

Case Number
4776

Application

Transcripts

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE
SANTA FE, NEW MEXICO
Wednesday, July 26, 1972

EXAMINER HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation
Commission on its own motion for the
amendment of the special Rules and
Regulations governing the following pools:

Bluitt-San Andres Associated Pool
Todd-Lower San Andres Pool, both in Roosevelt
County;

Double L-Queen Associated Pool
Round Tank-Queen Pool
Twin Lakes-San Andres Pool, all in Chaves
County;

Mesa Queen Pool in Lea and Eddy Counties;
North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool
Gallegos-Gallup Pool
Tocito Dome-Pennsylvanian "D" Pool, in
San Juan County;

Escrito-Gallup Pool in Rio Arriba and San
Juan Counties;

Tapacito-Gallup Associated Pool
Devils Fork-Gallup Pool
Largo-Gallup Pool, all in Rio Arriba County
to permit the establishment of one-year proration
periods for each of said pools.

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

) Docket No.
) 16-72
) Case No.
) 4776

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST, ALBUQUERQUE, NEW MEXICO 87108

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87103
1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87106P R O C E E D I N G S

MR. NUTTER: Call case 4776.

MR. HATCH: Case 4776: In the matter of the hearing called by the Oil Conservation Commission on its own motion for the amendment of the special rules and regulations governing certain pools as listed.

We would still like for the record to show Mr. Utz has previously been sworn.

MR. NUTTER: Mr. Utz is still under oath.

MR. ELVIS A. UTZ

having already been duly sworn according to law, upon his oath, testified as follows:

DIRECT EXAMINATION

BY MR. GEORGE HATCH:

Q Mr. Utz, would you explain to the Examiner the purpose of case 4776?

A The reason this case is called is because I neglected to call it at the one year proration case which was presented in Hobbs in April of this year. For some reason I assumed that the associated pools in order R-1670 and other orders would be included in one year proration case or one year proration periods, so this case is called specifically to allow us to change from six months proration periods to one year proration periods in these

dearnley, meier & mc cormick re serv

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1 13 associated gas pools.

2 Q What order established one year proration periods for
3 the prorated gas pools?

4 A It is R-1670-K. Exhibit A, which is merely a data summary
5 of the 13 pools is presented for purposes only--as you
6 note from the exhibit, we have three volumetric equivalent
7 pools. All the other pools are GOR equivalent pools or
8 the gas allowable or the gas wells is based on the stated
9 GOR and its summaries. You will note that all these
10 pools are pretty consistent. They all, except one,
11 require cancellation at the end of proration periods, six
12 months at this time. I recommend, of course, that at the
13 end of 12 months. Redistribution would remain the same.
14 You will note from the exhibit we only have redistribution
15 in the three volumetric equivalent pools. As far as
16 monthly overproduction curtailment, which means over-
17 production equivalent to three times the current allow-
18 able, all the pools are three times. The other prorated
19 pools are six times. The GOR pools are all two thousand
20 to one and with the exception of the Tocito Dome "D"
21 pool, the gas well classification is 30,000 to 1, that
22 pool being 20,000 to 1.

23 Q Did I hear you say something about 13 pools?

24 A Unless I miscounted.

25 Q I am counting 14.

dearnley, meier & mc cormick

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1 MR. NUTTER: On the docket, Mr. Utz, the Round Tank-
2 Queen Pool is listed and it is not on your exhibit. I
3 believe that is the difference.
4 MR. UTZ: That is it.
5 Q (By Mr. Hatch) Do you have any data that you wanted to
6 offer on the Round Tank?
7 A No, I don't. I neglected to look it up.
8 MR. NUTTER: It is associated?
9 MR. UTZ: Yes, it is.
10 MR. NUTTER: And you propose to include it in the
11 order from this case?
12 MR. UTZ: Yes.
13 MR. HATCH: I would like to move that the Round Tank-
14 Queen Pool be added to the exhibit here unless Mr. Utz would
15 like to go through and name each of these pools so we do have
16 something in the record to show all 14 pools. Just go through
17 and name all 14 pools that you are recommending this change
18 for.
19 A The exhibit shows all but the Round Tank. The volumetric
20 equivalent pools are the Bluitt-San Andres and the Todd-
21 San Andres and the Devils Fork-Gallup.
22 Q The first two pools being in Southeast New Mexico?
23 A I don't know whether it would be pertinent at this time
24 but the volumetric equivalent may mean that at the end
25 of the proration period we calculate the gas well

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1 allowable in the gas area allowable based on the oil
2 production for that period. With a formula it is a
3 retroactive proration. The other pools are the Double L-
4 Queen, Twin Lakes-San Andres, Mesa Queen, North Paduca-
5 Delaware, Angels Peak, Gallegos-Gallup, Escrito-Gallup,
6 Tapacito-Gallup, and the Largo-Gallup.

7 MR. NUTTER: And the Round Tank-Queen?

8 MR. UTZ: Yes.

9 Q (By Mr. Hatch) Do you have anything further to add to
10 your testimony?

11 A No, I don't.

12 MR. HATCH: I have nothing further.

13 You did prepare Exhibit A?

14 MR. UTZ: Yes, I did.

15 MR. NUTTER: Exhibit A in case number 4776 will be
16 admitted into evidence.

17 Do you have any further questions, Mr. Hatch?

18 MR. HATCH: No.

19 MR. NUTTER: Does anyone have any questions of the
20 witness?

21 You may be excused. Does anyone wish to offer
22 anything in case 4776?

23 We will take the case under advisement and call
24 case 4753.
25

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I N D E X

WITNESS

PAGE

MR. ELVIS A. UTZ

Direct Examination by Mr. George Hatch

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E X H I B I T S

PAGE

Exhibit A

6

1 STATE OF NEW MEXICO)
 2 : ss.
 3 COUNTY OF BERNALILLO)

4 I, MARCIA J. HUGHES, Court Reporter, do hereby certify
 5 that the above and foregoing pages are a true and correct
 6 transcript of the proceedings had before the New Mexico Oil
 7 Conservation Commission on Wednesday, July 26, 1972.

8 *Marcia J. Hughes*
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I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the Examiner hearing of Case No. 4776,
 heard by me on *July 26*, 19 *72*.
Attest, Examiner
 New Mexico Oil Conservation Commission

dearnley, meier & mc cormick

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE
SANTA FE, NEW MEXICO
Wednesday, July 26, 1972

EXAMINER HEARING

IN THE MATTER OF:

The hearing called by the Oil Conservation
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Bluitt-San Andres Associated Pool
Todd-Lower San Andres Pool, both in Roosevelt
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Double L-Queen Associated Pool
Round Tank-Queen Pool
Twin Lakes-San Andres Pool, all in Chaves
County;

Mesa Queen Pool in Lea and Eddy Counties;
North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool
Gallegos-Gallup Pool
Tocito Dome-Pennsylvanian "D" Pool, in
San Juan County;

Escrito-Gallup Pool in Rio Arriba and San
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Largo-Gallup Pool, all in Rio Arriba County
to permit the establishment of one-year proration
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BEFORE: Daniel S. Nutter, Examiner

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PROCEEDINGS

MR. NUTTER: Call case 4776.

MR. HATCH: Case 4776: In the matter of the hearing called by the Oil Conservation Commission on its own motion for the amendment of the special rules and regulations governing certain pools as listed.

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1216 FIRST NATIONAL BANK BLDG., EAST ALBUQUERQUE, NEW MEXICO 87106

1 13 associated gas pools.

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3 the prorated gas pools?

4 A It is 8-1670-L, Exhibit A, which is merely a data summary
5 of the 13 pools is presented for purposes only--as you
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1 MR. NUTTER: On the docket, Mr. Utz, the Round Tank-
2 Queen Pool is listed and it is not on your exhibit. I
3 believe that is the difference.
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9 MR. UTZ: Yes, it is.
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allowable in the gas area allowable based on the oil production for that period. With a formula it is a retroactive proration. The other pools are the Double L-Queen, Twin Lakes-San Andres, Mesa Queen, North Paduca-Louisiana, Angels Peak, Gallegos-Gallup, Escrito-Gallup, Tapacito-Gallup, and the Largo-Gallup.

MR. NUTTER: And the Round Tank-Queen?

MR. UTZ: Yes.

Q (By Mr. Hatch) Do you have anything further to add to your testimony?

A No, I don't.

MR. HATCH: I have nothing further.

You did prepare Exhibit A?

MR. UTZ: Yes, I did.

MR. NUTTER: Exhibit A in case number 4776 will be admitted into evidence.

Do you have any further questions, Mr. Hatch?

MR. HATCH: No.

MR. NUTTER: Does anyone have any questions of the witness?

You may be excused. Does anyone wish to offer anything in case 4776?

We will take the case under advisement and call case 4753.

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I N D E X

WITNESS

PAGE

MR. ELVIS A. UTZ

Direct Examination by Mr. George Hatch

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E X H I B I T S

PAGE

Exhibit A

6

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 2 : ss.
 3 COUNTY OF BERNALILLO)

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8 Marcia J. Hughes
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I do hereby certify that the foregoing is
 a complete record of the proceedings in
 the Executive hearing of Case No. 4776
 accorded by me on July 26, 1972.
Asst. Sec. 1 Examiner
 New Mexico Oil Conservation Commission

dearnley, meier & mc cormick

209 SIMMS BLDG., P.O. BOX 1092, PHONE 243-6691, ALBUQUERQUE, NEW MEXICO 87103
 1215 FIRST NATIONAL BANK BLDG., EAST ALBUQUERQUE, NEW MEXICO 87108

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY
THE OIL CONSERVATION COMMISSION ON ITS
OWN MOTION FOR THE AMENDMENT OF THE
SPECIAL RULES AND REGULATIONS GOVERNING
CERTAIN POOLS IN ROOSEVELT, CHAVES, LEA,
SAN JUAN, AND RIO ARriba COUNTIES, NEW
MEXICO, TO PERMIT THE ESTABLISHMENT OF
ONE-YEAR PRORATION PERIODS FOR EACH OF
THE POOLS.

CASE NO. 4776
Order No. R-4367

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 26, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 30th day of August, 1972, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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 Order No. R-1670-K, dated May 11, 1972, amended the General Rules and Regulations governing the prorated gas pools of New Mexico, promulgated by Order No. R-1670, as amended, to establish one-year proration periods for each of the gas pools governed by said rules and regulations.

(3) That there are a number of other pools in the state that have proration periods for gas of less than one-year.

(4) That the establishment of one-year proration periods for said pools should permit more efficient operation of the wells.

(5) That the Special Rules and Regulations governing the following pools should be amended to provide for one-year proration periods:

Bluitt-San Andres Associated Pool
Todd-Lower San Andres Pool, both in Roosevelt County;

Double L-Queen Associated Pool
Round Tank-Queen Pool
Twin Lakes-San Andres Pool, all in Chaves County;

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Order No. R-4367

Mesa-Queen Pool in Lea and Eddy Counties;
North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool
Gallegos-Gallup Pool, both in San Juan County;

Escrito-Gallup Pool in Rio Arriba and San Juan Counties;

Tapacito-Gallup Associated Pool
Devils Fork-Gallup Pool, both in Rio Arriba County

(6) That in order to establish concurrent one-year proration periods, the period from February 1, 1972, to December 31, 1972, should be considered as one proration period for the subject pools in Northwest New Mexico and the period from January 1, 1972, to December 31, 1972, should be considered as one proration period for the subject pools in Southeast New Mexico.

IT IS THEREFORE ORDERED:

(1) That Rule 12 of the Special Rules and Regulations governing the following pools:

Double L-Queen Associated Pool
Round Tank-Queen Pool
Twin Lakes-San Andres Pool, all in Chaves County;

Mesa Queen Pool in Lea and Eddy Counties;
North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool
Gallegos-Gallup Pool, both in San Juan County;

Escrito-Gallup Pool in Rio Arriba and San Juan Counties;

Tapacito-Gallup Associated Pool in Rio Arriba County

is hereby amended to read in its entirety as follows:

"RULE 12. The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period."

(2) That Rule 13 of the Special Rules and Regulations governing the Bluitt-San Andres Associated Pool, Roosevelt County, New Mexico, promulgated by Order No. R-1670-I, is hereby amended to read in its entirety as follows:

"RULE 13 (A). The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve-months following this date shall be known as the gas proration period."

CASE NO. 4776
Order No. R-4367

"(B) (1). The top 80-acre unit allowable for oil wells shall be determined each month by multiplying the Southeast New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.00). The final allowable for the gas area of said pool shall be determined each twelve months for the preceding twelve-month period in accordance with the following formula:

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

where:

- V = The gas allowable for the gas area for the preceding twelve-month period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve-month period expressed in cubic feet rounded off to the nearest MCF.
- Q = Total oil production from the oil area during the preceding twelve-month period, barrels.
- (A + ΔA) = Total acres dedicated to gas wells during preceding twelve-month period.
- (a + Δa) = Total acres dedicated to oil wells during preceding twelve-month period.

(Note: "A" and "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve-month period. ΔA and Δa represent acreage so dedicated for only a portion of the twelve-month period. In the event a well is completed or reclassified during a twelve-month period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right) \quad \Delta a = a \left(\frac{d}{D} \right)$$

where:

- ΔA or Δa = acreage to be added to gas or oil area, respectively.
- A or a = acreage dedicated to the well.
- d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.
- D = total number of days in proration period.

- r_1 = Average producing GOR for oil area during preceding twelve-month period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)
- r_2 = Solution GOR for the oil area at P_{res} . (r_2 determined from Solution GOR Tabulation in Special Rule 13(C).)
- T_{sc} = Temperature at standard conditions equals 60° F or 520° R.
- T_{res} = Initial bottomhole temperature 111° F or 571° R.
- P_{res} = Average reservoir pressure based on most recent bottomhole pressure survey as provided in Special Rule 28.
- P_{sc} = Pressure at standard conditions. (15.025 psia.)
- Z = Deviation factor for gas at P_{res} and at 111° F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13(c).)
- B_o = Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(C).)

"(2). (a) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area.

"(b) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined in (c) below, then the nominations and purchases by gas purchasers during the succeeding twelve-month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area.

"(c) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be carried forward as permitted production of gas from the gas area in subsequent balancing periods.

"(C). The following values of r_2 , Solution Gas-Oil Ratio, Z , Gas Deviation Factor, and B_o , Oil Reservoir Volume Factor, for

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CASE NO. 4776
Order No. R-4367

the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(B):

P_{res} Average Reservoir Pressure, Psia	r_2 Solution GOR Ft ³ /Bbl.	Z Gas Deviation Factor	B_o Oil Reservoir Volume Factor
1200	392	.855	1.199
1100	372	.859	1.191
1000	350	.865	1.183
900	329	.876	1.175
800	306	.884	1.166
700	283	.898	1.157
600	260	.907	1.148
500	234	.919	1.138
400	208	.927	1.127
300	180	.946	1.116
200	147	.960	1.020
100	116	.974	1.089

(3) That Rule 13 of the Special Rules and Regulations governing the Todd-San Andres Pool, Roosevelt County, New Mexico, promulgated by Order No. R-1670-G, is hereby amended to read in its entirety as follows:

"RULE 13. (A). The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve-months following this date shall be known as the gas proration period."

"(B) (1) The top 80-acre unit allowable for oil wells shall be determined each month by multiplying the Southeast New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.00). The final allowable for the gas area of said pool shall be determined each twelve-months for the preceding twelve-month period in accordance with the following formula:

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

where:

V = the gas allowable for the gas area for the preceding twelve-month period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve-month period expressed in cubic feet rounded off to the nearest MCF.

-6-
CASE NO. 4776
Order No. R-4367

- Q = total oil production from the oil area during the preceding twelve-month period, barrels.
- (A + ΔA) = total acres dedicated to gas wells during preceding twelve-month period.
- (a + Δa) = total acres dedicated to oil wells during preceding twelve-month period.

(Note: "A" and "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve-month period. ΔA and Δa represent acreage so dedicated for only a portion of the twelve-month period. In the event a well is completed or reclassified during a twelve-month period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right) \qquad \Delta a = a \left(\frac{d}{D} \right)$$

where:

- ΔA or Δa = acreage to be added to gas or oil area, respectively.
- A or a = acreage dedicated to the well.
- d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.
- D = total number of days in proration period.
- r₁ = Average producing GOR for oil area during preceding twelve-month period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)
- r₂ = Solution GOR for the oil area at P_{res}. (r₂ determined from Solution GOR Tabulation in Special Rule 13(C).)
- T_{sc} = Temperature at standard conditions = 60° F or 520° R.
- T_{res} = Initial bottom-hole temperature 125° F or 585° R.
- P_{res} = Average reservoir pressure based on most recent bottom-hole pressure survey as provided in Special Rule 28.
- P_{sc} = Pressure at standard conditions. (15.025 psia.)
- Z = Deviation factor for gas at P_{res} and at 125° F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 17(C).)

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B_o

= Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(C).)

"(2) (a) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area."

"(b) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined in (c) below, then the nominations and purchases by gas purchasers during the succeeding twelve-month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area."

"(c) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be carried forward as permitted production of gas from the gas area in subsequent balancing periods."

"(C) The following values of r_2 , Solution Gas-Oil Ratio, Z , Gas Deviation Factor, and B_o , Oil Reservoir Volume Factor, for the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(B):

P_{res} Average Reservoir Pressure, Psia	r_2 Solution GOR Ft ³ /Bbl.	Z Gas Deviation Factor	B_o Oil Reservoir Volume Factor
1680	275	0.841	1.160
1600	265	0.844	1.155
1500	253	0.850	1.149
1400	241	0.856	1.142
1300	229	0.863	1.136
1200	217	0.871	1.129
1100	205	0.880	1.122
1000	193	0.889	1.116
900	181	0.899	1.109
800	169	0.909	1.103
700	157	0.919	1.097
600	145	0.930	1.089
500	133	0.942	1.081
400	119	0.953	1.076
300	101	0.965	1.070
200	79	0.976	1.058
100	51	0.988	1.040

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(4) That Special Rule 13 of the Special Rules and Regulations governing the Devils Fork-Gallup Pool, Rio Arriba County, New Mexico, promulgated by Order No. R-1670-B, is hereby amended to read in its entirety as follows:

"RULE 13. The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period.

"SPECIAL RULE 13(a) (1) The top 80-acre unit allowable for oil wells in the Devils Fork-Gallup Pool shall be determined each month by multiplying the Northwest New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.33). The final allowable for the gas area of said pool shall be determined each twelve-months for the preceding twelve-months period in accordance with the following formula:

(a)

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_G \times 5.61 \frac{\text{ft}^3}{\text{bbl}} \right) \right]$$

where:

V = the gas allowable for the gas area for the preceding twelve months period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve months period expressed in cubic feet rounded off to the nearest MCF.

Q = total oil production from the oil area during the preceding twelve months period, barrels.

(A + ΔA) = total acres dedicated to gas wells during preceding twelve months period.

(a + Δa) = total acres dedicated to oil wells during preceding twelve months period.

(Note: "A" or "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve months period. ΔA and Δa represent acreage so dedicated for only a portion of the twelve months period. In the event a well is completed or reclassified during a twelve months period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right)$$

$$\Delta a = a \left(\frac{d}{D} \right)$$

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where:

ΔA or Δa = acreage to be added to gas or oil area, respectively.

A or a = acreage dedicated to the well.

d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.

D = total number of days in proration period.

r_1 = average producing GOR for oil area during preceding twelve months period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)

r_2 = Solution GOR for the oil area at P_{res} . (r_2 determined from Solution GOR Tabulation in Special Rule 13(b).)

T_{sc} = Temperature at standard conditions = 60° F or 520° R.

T_{res} = Initial bottom-hole temperature, assumed to remain constant at 147° F or 607° R.

P_{res} = Average reservoir pressure based on most recent bottom-hole pressure survey as provided in Special Rule 28.

P_{sc} = Pressure at standard conditions = 15.025 psia.

Z = Deviation factor for gas at P_{res} and at 147° F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13(b).)

B_o = Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(b).)

Substituting known constant values in Formula (a) above,

$$V = \left[Q \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{520 \times P_{res} \times 1 \times B_o \times 5.61 \text{ ft}^3}{607 \times 15.025 \times Z} \right) \frac{1}{\text{bbl}} \right]$$

$$V = \left[Q \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{0.32 \times P_{res} \times B_o}{Z} \right) \right]$$

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"(2) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area.

"(a) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined by (b) below, then the nominations and purchases by gas purchasers during the succeeding twelve month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area.

"(b) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be carried forward as permitted production of gas from the gas area in subsequent balancing periods.

"SPECIAL RULE 13 (b). The following values of r_2 , Solution Gas-Oil Ratio, Z , Gas Deviation Factor, and B_o , Oil Reservoir Volume Factor, for the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(a):

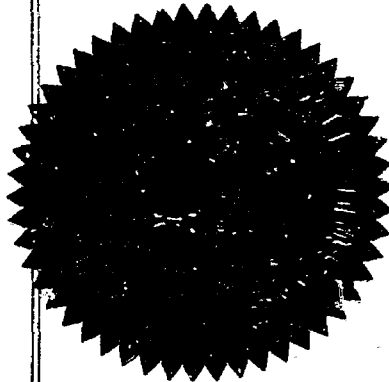
<u>P_{res} Average Reservoir Pressure</u>	<u>r_2 Solution GOR ft³/bbl.</u>	<u>Z Gas Deviation Factor</u>	<u>B_o Oil Reservoir Volume Factor</u>
2000	935	.785	1.434
1900	890	.789	1.424
1800	850	.795	1.414
1700	805	.801	1.404
1600	765	.806	1.393
1500	725	.814	1.382
1400	685	.823	1.371
1300	647	.832	1.360
1200	610	.842	1.347
1100	570	.853	1.335
1000	535	.864	1.322
900	498	.876	1.309
800	463	.889	1.295
700	429	.902	1.280
600	396	.915	1.262
500	365	.927	1.245
400	335	.941	1.227
300	300	.954	1.208
200	255	.968	1.190
100	195	.982	1.160

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(5) That the period from February 1, 1972, to December 31, 1972, shall be considered as one proration period for the above-described pools located in Northwest New Mexico; and that the period from January 1, 1972, to December 31, 1972, shall be considered as one proration period for the above-described pools located in Southeast New Mexico.

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Bruce King
BRUCE KING, Chairman

Alex J. Armijo
ALEX J. ARMIDO, Member

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

S E A L

dr/

DOCKET: EXAMINER HEARING - WEDNESDAY - JULY 26, 1972

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Daniel S. Nutter, Examiner, or Elvis A. Utz, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for August, 1972, from fifteen prorated pools in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico.
- (2) Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba, and Sandoval Counties, for August, 1972.

CASE 4777: In the matter of the hearing called by the Oil Conservation Commission on its own motion to consider preliminary purchaser nominations and other evidence of market demand for the proration period beginning September 1, 1972, and ending December 31, 1973, for the South Carlsbad-Morrow and South Carlsbad-Strawn Gas Pools, Eddy County, New Mexico.

CASE 4776: In the matter of the hearing called by the Oil Conservation Commission on its own motion for the amendment of the special Rules and Regulations governing the following pools:

Bluitt-San Andres Associated Pool
Todd-Lower San Andres Pool, both in Roosevelt County;

Double L-Queen Associated Pool
Round Tank-Queen Pool
Twin Lakes-San Andres Pool, all in Chaves County;

Mesa Queen Pool in Lea and Eddy Counties;
North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool
Gallegos-Gallup Pool
Tocito Dome-Pennsylvanian "D" Pool, in San Juan County;

Escrito-Gallup Pool in Rio Arriba and San Juan Counties;

Tapacito-Gallup Associated Pool
Devils Fork-Gallup Pool
Largo-Gallup Pool, all in Rio Arriba County

to permit the establishment of one-year proration periods for each of said pools.

CASE 4753: (Continued and Readvertised)

Application of Roger C. Hanks for a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks

ASSOCIATED POOL PROXATION DATES - 13 POOLS

	<u>Order No.</u>	<u>Cancellation</u>	<u>Redistribution</u>	<u>Monthly O/P</u> <u>Curtailment</u>	<u>Type Formula</u>	<u>Gas Well</u> <u>Classification</u>
Bluff-San Andres	R-1670-I	Yes	Yes	3 times current allowable	Volumetric Equivalent	
Todd-San Andres	R-3153 & R-1670-G	Yes	Yes	3 times current allowable	Volumetric Equivalent	
Devils Fork-Gallup	R-1670-B	Yes	Yes	3 times current allowable	Volumetric Equivalent	
Double L-Queen	R-3981-A	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Twin Lakes-San Andres	R-4102	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Mesa-Queen	R-2935	Yes	No	3 times current allowable	GOR - 5000:1	30,000:1
North Paduca-DeLaWare	R-3437	Yes	No	3 times current allowable	GOR - 3000:1	30,000:1
Angels Peak-Gallup	R-1410-C	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Gallegos-Gallup	R-3707	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Tocito Dome-Penn "D"	R-2758	No	No	No limit	GOR - 2000:1	20,000:1
Escrito-Gallup	R-1793-A	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Tapacito-Gallup	R-3211	Yes	No	3 times current allowable	GOR - 2000:1	30,000:1
Large-Gallup						
Maximum Allowable of 1000 MCF						

* has other mentions of 6 mos.

* Blunt - San Andres Assoc R-1670-I
Rule 13(A)

* Todd - ~~San Andres~~ R-1670-G
Rule 13(A)

✓ Double L - Queen - R-3981-A
Rule 12

- Round Tank - Queen R-1670-J
Rule 12

Twin Lakes - San Andres R-4102
Rule 12

Mesa - Queen - R-2935
Rule 12

North Paduca - Delaware R-3437
Rule 12

Angels Peak - Gallup R-1410-C
Rule 12

Gallegos - Gallup R-3707
Rule 12

Tecito Dome - Pennsylvanian "D" Pool R-2758
Rule - No protraction period rule -

Escrito - Gallup Pool R-1793-B
Rule 12

Tapacito - Gallup R-3211
Rule 12

X Devils Fork - Gallup - 1670 - B

Rule 13 - there are a no. of references to 6 mos.

Largo - Gallup R-2462

no provision Rule -

DRAFT

GMH/dr

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:

CASE NO. 4776

Order No. R-4367

IN THE MATTER OF THE HEARING CALLED BY
THE OIL CONSERVATION COMMISSION ON ITS
OWN MOTION FOR THE AMENDMENT OF THE
SPECIAL RULES AND REGULATIONS GOVERNING
CERTAIN POOLS IN ROOSEVELT, CHAVES, LEA,
SAN JUAN, AND RIO ARriba COUNTIES, NEW MEXICO,
TO PERMIT THE ESTABLISHMENT OF ONE-YEAR PRORATION
PERIODS FOR EACH OF THE POOLS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 26, 1972,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this day of August, 1972, the Commission,
a quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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 Order No. R-1670-K, dated May 11, 1972, amended
the General Rules and Regulations governing the prorated gas pools
of New Mexico, promulgated by Order No. R-1670, as amended, to
establish one-year proration periods for each of the gas pools
governed by said rules and regulations.

(3) That there are a number of other pools in the state that have proration periods for gas of less than one-year.

(4) That the establishment of one-year proration periods for said pools should permit more efficient operation of the wells.

(5) That the Special Rules and Regulations governing the following pools should be amended to provide for one-year proration periods:

Bluitt-San Andres Associated Pool

Todd-Lower San Andres Pool, both in Roosevelt County;

Double L-Queen Associated Pool

Round Tank-Queen Pool

Twin Lakes-San Andres Pool, all in Chaves County;

Mesa-Queen Pool in Lea and Eddy Counties;

North Paduca-Delaware Pool, in Lea County;

Angels Peak-Gallup Pool

Gallegos-Gallup Pool, *both in San Juan County;*

~~Tecito Dome Pennsylvanian "D" Pool, in San Juan County;~~

Escrito-Gallup Pool in Rio Arriba and San Juan Counties;

Tapacito-Gallup Associated Pool

Devils Fork-Gallup Pool

~~Large-Gallup Pool,~~ *both* ~~all~~ in Rio Arriba County

IT IS THEREFORE ORDERED:

(6) That in order to establish ^{consistent} one-year proration periods, the period from February 1, 1972 to December 31, 1972, should be considered as one proration period for the subject pools in Northwest New Mexico and the period from January 1, 1972 to December 31, 1972, should be considered as one proration period for the subject pools in Southeast New Mexico.

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Case No. 4776

Order No. R-

(1) That Rule 12 of the Special Rules and Regulations governing the following pools:

~~Bluitt-San Andres Associated Pool~~
~~Todd-Lower San Andres Pool, both in Roosevelt County;~~ 2

/ Double L-Queen Associated Pool
/ Round Tank-Queen Pool
/ Twin Lakes-San Andres Pool, all in Chaves County;

/ Mesa Queen Pool in Lea and Eddy Counties;
/ North Paduca-Delaware Pool, in Lea County;

/ Angels Peak-Gallup Pool
/ Gallegos-Gallup Pool, both
~~Tecito-Dome-Pennsylvanian "D" Pool~~ in San Juan County;

/ Escrito-Gallup Pool in Rio Arriba and San Juan Counties;

/ Tapacito-Gallup Associated Pool,
/ ~~Devils Fork-Gallup Pool,~~ 4/
~~Largo-Gallup Pool~~ all in Rio Arriba County

is hereby amended to read in its entirety as follows:

"RULE 12. The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period."

(2) That Rule 13 of the Special Rules and Regulations governing the Bluitt-San Andres Associated Pool, Roosevelt County, New Mexico, ^{amended by Order No. R-1670-I,} is hereby amended to read in its entirety as follows:

"RULE 13 (A). The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve-months following this date shall be known as the gas proration period."

~~"(B) (1).~~ (B) (1). The top 80-acre unit allowable for oil wells shall be determined each month by multiplying the Southeast New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.00). The final allowable for the gas area of said pool shall be determined each twelve months for the preceding twelve-month period in accordance with the following formula:

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

where:

- V = The gas allowable for the gas area for the preceding twelve-month period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve-month period expressed in cubic feet rounded off to the nearest MCF.
- Q = Total oil production from the oil area during the preceding twelve-month period, barrels.
- (A+ΔA) = Total acres dedicated to gas wells during preceding twelve-month period.
- (a+Δa) = Total acres dedicated to oil wells during preceding twelve-month period.

(Note: "A" and "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve-month period.

ΔA and Δa represent acreage so dedicated for only a portion of the twelve-month period. In the event a well is completed or reclassified during a twelve-month period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right)$$

$$\Delta a = a \left(\frac{d}{D} \right)$$

where :

ΔA or Δa = acreage to be added to gas or oil area, respectively.

A or a = acreage dedicated to the well.

d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.

D = total number of days in proration period.)

- ~~r₁~~ r_1 = Average producing GOR for oil area during preceding twelve-month period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)
- ~~r₂~~ r_2 = Solution GOR for the oil area at P_{res} . (r_2 determined from Solution GOR Tabulation in Special Rule 13(C).)
- ~~T_{sc}~~ T_{sc} = Temperature at standard conditions equals 60° degrees F or 520° degrees R.
- ~~T_{res}~~ T_{res} = Initial bottomhole temperature 111° degrees F or 571° degrees R.
- ~~P_{res}~~ P_{res} = Average reservoir pressure based on most recent bottomhole pressure survey as provided in Special Rule 28.
- ~~P_{sc}~~ P_{sc} = Pressure at standard conditions. (15.025 psia.)
- Z = Deviation factor for gas at P_{res} and at 111° degrees F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13(C).)
- ~~B_o~~ B_o = Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(C).)

~~Rule 13(C)~~ "(2). (a) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area.

~~Rule 13(C)~~ "(b) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined in (c) below, then the nominations and purchases by gas purchasers during the succeeding twelve-month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area.

~~Rule 13(B)~~ (c) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be carried forward as permitted production of gas from the gas area in subsequent balancing periods.

~~Rule 13~~ (C). The following values of r_{g2} , Solution Gas-Oil Ratio, Z, Gas Deviation Factor, and B_{g0} , Oil Reservoir Volume Factor, for the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(B):

P_{res} Average Reservoir Pressure, Psia	r_{g2} Solution GOR Ft ³ /Bbl.	Z Gas Deviation Factor	B_{g0} Oil Reservoir Volume Factor
1200	392	.855	1.199
1100	372	.859	1.191
1000	350	.865	1.183
900	329	.876	1.175
800	306	.884	1.166
700	283	.898	1.157
600	260	.907	1.148
500	234	.919	1.138
400	208	.927	1.127
300	180	.946	1.116
200	147	.960	1.020
100	116	.974	1.089 "

(3) That Rule 13 of the Special Rules and Regulations governing the Todd-Lower San Andres Pool, Roosevelt County, New Mexico, ~~is~~ ^{amended by Order No. R-1670-6} hereby amended to read in its entirety as follows:

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Case No. 4776
Order No. R-

"RULE 13. (A). The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve-months following this date shall be known as the gas proration period."

~~Rule 13~~ (B) (1) The top 80-acre unit allowable for oil wells shall be determined each month by multiplying the Southeast New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.00). The final allowable for the gas area of said pool shall be determined each twelve-months for the preceding twelve-month period in accordance with the following formula:

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[\frac{(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right)}{\left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right)} \right]$$

where:

V = the gas allowable for the gas area for the preceding twelve-month period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve-month period expressed in cubic feet rounded off to the nearest MCF.

Q = total oil production from the oil area during the preceding twelve-month period, barrels.

(A plus ΔA) = total acres dedicated to gas wells during preceding twelve-month period.

(a plus Δa) = total acres dedicated to oil wells during preceding twelve-month period.

(Note: "A" and "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve-month period. ΔA and Δa represent acreage so dedicated for only a portion of the twelve-month period. In the event a well is completed or reclassified during a twelve-month period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right)$$

$$\Delta a = a \left(\frac{d}{D} \right)$$

where:

ΔA or Δa = acreage to be added to gas or oil area, respectively.

A or a = acreage dedicated to the well.

d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.

D = total number of days in proration period.)

r_f = Average producing GOR for oil area during preceding twelve-month period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)

r_s = Solution GOR for the oil area at P_{res} . (r_s determined from Solution GOR Tabulation in Special Rule 13(C).)

T_{sc} = Temperature at standard conditions equals 60° degs. F or 520° degs. R.

T_{res} = Initial bottom-hole temperature 125° degs. F or 585° degs. R.

P_{res} = Average reservoir pressure based on most recent bottom-hole pressure survey as provided in Special Rule 28.

P_{sc} = Pressure at standard conditions. (15.025 psia.)

Z = Deviation factor for gas at P_{res} and at 125° degs. F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13 (C).)

B_o = Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(C).)

~~Rule 13(B)~~ (2) (a) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area."

~~Rule 13(B)~~ (b) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined in (c) below, then the nominations and purchases by gas purchasers during the succeeding twelve-month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area."

~~Rule 13(B)~~ (c) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be carried forward as permitted production of gas from the gas area in subsequent balancing periods."

~~Rule 13(B)~~ (C) The following values of r_2 , Solution Gas-Oil Ratio, Z, Gas Deviation Factor, and B_o , Oil Reservoir Volume Factor, for the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(B):

<u>Pres</u> <u>Average</u> <u>Reservoir</u> <u>Pressure, Psia</u>	<u>r₂</u> <u>Solution</u> <u>GOR</u> <u>Ft3/Bbl.</u>	<u>Z</u> <u>Gas</u> <u>Deviation</u> <u>Factor</u>	<u>B_o</u> <u>Oil Reservoir</u> <u>Volume</u> <u>Factor</u>
1680	275	0.841	1.160
1600	265	0.844	1.155
1500	253	0.850	1.149
1400	241	0.856	1.142
1300	229	0.863	1.136
1200	217	0.871	1.129
1100	205	0.880	1.122
1000	193	0.889	1.116
900	181	0.899	1.109
800	169	0.909	1.103
700	157	0.919	1.097
600	145	0.930	1.089
500	133	0.942	1.081
400	119	0.953	1.076
300	101	0.965	1.070
200	79	0.976	1.058
100	51	0.988	1.040

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Case No. 4776

Order No. R-

special
(4) That Rule 13 of the Special Rules and Regulations governing the Devils Fork-Gallup Pool, Rio Arriba County, New Mexico, *promulgated by Order No. R-1670-B* is hereby amended to read in its entirety as follows:

~~That~~ **RULE 13.** The date 7:00 a.m. January 1 of each year shall be known as the balancing date, and the twelve months following this date shall be known as the gas proration period.

SPECIAL RULE 13(1)

~~That~~ **RULE 13.** (1) The top 80-acre unit allowable for oil wells in the Devils Fork-Gallup Pool shall be determined each month by multiplying the Northwest New Mexico Normal Unit Allowable by the 80-acre proportional (depth) factor for said pool (2.33). The final allowable for the gas area of said pool shall be determined *each twelve months* for the preceding twelve-months period ~~on February 1st and on August 1st of each year~~ in accordance with the following formula:

(a)

$$V = \left[Q \times \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{T_{sc}}{T_{res}} \times \frac{P_{res}}{P_{sc}} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

where:

- V = the gas allowable for the gas area for the preceding twelve months period and is equal to the volumetric gas equivalent of all production from the oil area during the preceding twelve months period expressed in cubic feet rounded off to the nearest MCF.
- Q = total oil production from the oil area during the preceding twelve months period, barrels.
- (A + ΔA) = total acres dedicated to gas wells during preceding twelve months period.
- (a + Δa) = total acres dedicated to oil wells during preceding twelve months period.

(Note: "A" or "a" represent acreage dedicated to gas wells and to oil wells respectively for the entire twelve months period. ΔA and Δa represent acreage so dedicated for only a portion of the twelve months period. In the event a well is completed or reclassified during a twelve months period ΔA and/or Δa shall be computed as follows:

$$\Delta A = A \left(\frac{d}{D} \right) \qquad \Delta a = a \left(\frac{d}{D} \right)$$

where:

ΔA or Δa = acreage to be added to gas or oil area, respectively.

A or a = acreage dedicated to the well.

d = number of days during proration period during which well was completed as gas well or as oil well and was so classified.

D = total number of days in proration period.)

r_1 = average producing GOR for oil area during preceding twelve months period. (Determined by dividing total cubic feet of casinghead gas produced by total barrels of oil produced.)

r_2 = Solution GOR for the oil area at ~~Pres.~~
~~res~~ determined from Solution GOR Tabulation in Special Rule 13(b).)

~~Tsc~~
32 = Temperature at standard conditions = 60° F or 520° R.

~~Tres~~
res = Initial bottom-hole temperature, assumed to remain constant at 147° F or 607° R.

- P_{res} = Average reservoir pressure based on most recent bottom-hole pressure survey as provided in Special Rule 28.
- P_{sc} = Pressure at standard conditions = 15.025 psia.
- Z = Deviation factor for gas at P_{res} and at 1470 F. (Z factor determined from gas Deviation Factor Tabulation in Special Rule 13(b).)
- B_o = Oil reservoir factor at P_{res} . (B_o determined from Oil Reservoir Volume Factor Tabulation in Special Rule 13(b).)

Substituting known constant values in Formula (a) above,

$$V = \left[Q \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{520 \times P_{res}}{607 \times 15.025} \times \frac{1}{Z} \times B_o \times 5.61 \frac{ft^3}{bbl} \right) \right]$$

$$V = \left[Q \left(\frac{A + \Delta A}{a + \Delta a} \right) \right] \left[(r_1 - r_2) + \left(\frac{0.32 \times P_{res} \times B_o}{Z} \right) \right]$$

"(2) The volumetric equivalent of gas for the gas area determined in (1) above shall be compared with the actual production from the gas area."

"(a) If the actual production from the gas area exceeds such volumetric equivalent plus any permitted production remaining as determined by (b) below, then the nominations and purchases by gas purchasers during the succeeding twelve month period shall be adjusted by the Commission so that the volumetric withdrawals from the gas area shall be restricted for the purpose of balancing the cumulative equivalent volumetric withdrawals from each area."

"(b) If the actual production from the gas area is less than the volumetric equivalent for the gas area then no adjustments will be made but the difference between the volumes will be

carried forward as permitted production of gas from the gas area in subsequent balancing periods.

Special "RULE 13 (b). The following values of r_2 , Solution Gas-Oil Ratio, Z , Gas Deviation Factor, and B_o , Oil Reservoir Volume Factor, for the various values of P_{res} , Average Reservoir Pressure, shall be used in computing the volumetric equivalent of gas per Special Rule 13(a):

P_{res} Average Reservoir Pressure	r_2 Solution GOR ft ³ /bbl.	Z Gas Deviation Factor	B_o Oil Reservoir Volume Factor
2000	935	.785	1.434
1900	890	.789	1.424
1800	850	.795	1.414
1700	805	.801	1.404
1600	765	.806	1.393
1500	725	.814	1.382
1400	685	.823	1.371
1300	647	.832	1.360
1200	610	.842	1.347
1100	570	.853	1.335
1000	535	.864	1.322
900	498	.876	1.309
800	463	.889	1.295
700	429	.902	1.280
600	396	.915	1.262
500	365	.927	1.245
400	335	.941	1.227
300	300	.954	1.208
200	255	.968	1.190
100	195	.982	1.160

(6) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

(5) (7) That the period from February 1, 1972, to December 31, 1972, shall be considered as one proration period for the above-described pools located in northwest New Mexico; and that the period from January 1, 1972, to December 31, 1972, shall be considered as one proration period for the above-described pools located in southeast New Mexico.

July 24

News

Cons

~~Applicants~~

On the matter of the hearing called by
the B. & O. Conservation Commission on its
own motion for the amendment of
the Special Rules and Regulations governing
the associated pools of New Mexico. The
Commission will consider amendment of
the _____,
_____,
_____.

to permit the establishment of one-year
protection periods for each of said pools.

Check with Herman, etc for names of
all assoc. pools

ASSOCIATED

SE.	NW	SPECIAL RULES
* BLUITT SAN ANDRES ASSOCIATED - Rosa ✓	ANGLES PEAK GALLUP S.J. ✓	1000/DA. ✓
DOUBLE QUEEN (ASSOCIATED) ✓ Chico	ESCRITO GALLUP R.A. & S.J. ✓	LARGO GALLUP ✓
MESA QUEEN ✓ Sea	GALLAGOS GALLUP S.J. ✓	Rio Grande ✓
PAQUA DELAWARE, NORTH ✓ Sea	TAPACITO GALLUP R.A. ✓	
ROUND TANK QUEEN ✓ Chico	TOTO DOME PENN D - S.J. ✓	
TWIN LAKES SAN ANDRES ✓ Chico		

VOLUMETRIC WITHDRAWAL

* K SE
TODD LOWER SAN ANDRES ✓ ~~Rosa~~
BLUITT SAN ANDRES ASSOCIATED
~~THAT~~

NW
DEVILS FORK GALLUP
Rio Grande