

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. 11091*  
*ORDER NO. R-10256*

**APPLICATION OF SOUTHLAND ROYALTY  
COMPANY FOR DOWNHOLE COMMINGLING,  
SAN JUAN COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on September 15, 1994, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 30th day of November, 1994 the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.
- (2) At the time of the hearing this application was consolidated with Division Case Nos. 11090 and 11092 for purposes of testimony.
- (3) The applicant, Southland Royalty Company, is the owner and operator of the Cooper Well No. 5 (API No. 30-045-20517), located 1120 feet from the South line and 1090 feet from the West line (Lot 7/Unit M) of Section 6, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico.

(4) The applicant now seeks authority to commingle Basin-Fruitland Coal (Gas) Pool production with Fulcher Kutz-Pictured Cliffs Pool production within the wellbore of the above-described well which is located at a standard gas well location for both intervals.

(5) Said well was originally drilled in 1969 to a total depth of 2054 feet and was completed as a single producer in the Fulcher Kutz-Pictured Cliffs Pool.

(6) The subject well location is within the boundaries of the Basin-Fruitland Coal (Gas) Pool which is governed by Special Rules and Regulations as promulgated by Division Order No. R-8768, as amended, which require standard 320-acre gas spacing and proration units with wells to be located within the NE/4 or SW/4 no closer than 790 feet from any outer boundary of the spacing unit nor closer than 130 feet from any quarter section line nor closer than 10 feet from any quarter-quarter section line or subdivision inner boundary.

(7) The Cooper Well No. 5 is currently dedicated to a previously approved (Division Administrative Order NWU(3)-186, dated June 30, 1969) non-standard 147.12-acre gas spacing and proration unit in the Fulcher Kutz-Pictured Cliffs Pool comprising Lots 6 and 7 and the E/2 SW/4 (SW/4 equivalent) of said Section 6, and the applicant proposes to dedicate the Cooper Well No. 5 to a standard 284.92-acre gas spacing and proration unit in the Basin-Fruitland Coal (Gas) Pool comprising Lots 3 through 7, the SE/4 NW/4, and the E/2 SW/4 (W/2 equivalent) of said Section 6.

(8) The subject well is currently a marginal producer in the Fulcher Kutz-Pictured Cliffs Pool.

(9) Applicant's evidence indicates that the current producing rate from the Fulcher Kutz-Pictured Cliffs Pool is such that a dual completion of the well is not economic.

(10) The proposed downhole commingling and unorthodox coal gas well location are necessary in order for the applicant to economically recover Basin-Fruitland Coal (Gas) Pool reserves underlying the W/2 equivalent of said Section 6 as well as the remaining gas reserves in the Fulcher Kutz-Pictured Cliffs Pool underlying the SW/4 equivalent of said Section 6.

(11) The ownership within the Basin-Fruitland Coal (Gas) Pool and the Fulcher Kutz-Pictured Cliffs Pool underlying each respective proration unit is not common.

(12) The applicant has notified all interest owners owning an interest in either the Pictured Cliffs or Fruitland Coal intervals within the subject proration units of its proposed downhole commingling.

(13) No offset operator and/or interest owner appeared at the hearing in opposition to the proposed downhole commingling.

(14) The applicant further demonstrated through its evidence that:

a) there will be no crossflow between the two commingled pools;

b) neither commingled zone exposes the other to damage by produced liquids;

c) the fluids from each zone are compatible with the other;

d) the bottomhole pressure of the lower pressure zone should not be less than 50 percent of the bottomhole pressure of the higher pressure zone adjusted to a common datum; and,

e) the value of the commingled production is not less than the sum of the values of the individual production.

(15) In the interest of conservation, the prevention of waste, and in the protection of correlative rights, the subject application should be approved.

(16) Due to the nature of the Basin-Fruitland Coal Gas production, straight allocation of gas volumes from both zones is not appropriate. The applicant therefore seeks the adoption of a monthly allocation formula, as shown on Exhibit "A" attached hereto and made a part hereof.

(17) The operator should be responsible for reporting the monthly gas production from said well by utilizing the proposed allocation formula.

(18) An annual report should be submitted by the operator to both the Aztec and Santa Fe offices of the Division showing the complete computations for each month.

(19) Any condensate production from the subject well should be allocated entirely to the Pictured Cliffs interval.

(20) Any change in the method of gas allocation between the two pools should be made only after due notice and hearing.

(21) To afford the Division an opportunity to assess the potential of waste and to expeditiously order the appropriate remedial action, the operator should notify the Aztec district office of the Division any time the subject well is shut-in for seven consecutive days.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Southland Royalty Company, is hereby authorized to downhole commingle Fulcher Kutz-Pictured Cliffs and Basin-Fruitland Coal (Gas) Pool production within the wellbore of its Cooper Well No. 5 (API No. 30-045-20517), located at a standard gas well location for both intervals 1120 feet from the South line and 1090 feet from the West line (Lot 7/Unit M) of Section 6, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico.

(2) The Cooper Well No. 5 is currently dedicated to a previously approved (Division Administrative Order NWU(3)-186, dated June 30, 1969) non-standard 147.12-acre gas spacing and proration unit in the Fulcher Kutz-Pictured Cliffs Pool comprising Lots 6 and 7 and the E/2 SW/4 (SW/4 equivalent) of said Section 6, further said well shall be dedicated to a standard 284.92-acre gas spacing and proration unit in the Basin-Fruitland Coal (Gas) Pool comprising Lots 3 through 7, the SE/4 NW/4, and the E/2 SW/4 (W/2 equivalent) of said Section 6.

(3) The allocation of gas produced from both zones shall be in accordance with the allocation formula adopted for this well as further described in Exhibit "A" attached hereto and made a part hereof.

(4) The operator is responsible for reporting the monthly gas production from the subject well to the Division utilizing the allocation formula adopted herein. An annual report shall be submitted by the operator to both the Aztec and Santa Fe offices of the Division showing the complete computations for the previous twelve month period.

(5) Condensate production from the subject well shall be allocated entirely to the Aztec-Pictured Cliffs Gas Pool. Water production shall be reported in a manner acceptable to the supervisor of the Aztec district office of the Division.

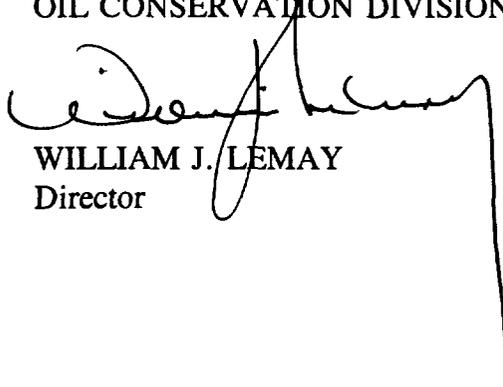
(6) Any variance in the method of gas allocation between the two pools shall be made only after due notice and hearing.

(7) The operator shall immediately notify the supervisor of the Aztec district office of the Division any time the subject well has been shut-in for seven consecutive days and shall concurrently present, to the Division, a plan for remedial action.

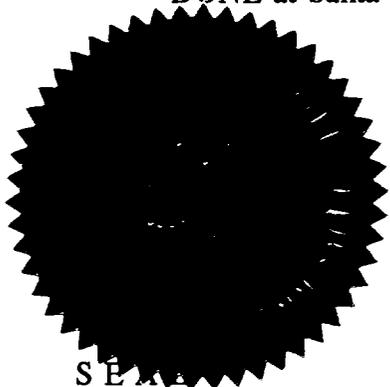
(8) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
Director



# Exhibit "A"

CASE NO. 11091

DIVISION ORDER NO. R-10256

## MONTHLY GAS PRODUCTION ALLOCATION FORMULA

### GENERAL EQUATION

$$Q_t = Q_{ftc} + Q_{pc}$$

**WHERE:**

**Q<sub>t</sub>** = TOTAL MONTHLY PRODUCTION FROM WELL (MCF/MONTH)  
**Q<sub>ftc</sub>** = FRUITLAND COAL (FTC) MONTHLY PRODUCTION (MCF/MONTH)  
**Q<sub>pc</sub>** = PICTURED CLIFFS (PC) MONTHLY PRODUCTION (MCF/MONTH)

REARRANGING THE EQUATION TO SOLVE FOR Q<sub>ftc</sub>:

$$Q_{ftc} = Q_t - Q_{pc}$$

ANY PRODUCTION RATE OVER WHAT IS CALCULATED FOR THE PICTURED CLIFFS (PC) USING THE APPLIED FORMULA IS FRUITLAND COAL (FTC) PRODUCTION.

ICTURED CLIFFS (PC) FORMATION PRODUCTION FORMULA IS:

$$Q_{pc} = Q_{pci} * e^{\{-(D_{pc}) * (t)\}}$$

**WHERE:**

**Q<sub>pci</sub>** = INITIAL PC MONTHLY FLOW RATE = 912 MCF/M (DETERMINED FROM TESTED RATE AGAINST 75 PSI LINE PRESSURE AS OPPOSED TO HISTORICAL LINE PRESSURE OF 175 PSI).

**D<sub>pc</sub>** = PICTURED CLIFFS MONTHLY DECLINE RATE CALCULATED FROM DECLINE CURVE AND MATERIAL BALANCE ANALYSIS = 0.0043:

THUS:  $Q_{ftc} = Q_t - Q_{pci} * e^{\{-(0.0043) * (t)\}}$

WHERE: (t) = TIME (MONTHS) FROM INITIAL PRODUCTION

**REFERENCE:** Thompson, R. S., and Wright, J. D., "Oil Property Evaluation", pages 5-2, 5-3, 5-4.