

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

**HIXON**

CASE NO. 1665  
Order No. ~~B-1111~~

APPLICATION OF SUNRAY MID-CONTINENT  
OIL COMPANY FOR AN ORDER AUTHORIZING  
AN LPG-GAS-WATER INJECTION PROJECT  
IN THE BISTI-LOWER GALLUP OIL POOL IN  
SAN JUAN COUNTY, NEW MEXICO, AND FOR  
THE PROMULGATION OF SPECIAL RULES  
AND REGULATIONS GOVERNING SAID  
PROJECT

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 12, 1959, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 5th day of June, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Sunray Mid-Continent Oil Company, is the operator, under an underwriting agreement pending unitization, of the following-described acreage in the Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico:

TOWNSHIP 25 NORTH, RANGE 12 WEST, NMPM

|                       |                                    |
|-----------------------|------------------------------------|
| Section 3:            | SW/4                               |
| Sections 4 and 5:     | All                                |
| Section 6:            | E/2, SW/4, S/2 NW/4, and NE/4 NW/4 |
| Sections 7, 8, and 9: | All                                |
| Section 10:           | NW/4                               |
| Section 16:           | All                                |
| Section 17:           | N/2, SE/4, N/2 SW/4, and SE/4 SW/4 |
| Section 18:           | NE/4, N/2 NW/4, and N/2 SE/4       |
| Section 20:           | NE/4 and NE/4 NW/4                 |
| Section 21:           | N/2, N/2 SE/4, and NE/4 SW/4       |

RECEIVED  
FEB 14 1986  
OIL CON. DIV.  
DIST. 3

Case No. 1665  
Order No. R-1414

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM

Section 31: S/2 N/2, SE/4, N/2 SW/4, and SE/4 SW/4  
Section 33: S/2 SW/4

(3) That the applicant is the operator of the Sunray Mid-Continent Oil Company Federal "C" Gas Injection Project, which project was authorized by Commission Order No. R-1315 and comprises the following-described acreage:

TOWNSHIP 25 NORTH, RANGE 12 WEST, NMPM

Section 6: NE/4 NW/4, S/2 NW/4, NE/4 and the S/2  
Section 7: N/2 and the SE/4

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM

Section 31: N/2 SW/4, SE/4 SW/4 and the SE/4

Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico.

(4) That said Order No. R-1315 authorized the injection of gas into one well, namely the Sunray Mid-Continent Federal "C" Well No. 18, located in the SW/4 NE/4 of Section 7, Township 25 North, Range 12 West, NMPM, and promulgated special rules and regulations governing the operation of said project.

(5) That the applicant, Sunray Mid-Continent Oil Company, seeks an order amending said Order No. R-1315, to enlarge the area governed by the special rules and regulations for the project to include all of that area described in Finding No. 2 of this order and further, to authorize, in addition to the above-described gas injection well and the two water injection wells authorized by Commission Order No. R-1413, the conversion for injection purposes of the following wells:

LIQUEFIED PETROLEUM GAS (LPG) INJECTION  
FOLLOWED BY GAS INJECTION

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 4  
SW/4 NE/4, Section 6, Township 25 North, Range 12 West

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 13  
SW/4 NW/4, Section 5, Township 25 North, Range 12 West

Amerada Petroleum Corporation  
Gle-Na-Nup-Pah Well No. 1  
SW/4 SE/4, Section 5, Township 25 North, Range 12 West

Phillips Petroleum Company  
Benally Well No. 1  
SW/4 SW/4, Section 5, Township 25 North, Range 12 West

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 10  
SW/4 SE/4, Section 6, Township 25 North, Range 12 West

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 14  
SW/4 NE/4, Section 8, Township 25 North, Range 12 West

GAS INJECTION ONLY

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 7  
SW/4 SE/4, Section 31, Township 26 North, Range 12 West

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 16  
SW/4 NW/4, Section 8, Township 25 North, Range 12 West

El Paso Natural Gas Products Company  
Benally Well No. 1  
SW/4 NE/4, Section 5, Township 25 North, Range 12 West

Amerada Petroleum Corporation  
Salina White Well No. 1  
SE/4 SW/4, Section 8, Township 25 North, Range 12 West

(6) That the applicant further proposes that special rules and regulations be promulgated to govern the operation of said project, which rules would provide for:

(a) The conversion of additional wells to injection wells without notice and hearing, subject to administrative approval by the Commission.

(b) The transfer for allowables from injection wells to producing wells within the project area.

(c) The transfer of allowables from wells which have been shut-in for observation, or to increase the efficiency of the project, to other wells within the project area.

(d) Operation of the wells in the project on a net gas-oil ratio basis giving allowance for gas injected.

(e) Such other rules and regulations as are deemed appropriate by the Commission.

(7) That the applicant has established by a preponderance of the evidence that approval of the subject application will prevent waste and result in greater ultimate recovery of oil from the Bisti-Lower Gallup Oil Pool.

(8) That the applicant's proposal to convert the several wells described in Finding No. 5 to LPG-Gas Injection and Gas Injection should be approved.

(9) That special rules and regulations governing the proposed LPG-Gas-Water injection project area in the Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico, should be promulgated.

(10) That Order No. R-1315, establishing the Sunray Mid-Continent Oil Company Federal "C" Gas Injection Project and promulgating special rules and regulations therefor should be superseded.

IT IS THEREFORE ORDERED:

(1) That Commission Order No. R-1315, dated December 31, 1958, be and the same is hereby superseded.

(2) That the applicant, Sunray Mid-Continent Oil Company, be and the same is hereby authorized to operate a liquefied petroleum gas-gas-water injection project in the Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico, subject to the special rules and regulations for said injection project as hereinafter set forth.

(3) That the applicant be and the same is hereby authorized to convert, for the purpose of injecting liquefied petroleum gas followed by gas, the following-described wells:

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 4  
G SW/4 NE/4, Section 6, Township 25 North, Range 12 West, NMMPM

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 13  
SW/4 NW/4, Section 5, Township 25 North, Range 12 West, NMMPM

Amerada Petroleum Corporation  
Gle-Na-Nup-Pah Well No. 1  
SW/4 SE/4, Section 5, Township 25 North, Range 12 West, NMMPM

Phillips Petroleum Company  
Benally Well No. 1  
SW/4 SW/4, Section 5, Township 25 North, Range 12 West, NMMPM

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 10  
SW/4 SE/4, Section 6, Township 25 North, Range 12 West, NMMPM

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 14  
G SW/4 NE/4, Section 8, Township 25 North, Range 12 West, NMMPM

Case No. 1665  
Order No. R-1414

(4) That the applicant be and the same is hereby authorized to convert, for the purpose of injecting gas, the following-described wells:

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 7  
SW/4 SE/4, Section 31, Township 26 North, Range 12 West, NMPM

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 16  
SW/4 NW/4, Section 8, Township 25 North, Range 12 West, NMPM

El Paso Natural Gas Products Company  
Benally Well No. 1  
SW/4 NE/4, Section 5, Township 25 North, Range 12 West, NMPM

Amerada Petroleum Corporation  
Salina White Well No. 1  
SE/4 SW/4, Section 8, Township 25 North, Range 12 West, NMPM

Sunray Mid-Continent Oil Company  
Federal "C" Well No. 18  
SW/4 NE/4, Section 7, Township 25 North, Range 12 West, NMPM

(5) That the interval of injection for the above-described LPG-gas and gas injection wells shall include the three main sands of the Lower Gallup formation.

(6) That special rules and regulations governing the operation of the Central Bisti Injection Project, Bisti-Lower Gallup Oil Pool, San Juan County, New Mexico, be and the same are hereby promulgated as follows, effective June 1, 1959.

SPECIAL RULES AND REGULATIONS FOR THE  
SUNRAY MID-CONTINENT OIL COMPANY CENTRAL  
BISTI LPG-GAS-WATER INJECTION PROJECT

RULE 1. The project area of the Sunray Mid-Continent Oil Company Central Bisti LPG-Gas-Water Injection Project shall comprise that area described as follows:

TOWNSHIP 25 NORTH, RANGE 12 WEST, NMPM

|                       |                                    |
|-----------------------|------------------------------------|
| Section 3:            | SW/4                               |
| Sections 4 and 5:     | All                                |
| Section 6:            | E/2, SW/4, S/2 NW/4, and NE/4 NW/4 |
| Sections 7, 8, and 9: | All                                |
| Section 10:           | NW/4                               |
| Section 16:           | All                                |
| Section 17:           | N/2, SE/4, N/2 SW/4, and SE/4 SW/4 |
| Section 18:           | NE/4, N/2 NW/4, and N/2 SE/4       |
| Section 20:           | NE/4 and NE/4 NW/4                 |
| Section 21:           | N/2, N/2 SE/4, and NE/4 SW/4       |

TOWNSHIP 26 NORTH, RANGE 12 WEST, NMPM

Section 31:

S/2 N/2, SE/4, N/2 SW/4, and SE/4 SW/4

Section 33:

S/2 SW/4

**RULE 2.** The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in or are used as injection wells.

**RULE 3.** Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio or shut-in for pressure regulation, control of pattern or sweep efficiencies, to observe changes in pressures or changes in characteristics of reservoir liquids, or progress of sweep.

**RULE 4.** The project allowable may be produced from any well or wells in the project area in any proportion, subject to the limitations set forth in Rule 8, provided that the rate of production is consistent with the efficient operation of the Project and provided further that no well shall produce in excess of two times the top unit allowable for the Bisti-Lower Gallup Oil Pool, or 200 barrels per day, whichever is greater.

**RULE 5.** The allowable assigned to any injection well, which allowable is to be transferred to any well or wells in the project area for production, shall in no event exceed the producing capacity of the well prior to conversion to injection, as determined by the testing procedure prescribed by Rule 7. Conversion of producing wells to injection, or the drilling of additional wells for injection, shall be done only after approval of same by the Secretary-Director of the Commission. To obtain such approval, the Project operator shall file proper application with the Commission, which application shall include the following:

- (1) A plat showing location of proposed injection well, all wells within the project area and offset operators, locating their off-setting wells to the project area.
- (2) A schematic drawing of the proposed injection well which fully describes the casing, tubing, perforated interval, and depths and showing that injection of gas will be confined into the Bisti-Lower Gallup formation.
- (3) A letter stating that all offset operators to the project area have been furnished a complete copy of the application and the date of the notification.

The Secretary-Director may approve the proposed injection well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval provided waivers of objection are received from all offset operators.

RULE 6. The allowable assigned to any well which is shut-in or is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event exceed the producing capacity of the well prior to such shut-in or curtailment as determined by the testing procedure prescribed by Rule 7.

RULE 7. The allowable assigned to any well which is used for the purpose of injection, or which is shut-in or curtailed in accordance with Rule 3, shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well shall be produced in the same manner and at a constant rate. In no event shall a well receive an allowable greater than its ability to produce during such test, or greater than top unit allowable for the pool at the time of such test multiplied by the well's acreage factor, or greater than the current top unit allowable for the pool during the month of transfer, multiplied by the well's acreage factor, whichever of the three is less. The project operator shall notify all operators offsetting the Project, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission, if they so desire.

RULE 8. No well in the project area shall be assigned any allowable transferred from any other well or wells in the project area unless and until said well has been approved by the Commission as a duly authorized "Transfer Well." To receive approval for any such Transfer Well, the Project operator shall file application with the Secretary-Director of the Commission for permission to transfer allowable to the well, setting forth therein the well's current allowable and the maximum allowable which will be assigned to the well. Copies of the application shall be provided to the operator of each well offsetting the proration unit on which the transfer well is located. The Secretary-Director may designate the well as a Transfer Well subject to the maximum expected allowable for the well if, within 20 days after receiving the application, no objection to the designation is received. The Secretary-Director may grant immediate designation as a Transfer Well provided waivers of objection are received from all such offset operators.

RULE 9. The allowable assigned to any well in the Project shall be based upon the ability of the well to produce and shall be subject to the limiting gas-oil ratio (2,000 to 1) for the Bisti-Lower Gallup Oil Pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected into the Bisti-Lower Gallup Oil Pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any such well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

$A_{adj}$  = the well's daily adjusted allowable  
 $TUA$  = top unit allowable for pool  
 $F_a$  = the well's acreage factor  
 $P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet  
 $I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet  
 $P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

RULE 10. Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Gas Injection Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project.

RULE 11. The Commission shall, upon review of the report and after any adjustments deemed necessary, assign allowables to each well in the Project for the next succeeding month in accordance with these rules.

RULE 12. The Special Rules and Regulations for the operation of the subject Project shall prevail against the Statewide Rules and also against the Special Rules and Regulations for the Bisti-Lower Gallup Oil Pool, if in conflict therewith.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

S E A L

JOHN BURROUGHS, Chairman

MURRAY E. MORGAN, Member

vem/

A. L. PORTER, Jr., Member & Secretary