(3) The above-described well is to be dedicated in the Basin-Fruitland Coal Gas Pool to a standard 320-acre gas spacing and proration unit comprising the E/2 of Section 12, and in the Undesignated West Kutz-Pictured Cliffs or Undesignated Fulcher Kutz-Pictured Cliffs Gas Pool to a standard 160-acre gas spacing and proration unit comprising the NE/4 of Section 12.

(4) The subject well is located within the Basin-Fruitland Coal Gas Pool which is currently 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. The subject well is also located 770 feet from the outer boundary of the Fulcher-Kutz Pictured Cliffs Gas Pool, and 1280 feet from the outer boundary of the West Kutz-Pictured Cliffs Gas Pool, which are both currently spaced on 160 acres.

(5) The Basin-Fruitland Coal Gas Pool, West Kutz-Pictured Cliffs Gas Pool and Fulcher Kutz-Pictured Cliffs Gas Pool all require that wells be located no closer than 790 feet from the outer boundary of the spacing unit.

(6) Applicant's evidence and testimony indicates that the subject well is located in close proximity to a housing development within the city limits of Farmington, New Mexico.

(7) The applicant has negotiated with landowners on the issues of well location, placement of surface production equipment, and well density.

(8) Both parties have agreed that the proposed unorthodox gas well location, which is only 20 feet closer to the eastern boundary of the proration unit than is allowed by the above-described rules, represents the best location in terms of topographic considerations and minimizing surface disturbance.

(9) No offset operator and/or interest owner appeared at the hearing in opposition to the proposed unorthodox gas well location.

(10) The applicant seeks authority to downhole commingle Fruitland coal and Pictured Cliffs gas production within the subject well for the following reasons:

    a)   on the issue of well density, the applicant has been unable to reach an agreement with the landowners to drill two wells in this area;

    b)   to recover coal reserves underlying the proration unit, the applicant would have to directionally drill from an acceptable surface location. Applicant's testimony indicates that the coal reserves are, insufficient to economically justify the drilling of a directional wellbore;

c)   the producing characteristics of both formations will necessitate the installation of two artificial lift systems within a dually completed well. This type of well completion presents certain mechanical difficulties.

(11) Applicant's geologic and engineering evidence indicates that the Fruitland formation in this area of the San Juan Basin should be marginally productive.

(12) The applicant expects initial producing rates from the subject well to be approximately 150 MCFGD from the Fruitland and 500-600 MCFGD from the Pictured Cliffs formation.

(13) The proposed downhole commingling is necessary in order for the applicant to recover Fruitland coal and Pictured Cliffs gas reserves underlying each respective proration unit.

(14) According to applicant's evidence and testimony, the working interest is common in the Fruitland and Pictured Cliffs formations, however, the overriding royalty interest is not common.

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

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

(17) The applicant further demonstrated through its evidence and testimony that:

a)   there should 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.

(18) Approval of the proposed unorthodox gas well location and downhole commingling will allow the applicant the opportunity to recover the gas reserves in the Fruitland and Pictured Cliffs formations underlying each respective proration unit(s), and will not violate correlative rights.

(19) Subsequent to completion, the applicant proposes to conduct a production test on each of the subject zones in order to obtain initial production data.

(20) The production tests should be of sufficient duration in order to obtain stabilized producing rates. In addition, the applicant should notify the supervisor of the Aztec district office of the Division prior to conducting such production tests, in order that such test may be witnessed.

(21) The applicant should present the results of the production tests to the supervisor of the Aztec district office of the Division in order that the results may be verified and approved for use in its allocation formula.

(22) 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.

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

(24) 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.

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

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

(27) 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, Richardson Operating Company, is hereby authorized to downhole commingle Basin-Fruitland Coal and Undesignated West Kutz-Pictured Cliffs or Undesignated Fulcher Kutz-Pictured Cliffs Gas Pool production within the wellbore of its Ropco Federal "12" Well No. 2 to be drilled at an unorthodox gas well location 1630 feet from the North line and 770 feet from the East line (Unit H) of Section 12, Township 29 North, Range 13 West, NMPM, San Juan County, New Mexico, also hereby approved.

(2)   The above-described well shall be dedicated in the Basin-Fruitland Coal Gas Pool to a standard 320-acre gas spacing and proration unit comprising the E/2 of Section 12, and in the Undesignated West Kutz-Pictured Cliffs or Undesignated Fulcher Kutz-Pictured Cliffs Gas Pool to a standard 160-acre gas spacing and proration unit comprising the NE/4 of Section 12.

(3)   Subsequent to completion, the applicant shall conduct a production test of sufficient duration on each of the zones in order to obtain initial stabilized producing rates. In addition, the applicant shall notify the supervisor of the Aztec district office of the Division prior to conducting such production tests, in order that such test may be witnessed.

(4)   The applicant shall present the results of the production tests to the supervisor of the Aztec district office of the Division in order that the results may be verified and approved for use in its allocation formula.

(5)   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.

(6)   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.

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

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

(9) 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.

(10) 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.
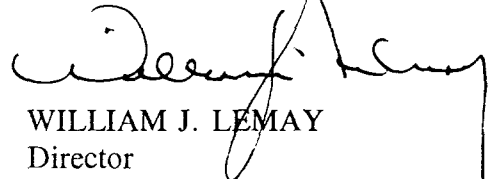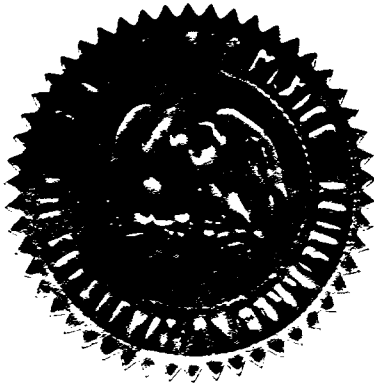
STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

S E A L

EXHIBIT "A"
CASE NO. 11106
DIVISION ORDER NO. R-10231

ROPCO FEDERAL "12" WELL NO. 2

MONTHLY GAS PRODUCTION ALLOCATION FORMULA

GENERAL EQUATION:

$$QT = Qftc + Qpc$$

WHERE: QT = TOTAL MONTHLY PRODUCTION (MCF/MONTH)
Qftc = FRUITLAND COAL (FTC) MONTHLY PRODUCTION (MCF/MONTH)
Qpc = PICTURED CLIFFS (PC) MONTHLY PRODUCTION (MCF/MONTH)

REARRANGING THE EQUATION TO SOLVE FOR Qftc:

$$Qftc = Qt - Qpc$$

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:

$$Qpc = Qpci * e \wedge \{-(Dpc)*(t)\}$$

WHERE: Qpci = INITIAL PC MONTHLY FLOW RATE (CALCULATED FROM FLOW TEST)
Dpc = PICTURED CLIFFS MONTHLY DECLINE RATE CALCULATED FROM:
Dpc = (Qpci-Qpcabd)/Np(pc)
See determination of Qpci and PC Estimated Ultimate Recovery (EUR)
Qpcabd = 300 MCF/M

WHERE: Np(pc) = PICTURED CLIFFS ESTIMATED ULTIMATE RECOVERY (EUR)
P* X 0.84 MMCF/PSI** X Rf
P* = INITIAL RESERVOIR PRESSURE (7 DAY SIBHP)
Rf = RECOVERY (FIELD ANALOGY) = 0.85
** DETERMINED FROM MATERIAL BALANCE (FIELD ANALOGY) AND VOLUMETRIC RESERVES (LOG ANALYSIS)

BY CALCULATING PC EUR FROM SIBHP AND DETERMINING PC INITIAL FLOW RATE, Dpc CAN THEN BE ESTIMATED UTILIZING THE PREVIOUSLY DESCRIBED PARAMETERS THUS:

$$Qftc = Qt - Qpci * e \wedge \{-(Dpc)*(t)\}$$

WHERE: (t) IS TIME IN MONTHS OF PRODUCTION