

**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. 11331
Order No. R-10461**

**APPLICATION OF MERIDIAN OIL INC.
FOR DOWNHOLE COMMINGLING, A NON-
STANDARD GAS PRORATION UNIT, AN
UNORTHODOX GAS WELL LOCATION AND
DUAL COMPLETION, RIO ARriba COUNTY,
NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on July 27, 1995, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 20th day of September, 1995, 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) The applicant, Meridian Oil Inc., seeks approval to downhole commingle East Blanco-Pictured Cliffs Gas Pool and Basin-Fruitland Coal Gas Pool production within its proposed San Juan 30-4 Unit Well No. 40 to be drilled at an unorthodox gas well location 2450 feet from the South line and 2270 feet from the East line (Unit J) of Section 21, Township 30 North, Range 4 West, NMPM, Rio Arriba County, New Mexico. The E/2 of Section 21 is to be dedicated to the subject well in the Basin-Fruitland Coal Gas Pool forming a standard 320-acre gas spacing and proration unit, and the E/2 is also proposed to be dedicated to the subject well in the East Blanco-Pictured Cliffs Gas Pool thereby forming a non-standard 320-acre gas spacing and proration unit for said pool.

(3) The applicant further seeks approval to dually complete the San Juan 30-4 Unit Well No. 40 in the commingled East Blanco-Pictured Cliffs/Basin-Fruitland Coal Gas Pools and the Blanco-Mesaverde Gas Pool.

(4) The proposed well is located within the East Blanco-Pictured Cliffs Gas Pool, the Basin-Fruitland Coal Gas Pool and the Blanco-Mesaverde Gas Pool. The rules and regulations governing each of these pools are summarized as follows:

<u>POOL NAME</u>	<u>SPACING</u>	<u>SETBACK REQUIREMENTS</u>
East Blanco-Pictured Cliffs Gas Pool	160 acres	no closer than 790 feet from the outer boundary of the spacing unit nor closer than 130 feet from any quarter-quarter section line or subdivision inner boundary
Blanco-Mesaverde Gas Pool	320 acres	Same as above
Basin-Fruitland Coal Gas Pool	320 acres	no closer than 790 feet from the outer boundary of the spacing unit nor closer than 10 feet from any quarter-quarter section line or subdivision inner boundary. In addition, wells shall be located in either the NE/4 or SW/4 of the section.

(5) The location of the proposed San Juan 30-4 Unit Well No. 40 is unorthodox with respect to the setback requirements for all three pools and is also unorthodox with respect to the quarter section location requirement for the Basin-Fruitland Coal Gas Pool.

(6) At the time of the hearing the applicant requested that the portion of its application to establish a 320-acre non-standard gas proration unit in the East Blanco-Pictured Cliffs Gas Pool be dismissed, however, the applicant requested that the Division acknowledge the following:

- a) although Division Rules and Regulations require 160-acre spacing in the East Blanco-Pictured Cliffs Gas Pool, the San Juan 30-4 Unit Agreement provides for well costs and revenue distribution in the East Blanco-Pictured Cliffs Gas Pool on the basis of 320 acres;

- b) historically, the well costs and revenue proceeds from East Blanco-Pictured Cliffs Gas Pool wells have been charged and distributed correctly on the basis of 320 acres as per the terms of the San Juan 30-4 Unit Agreement; and,
- c) the Division's ONGARD System (Oil & Natural Gas Accounting & Revenue Database) does not currently have the capability or flexibility to allow for revenue distribution for East Blanco-Pictured Cliffs Gas Pool wells on the basis of 320 acres.

(7) The applicant's evidence and testimony on this subject indicates that special procedures and/or program alteration may be necessary in order to allow for the proper distribution and accounting of revenue from East Blanco-Pictured Cliffs Gas Pool wells within the Division's ONGARD System.

(8) The applicant should consult with the Division's ONGARD representative in order to arrive at a mutually acceptable solution to this situation.

(9) The applicant's further evidence and testimony in this case demonstrates that:

- a) the W/2 of Section 21 is not within the San Juan 30-4 Unit;
- b) there is an existing Pictured Cliffs well in the NE/4 of Section 21, being the San Juan 30-4 Unit Well No. 14 located in Unit A;
- c) there is currently no production from the Mesaverde formation within Section 21, and the closest Mesaverde production to Section 21 is approximately 3 miles away;
- d) there is currently no production from the Basin-Fruitland Coal Gas Pool within Section 21; and,
- e) the applicant expects to obtain marginal production only from each of the respective pools it plans to complete within the proposed San Juan 30-4 Unit Well No. 40.

(10) The applicant's evidence and testimony indicates that the proposed downhole commingling, dual completion and unorthodox gas well location are necessitated for the following reasons:

- a) the reserves and expected producing rates from the Mesaverde, Pictured Cliffs and Fruitland Coal formations are not sufficient to economically justify the drilling of stand alone wells to produce such reserves;
- b) the existence of the San Juan 30-4 Unit Well No. 14 in Unit A of Section 21 necessitates drilling the proposed San Juan 30-4 Unit Well No. 40 within the SE/4 of Section 21;
- c) severe topographic obstructions, namely the presence of archaeological sites and the Carson National Forest necessitates the drilling of the San Juan 30-4 Unit Well No. 40 at the proposed location within the SE/4 of Section 21.

(11) The proposed downhole commingling and dual completion is necessary in order to economically recover gas reserves from the Pictured Cliffs, Fruitland Coal and Mesaverde formations underlying the proposed proration units.

(12) The ownership within the Pictured Cliffs, Fruitland Coal and Mesaverde formations underlying each respective proration unit is not common.

(13) The applicant has notified all offset operators and interest owners of its proposed downhole commingling, unorthodox gas well locations and dual completion, and no offset operator and/or interest owner appeared at the hearing in opposition to the application.

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

- a) there will be no crossflow between the Pictured Cliffs and Fruitland Coal formations;
- 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 prevention of waste and protection of correlative rights, the proposed downhole commingling, unorthodox gas well locations and dual completion should be approved.

(16) Due to the nature of Basin-Fruitland Coal Gas Pool production, straight allocation of gas volumes from both commingled 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 the San Juan 30-4 Unit Well No. 40 by utilizing the proposed allocation formula.

(18) In accordance with the proposal set forth, the applicant should conduct a flow test on the Pictured Cliffs formation of sufficient length to establish a stabilized flow rate in order for said data to be utilized in the allocation formula.

(19) 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.

(20) Any condensate production from the commingled stream should be allocated entirely to the Pictured Cliffs interval.

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

(22) 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, Meridian Oil Inc., is hereby authorized to downhole commingle East Blanco-Pictured Cliffs Gas Pool and Basin-Fruitland Coal Gas Pool production within its proposed San Juan 30-4 Unit Well No. 40 to be drilled 2450 feet from the South line and 2270 feet from the East line (Unit J) of Section 21, Township 30 North, Range 4 West, NMPM, Rio Arriba County, New Mexico.

(2) The applicant is further authorized to dually complete the San Juan 30-4 Unit Well No. 40 in the commingled East Blanco-Pictured Cliffs/Basin Fruitland Coal Gas Pools and Blanco-Mesaverde Gas Pool.

(3) The E/2 of Section 21 shall be dedicated to the subject well in the Basin-Fruitland Coal and Blanco-Mesaverde Gas Pools forming standard 320-acre gas spacing and proration units for said pools. The SE/4 of Section 21 shall be dedicated to the subject well in the East Blanco-Pictured Cliffs Gas Pool forming a standard 160-acre gas spacing and proration unit for said pool.

(4) The unorthodox gas well location for the aforesaid San Juan 30-4 Unit Well No. 40 for the East Blanco-Pictured Cliffs, Basin-Fruitland Coal and Blanco-Mesaverde Gas Pools is hereby approved.

(5) The allocation of gas produced from the commingled zones shall be in accordance with the allocation formula described in Exhibit "A" attached hereto and made a part hereof.

(6) The applicant shall conduct a flow test on the Pictured Cliffs formation of sufficient length to establish a stabilized flow rate in order for said data to be utilized in the allocation formula.

(7) The applicant 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.

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

(9) Any variance in the method of gas allocation between the commingled zones shall be made only after due notice and hearing.

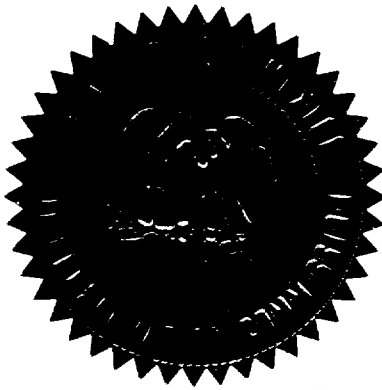
(10) The operator shall immediately notify the supervisor of the Aztec district office of the Division any time the subject well has been shut-in for seven consecutive days and shall concurrently present, to the Division, a plan for remedial action.

(11) The portion of the application requesting the establishment of a 320-acre non-standard gas proration unit in the East Blanco-Pictured Cliffs Gas Pool for the subject well is hereby dismissed.

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(12) 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.



S E A L

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in black ink, appearing to read 'William J. Lemay', is written over the printed name and title.

WILLIAM J. LEMAY
Director

EXHIBIT "A"
CASE NO. 11331
DIVISION ORDER NO. R-10461
SAN JUAN 30-4 UNIT WELL NO. 40
MONTHLY GAS PRODUCTION ALLOCATION FORMULA

GENERAL EQUATION:

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

WHERE: Q_T = TOTAL MONTHLY PRODUCTION (MCF/MONTH)

Q_{ftc} = FRUITLAND COAL (FTC) MONTHLY PRODUCTION (MCF/MONTH)

Q_{pc} = PICTURED CLIFFS (PC) MONTHLY PRODUCTION (MCF/MONTH)

REARRANGING THE EQUATION TO SOLVE FOR Q_{ftc} :

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

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

PICTURED CLIFFS (PC) FORMATION PRODUCTION FORMULA IS:

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

WHERE: Q_{pci} = INITIAL PC MONTHLY FLOW RATE (CALCULATED FROM FLOW TEST)

D_{pc} = PICTURED CLIFFS MONTHLY DECLINE RATE CALCULATED FROM:

$D_{pc} = (Q_{pci} - Q_{pcabd}) / N_{p(pc)}$

See Determination of Q_{pci} and PC Estimated Ultimate Recovery ($N_{p(pc)}$)

$Q_{pcabd} = 300 \text{ MCF/M}$

WHERE: $N_{p(pc)}$ = PICTURED CLIFFS ESTIMATED ULTIMATE RECOVERY (EUR)

$N_{p(pc)} = P * 0.74 \text{ MMCF/PSI} ** R_f$

P^* = INITIAL RESERVOIR PRESSURE (SIBHP)

R_f = RECOVERY (FIELD ANALOGY): = 0.95

** DETERMINED FROM MATERIAL BALANCE (FIELD ANALOGY) AND

VOLUMETRIC

RESERVES (LOG ANALYSIS)

THUS:

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

WHERE: (t) IS TIME IN MONTHS