

**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. 14982

**APPLICATION OF SUNDOWN ENERGY, LP FOR
STATUTORY UNITIZATION,
LEA COUNTY, NEW MEXICO.**

CASE NO. 14983

**APPLICATION OF SUNDOWN ENERGY, LP FOR
AUTHORIZATION TO INJECT FOR
WATERFLOOD PROJECT OPERATIONS,
LEA COUNTY, NEW MEXICO.**

ORDER NO. R-13731

ORDER OF THE DIVISION

BY THE DIVISION:

These cases came on for hearing at 8:15 a.m. on May 16, 2013, at Santa Fe, New Mexico, before Examiner David K. Brooks.

NOW, on this 13th day of August, 2013, 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 these cases and their subject matter.

(2) Cases Nos. 14982 and 14983 were consolidated for hearing. Because the cases involve the same property and subject matter, a single order is being issued for both cases.

(3) In Case No. 14982, Sundown Energy, LP ("Applicant") seeks statutory unitization, pursuant to NMSA 1978 Sections 70-7-1 through 70-7-21, as amended ("the Statutory Unitization Act"), of its proposed **Bobbi State Waterflood Unit** (the "Unit" or "the proposed Unit"), comprising 1,120 acres, more or less, of State of New Mexico

lands, for the purpose of instituting secondary recovery operations by waterflooding, in the West Arkansas Junction-San Andres Pool (Pool Code 2503), and approval of the proposed Unit Agreement and Unit Operating Agreement, which were submitted as Applicant's Exhibits Nos. 1 and 6, respectively, in these cases.

- (4) The proposed Unit Area consists of the following described lands:

TOWNSHIP 18 SOUTH, RANGE 36 EAST, NMPM, LEA COUNTY

Section 20: All
Section 28: NW/4
Section 29: N/2

consisting of 1,120 acres, more or less, of State of New Mexico lands.

(5) The vertical extent of the proposed Unitized Formation is the interval within the San Andres formation from 100 feet above to 100 feet below the stratigraphic equivalent of the interval from 5,086 feet to 5,577 feet below the surface on the Compensated Neutron – Formation Density Log of the Bobbi State Well No. 3 (API No. 30-025-26954), located 330 feet from the South line and 2310 feet from the East line (Unit N) of Section 20, Township 18 South, Range 36 East, NMPM, in Lea County, New Mexico.

(6) In Case No. 14983, Applicant seeks approval of a waterflood project involving the injection of produced water into the San Andres formation, within the Unit Area, initially through two existing wells (one an existing producing well and the other a former producing well now plugged and abandoned), which Applicant proposes to convert to injection, as follows:

State of New Mexico W Well No. 2 (API No. 30-025-26605), located 660 feet from the North and West lines (Unit D) of Section 28, Township 18 South, Range 36 East, in Lea County New Mexico.

Bobbi Well No. 4 (API No. 30-025-27586), located 1650 feet from the South line and 990 feet from the West line (Unit L) of Section 20, Township 18 South, Range 36 East, in Lea County New Mexico.

(7) All owners of interests within the proposed Unit, and all affected persons in all spacing units within the one-half mile area of review (AOR) of each of the proposed injectors, were notified of these applications and of the hearing. No party appeared at the hearing to oppose these applications.

(8) Applicant appeared at the hearing through counsel and presented testimony and exhibits as follows:

- (a) The proposed Unit Area consists of 1,120 acres of exclusively State lands, comprising the proposed **Bobbi State Waterflood Unit**, which has been preliminarily approved by the Commissioner of Public Lands.
- (b) Applicant requests statutory unitization of the proposed Unit and approval of the Unit Agreement (admitted at the hearing as Exhibit 1) and Unit Operating Agreement (admitted as Exhibit 6).
- (c) There are 30 working interest owners in the Unit Area, one royalty owner, and 14 overriding royalty owners. Applicant presently owns 81% of the working interest and has entered into agreements or is negotiating to acquire additional working interests. Preliminary approval by the Commissioner of Public Lands together with approvals already obtained from owners of overriding royalty owners constitute approval by more than 75% of the non-cost bearing interests.
- (d) Applicant submitted a unitization proposal to all working interest owners whose whereabouts were ascertained, and has made offers to purchase the interests of those owners.
- (e) Applicant has given notice of this Application and of the hearing to all owners of interests in the Unit Area, and to all owners of lands within the AOR surrounding each of the proposed injection wells who are "affected persons" under Division rules. No one has indicated any objection to the granting of the proposed Application.
- (f) Nine working interest owners were unlocatable and were served with notice by publication.
- (g) The method provided for allocation of costs and revenues among tracts included in the Unit Area, as the proposed Unit Agreement (40% cumulative primary production; 30% existing wellbores; 5% 2012 production and 25% acreage) is fair and reasonable.
- (h) The San Andres reservoir which constitutes the Unitized Formation, as defined in the Unit Agreement, is continuous throughout the Unit Area, and is an attractive prospect for secondary recovery by waterflooding.
- (i) Applicant proposes a "peripheral" waterflood operation involving, initially, two injection wells located relatively low structurally in the injection formation.
- (j) The primary source of the injection water will be produced water from Delaware and San Andres wells in the vicinity. These waters are compatible with the formation waters.

- (k) One of the proposed injection wells, the State of New Mexico W Well No. 2, is currently producing. Casing and cementing in this well is considered adequate for conversion to injection, and downhole workover for injection will be limited to installation of 2 3/8-inch plastic coated tubing and setting a packer. Injection will be through existing perforations at 5,320 to 5,584 feet.
- (l) The other proposed injection well, the Bobbi No. 4, is currently plugged and abandoned. Workover for injection will also include drilling out the plugs and squeezing additional cement behind the existing production string casing so as to provide a cement barrier from the base of the surface casing to bottom hole. Injection will be through existing perforations at 5,286 to 5,572 feet.
- (m) Injection rate will average 500 barrels of water per day, with a maximum of 1,000 barrels per day. Surface injection pressures will average 1,200 psig and will not exceed 2,500 psig unless and until a demonstration is made by step-rate test that higher injection pressures will not cause fracturing. Applicant requests that the order issued in this case include a provision for subsequent administrative approval of increased injection pressure limits upon submission of suitable demonstration.
- (n) The proposed waterflood operation is economically and technically feasible.
- (o) Applicant expects that secondary production will at least equal primary production from the Unit Area, and the value of secondary production will exceed the costs of the proposed operations.
- (p) The proposed waterflood operation will result in recovery of substantially more hydrocarbons from the pool and the Unit than would otherwise be recovered, the value of which will exceed unit costs plus a reasonable profit, and will benefit both working interest and royalty interest owners in the Unit Area.
- (q) The Ogallala fresh water aquifer overlies the Unit Area, and is found at depths from 54 to 160 feet below the surface. The only fresh water wells in the vicinity produce from these depths
- (r) All plugged and abandoned wells that penetrate the Unitized Formation within the half-mile AOR of each proposed initial injection well are properly plugged and abandoned, and no remedial work is required on these wells to enable safe operation of the project.
- (s) There are no faults connecting the proposed unitized interval to any fresh water zone, or otherwise affecting the unitized interval.

The Division concludes as follows:

(9) Unitized management, operation and further development of the Unit Area are necessary to effectively carry on enhanced recovery operations, in order to substantially increase the ultimate recovery of oil from the Unit Area.

(10) The proposed method of enhanced recovery operations within the Unit Area, as described in this Order, is feasible, will prevent waste, and will result, with reasonable probability, in the recovery of substantially more hydrocarbons from the unitized portion of the pool than would otherwise be recovered.

(11) The estimated additional costs of the proposed operations will not exceed the estimated value of the additional hydrocarbons recovered plus a reasonable profit.

(12) Unitization and implementation of enhanced recovery operations in the Unit Area, as described in the Unit Agreement, the Unit Operating Agreement and in this Order, will benefit the working interest and royalty interest owners within the proposed Unit Area, and will protect correlative rights of all parties.

(13) Applicant has made a good faith effort to secure voluntary unitization of the Unitized Formation within the Unit Area.

(14) The provisions of the proposed Unit Agreement and Unit Operating Agreement are fair, reasonable and equitable; contain satisfactory provisions with respect to all of the matters required by NMSA 1978 Section 70-7-7, as amended; and should be incorporated by reference into this order. The participation formula contained in the Unit Agreement allocates the produced and saved, unitized hydrocarbons to the separately owned tracts in the Unit Area on a basis that is fair, reasonable and equitable under the circumstances.

(15) This Order creating a unit comprising the Unit Area and providing for the unitization and unitized operation of the Unit Area upon the terms and conditions approved herein is necessary to protect and safeguard the respective rights and obligations of the working interest owners and the royalty interest owners in the Unit Area.

(16) As of the hearing date, Applicant, as owner of at least 81% of the working interest, had voluntarily committed its interests to the Unit. However, it was not shown that a second working interest owner has ratified the Unit, as required by NMSA 1978 Section 70-7-8.

(17) Although Applicant's witness stated that the proposed Unit had been approved by more than 75% in interest of the owners of non-cost bearing interests, evidence to that effect in the form of actual ratifications was not presented.

(18) Accordingly, this order should be made contingent upon final, written approval of the plan of unit operations by at least one other owner of a working interest in the Unit Area and by the owners of at least 75% of the production or proceeds thereof that will be credited to interests which are free of cost, such as royalties, overriding royalties and production payments.

(19) Subject to the foregoing paragraph, the **Bobbi State Waterflood Unit** should be approved for statutory unitization in accordance with the Unit Agreement and Unit Operating Agreement.

(20) **Sundown Energy, LP (OGRID 232611)** should be designated as the operator of the Unit.

(21) The San Andres reservoir within the Unit Area has been so depleted that it is prudent to apply enhanced recovery techniques, as described in this Order, to maximize the ultimate recovery of crude oil from the Unit Area, and this application for approval has not been prematurely filed either for economic or technical reasons.

(22) The proposed waterflood project, as described in this Order, will prevent waste, protect correlative rights, and accordingly should be approved and called the **Bobbi State Waterflood Project**.

(23) An examination of all wellbores within one half-mile of each of the proposed injection wells indicates that all wells in the AOR that have penetrated the Unitized Formation are properly cased and cemented to prevent vertical migration of injected fluids. Accordingly, no remedial work on wells in the AOR is required prior to commencement of injection.

(24) The proposed injection operation will not pose a threat to protectable underground sources of drinking water.

IT IS THEREFORE ORDERED THAT:

(1) The application of Sundown Energy, LP for the statutory unitization of 1,120 acres, more or less, of State of New Mexico lands in Lea County, New Mexico, to be known as the **Bobbi State Waterflood Unit** (the Unit), is hereby approved pursuant to the Statutory Unitization Act, NMSA 1978, Sections 70-7-1 through 70-7-21, as amended.

(2) The Unit Area shall consist of the following described lands:

TOWNSHIP 18 SOUTH, RANGE 36 EAST, NMPM, LEA COUNTY

Section 20: All
Section 28: NW/4
Section 29: N/2

(3) The Unitized Formation shall consist of the interval within the San Andres formation from 100 feet above to 100 feet below the stratigraphic equivalent of the interval from 5,086 feet to 5,577 feet below the surface on the Compensated Neutron – Formation Density Log of the Bobbi State Well No. 3 (API No. 30-025-26954), located 330 feet from the South line and 2310 feet from the East line (Unit N) of Section 20, Township 18 South, Range 36 East, NMPM, in Lea County, New Mexico.

(4) This Order shall not be effective until the plan of unit operations provided herein has been approved in writing by at least one other owner of a working interest in the Unit Area in addition to Applicant, and by the owners of at least 75% of the production or proceeds thereof that will be credited to interests which are free of cost such as royalties, overriding royalties and production payments [NMSA 1978 §70-7-8 (1975)], and the Division has made a finding in a supplemental order that the plan for unit operations has been so approved. The operator of the Unit shall comply with the requirements of this paragraph not later than one year from the date of issuance of this order, or seek an extension of time from the Division Director for good cause demonstrated by satisfactory evidence.

(5) The proposed UNIT AGREEMENT and UNIT OPERATING AGREEMENT, admitted as EXHIBITS 1 and 6, respectively, at the hearing of these cases, are hereby approved and incorporated into this Order by reference.

(6) **Sundown, LP [OGRID No. 232611]** (Operator) is hereby designated the operator of the Unit.

(7) The Operator shall notify the Division in writing of its removal or the substitution of any other working interest owner within the Unit Area as operator, or of the transfer or assignment of its entire remaining working interest in the Unit Area.

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

IT IS FURTHER ORDERED THAT:

(9) Operator is hereby authorized to institute waterflood operations within the Unit Area initially by the injection of produced water into the Unitized Formation through the following wells:

State of New Mexico W Well No. 2 (API No. 30-025-26605), located 660 feet from the North and West lines (Unit D) of Section 28, Township 18 South, Range 36 East, in Lea County New Mexico.

Bobbi Well No. 4 (API No. 30-025-27586), located 1650 feet from the South line and 990 feet from the West line (Unit L) of Section 20, Township 18 South, Range 36 East, in Lea County New Mexico.

(10) Operator shall take all steps necessary to ensure that the injected water 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.

(11) Injection into each of the wells identified above shall be accomplished through plastic coated tubing installed in a packer set within 100 feet of the uppermost injection perforation or casing shoe. 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.

(12) The injection wells or pressurization system shall be equipped with pressure control devices or acceptable substitute that will limit the surface injection pressure to no more than **1,057 pounds per square inch (psi)**, while injecting water.

(13) The Division Director may administratively authorize pressure limitations in excess of that above upon a showing by the operator that such higher pressures will not result in the fracturing of the injection formation or confining strata.

(14) The Division Director may administratively authorize additional injection wells within the Unit Area as provided in Division Rule 19.15.26.8.A NMAC.

(15) Prior to commencement of injection operations, the casing in each injection 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. Mechanical integrity tests (MITs) shall be conducted at least once every five years thereafter.

(16) The Operator shall give at least 48 hours 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 each proposed injection well, so that these operations may be witnessed.

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

(18) The Operator shall conduct injection operations in accordance with Division Rules No. 19.15.26.1 through 19.15.26.15 NMAC, and shall submit monthly progress reports in accordance with Division Rules No. 19.15.26.11.B, and 19.15.7.8.D.

(19) The injection authority granted herein shall terminate two years after the date of this order if the Operator has not commenced injection operations into at least one of the herein-authorized injection wells; provided, however, the Division, upon written request filed with the Division's Santa Fe Office prior to the termination date herein

provided, may grant an extension for good cause. The injection authority shall also terminate *ipso facto*, one year after injection operations into all the wells in the Unit Area have ceased.

(20) The project authorized by this order shall be known as the **Bobbi State Waterflood Project**.

(21) The injection authority granted under this order is **not** transferable except upon Division approval. The Division may require the Operator to demonstrate mechanical integrity of each injection well that will be transferred, prior to approving transfer of authority to inject.

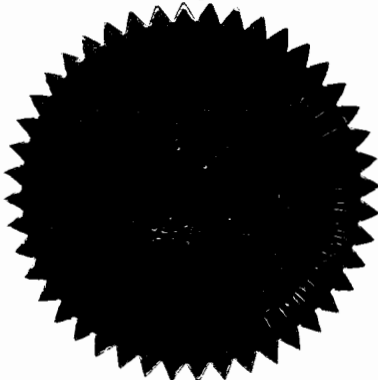
(22) The Division may revoke this injection permit at any time after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

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

(24) Upon failure of the Operator to conduct operations (1) in such manner as will protect fresh water or (2) in a manner consistent with the requirements in this Order, the Division may, after notice and hearing, (or without notice and hearing in event of an emergency, subject to the provisions of NMSA 1978 Section 70-2-23), terminate the injection authority granted herein.

(25) Jurisdiction is hereby 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.



SEAL

**STATE OF NEW MEXICO
OIL CONSERVATION DIVISION**

JAMI BAILEY
Director