlative rights, and should be approved.

(22) The project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations. The 27 wells listed on Exhibit "A" should be approved for conversion and use as injection wells. However, before injecting into any of these 27 wells, the operator should squeeze all perforations above the Blinbry and below the Drinkard and any Tubb perforations. Provision should be made for the operator of the Unit Area to apply administratively for additional or different injection wells as needed within the Unit area.

(23) No area of review (AOR) remedial cementing jobs or other remedial work is required prior to implementing this project.

(24) To prevent fracturing and damage to the formation, applicant should be allowed an initial maximum surface injection pressure of 1120 psi for each injection well. Injection pressure increases should be approved only after a proper showing that such increase would not fracture the formation, and after notice is provided by the operator to offsetting operators of producing wells within the injection formation.

(25) The evidence establishes that the proposed waterflood project meets all the criteria for certification by the Division as a qualified Enhanced Oil Recovery ("EOR") Project pursuant to the "Enhanced Oil Recovery Act", NMSA 1978 Sections 7-29A-1 through 7-29A-5.

(26) To be eligible for the EOR tax rate credit, the unit operator should advise the Division when water injection commences in the project area and at such time request the Division to review project performance and recommend certification of the project to the New Mexico Department of Taxation and Revenue.

(27) The project area within the waterflood project, and/or the producing wells within the area eligible for the recovered oil tax rate, may be contracted and reduced dependent upon the evidence presented by the operator of the Unit Area in its demonstration of the occurrence of a positive production response.

IT IS THEREFORE ORDERED THAT:

(1) The application of Apache Corporation ("applicant") for the statutory unitization of 2,480.00 acres of land, more or less, in the North Eunice Blinebry-Tubb-Drinkard Pool (**22900**), in Lea County, New Mexico, to be known as the West Blinebry Drinkard Unit (the "Unit Area"), is hereby approved for statutory unitization pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21, as amended, NMSA (1978).

(2) The lands herein designated the West Blinebry Drinkard Unit Area shall be operated by Apache Corporation (OGRID No. **873**), and shall comprise the following described 2,480 acres, more or less, of Federal, State and Fee lands in Lea County, New Mexico:

Township 21 South, Range 37 East, N.M.P.M.

Section 4: Lot 15, S/2 SW/4, and SE/4
Section 8: E/2, NE/4 NW/4, and E/2 SW/4
Section 9: All
Section 16: All
Section 17: E/2 and E/2 SW/4
Section 21: E/2 NE/4

Federal lands:	1040 acres	41.94 %
State lands:	640 acres	25.81 %
Fee lands:	800 acres	32.25 %

(3) The Unitized Formation shall comprise that interval underlying the Unit Area occurring from a depth 75 feet above the stratigraphic Blinebry marker down to the top of the Abo formation, as found on the Type Log for the Hawk B-1 Well No. 34 (**API No. 30-025-36344**), located 1,040 feet from the south line and 1,470 feet from the west line of Section 9, Township 21 South, Range 37 East, N.M.P.M., which is that interval correlative to the interval from 5,584-6,690 feet below the surface measured from the derrick floor as shown on the Type Log (attached to the Unit Agreement as Exhibit "C"). The Blinebry marker is defined by the New Mexico Oil Conservation Division as a depth of 5,457 feet below the surface (elevation: 3380 feet; subsea datum -2,077 feet) in the

Exxon State S Well No. 20 (**API No. 30-025-09969**), located in the SW/4 NW/4 of Section 2, Township 22 South, Range 37 East, N.M.P.M.

(4) The Unit Agreement and Unit Operating Agreement for the West Blinebry Drinkard Unit, submitted to the Division at hearing as Exhibit B and C, respectively, are hereby incorporated by reference.

(5) The 27 wells listed on Exhibit "A" (attached to this order) are hereby approved for conversion and use as injection wells. However, before injecting into any of these 27 wells, the operator shall squeeze all perforations above the Blinebry and below the Drinkard and any Tubb perforations.

(6) Applicant, as unit operator, shall notify the Division in writing of its removal or the substitution of any other working interest owner within the Unit Area as unit operator. In the event any entity other than applicant assumes operation of the Unit Area established hereby, such entity shall comply with the terms and provisions of this order.

(7) The Unit Area established hereby shall terminate upon the plugging and abandonment of the last well in the Unit Area completed in the Unitized Formation.

(8) Applicant is hereby authorized to institute waterflood operations within the Unit Area by the injection of water into the Unitized Formation through the 27 wells listed in Exhibit "A" attached to this order.

(9) The waterflood project authorized by this order shall be known as the West Blinebry Drinkard Unit Waterflood Project.

(10) Each well is specifically permitted for injection only within the depth intervals ("permitted injection intervals") specified on Exhibit "A" attached to this order.

(11) Applicant shall take all steps necessary to ensure that the injected water enters only the permitted injection intervals and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(12) Injection into each of the 27 wells listed on Exhibit "A" shall be accomplished through 2-3/8 inch internally plastic-lined tubing installed in a seal bore assembly set within 100 feet of the uppermost injection perforation. 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.

(13) The injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressures to no more than 1,120 psig, or 0.2 psig per foot of depth to the uppermost perforation in the injection well, whichever is less.

(14) The Division Director may administratively authorize a pressure limitation in excess of the above upon a proper showing that such higher pressure will not result in the fracturing of the injection formation or confining strata, AND after notice is provided of such application to all offsetting operators of producing wells within the injection formation and located within one-half mile of the injection wells, and those operators are given 15 days in which to object to the pressure increase.

(15) The Division Director may administratively authorize additional injection wells within the Unit Area as provided in Division Rule 703.F(3).

(16) Prior to commencing injection operations into any of the wells shown on Exhibit "A", the unit operator shall pressure test the casing throughout the interval from the surface down to the proposed packer setting depth to insure the integrity of such casing. The unit operator shall perform remedial cement operations in a manner which will assure that these well bores will not serve as a conduit for migration of injection fluids to the satisfaction of the Division's Hobbs District Office.

(17) The unit operator shall give 72 hours advance notice to the supervisor of the Division's Hobbs District Office of the date and time that (i) the injection equipment will be installed, and (ii) the mechanical integrity pressure test will be conducted on the proposed injection wells, so that these operations may be witnessed by Division personnel.

(18) The unit operator shall immediately notify the supervisor of the Division's Hobbs District Office of any failure of tubing, casing, or packer in any injection well or of any leakage of water, oil, or gas from around any producing or plugged and abandoned well within the project area, and shall promptly take all steps necessary to correct such failure or leakage.

(19) The unit operator shall conduct injection operations in accordance with Division Rule Nos. 701-708, and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

(20) The injection authority granted herein for each well shown on Exhibit "A" shall terminate within one year after the date of this order if the unit operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request, may grant an extension if the request is received prior to the end of that year.

(21) Upon receipt of this order, the operator shall identify and notify the Division of all producing wells inside the unit which produce from perforations above or below the unitized interval. The operator shall obtain downhole commingling permits administratively for these wells after proper notice and the opportunity for hearing.

(22) The West Blinebry Drinkard Unit Waterflood Project is hereby certified by the Division as an "Enhanced Oil Recovery Project" pursuant to the Enhanced Oil Recovery Act, NMSA 1978 Section 7-29A-1 as amended. The project area shall comprise the entire Unit Area; provided that the area and/or the producing wells eligible for the recovered oil tax rate, may be contracted and reduced dependent upon the evidence presented by the operator of the Unit Area in its demonstration of the occurrence of a positive production response.

(23) To be eligible for the Enhanced Oil Recovery tax rate, the unit operator shall advise the Division of the date and time water injection commences in the project area, and at such time request the Division to certify the project to the New Mexico Taxation and Revenue Department.


(24) At such time as a positive production response occurs, and within five years from the date the project was certified to the New Mexico Taxation and Revenue Department, the unit operator must apply to the Division for certification of a positive production response. The application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the Enhanced Oil Recovery 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 Enhanced Oil Recovery tax rate.

(25) This order does not relieve the unit operator of responsibility should its operations cause any damage or threat of damage to fresh water, human health or the environment, nor does it relieve the operator of responsibility for complying with applicable Division rules or other applicable federal, state, or local laws or regulations.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


MARK E. FESMIRE, PE
Director

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