CASE NO.

6213

APPLICATION,

TRANSCRIPTS,

SMALL EXHIBITS,

ETC.

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO

STATE GEOLOGIST
EMERY C. ARNOLD

March 9, 1979

Mr. Paul Cooter
Atwood, Malone, Mann & Cooter
Attorneys at Law
P. O. Drawer 700
Roswell, New Mexico 88201

Re: CASE NO. 6213
ORDER NO. R-5856-A

Applicant:

Morris R. Antweil

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Tom Kellahin

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 6213 DE NOVO
Order No. R-5856-A

APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 24, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 7th day of March, 1979, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, Morris R. Antweil, seeks approval of an unorthodox gas well location for his Rio Well No. 2 to be located 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, to test the Morrow formation, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the N/2 of said Section 29 is to be dedicated to the well.

(4) That said Rio Well No. 2 would be the second well drilled on the N/2 of said Section 29, applicant's Rio Well No. 1, located in Unit G of Section 29, having been completed for Morrow formation gas production on August 23, 1977.

(5) That upon receipt of the application of Morris R. Antweil in this matter, the same was set for hearing on May 17, 1978, before Examiner Richard L. Stamets.

(6) That subsequent to said hearing the Oil Conservation Division entered Order No. R-5856 approving the unorthodox location of said well for the Morrow formation and providing for special rules and regulations limiting production therefrom.

(7) That subsequent to the entry of said Order No. R-5856, Gulf Oil Corporation, an offset operator, filed timely application for hearing De Novo of Case No. 6213, and the matter was set for hearing before the Commission.

(8) That the matter came on for hearing De Novo on January 24, 1979.

(9) That the Morrow interval encountered in said Rio Well No. 1 is less productive than said interval in offsetting wells and will not adequately drain the N/2 of said Section 29.

(10) That the applicant seeks to drill a second well on the proration unit (Rio Well No. 2) to permit better drainage of said unit and to protect his correlative rights.

(11) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(12) That an offset operator has objected to the proposed location.

(13) That a well at the proposed location is at a standard location relative to the North and South lines of said Section 29.

(14) That a well at the proposed location is 67 percent closer to the West line of said Section 29 than permitted by Division Rules and Regulations.

(15) That a well at the proposed location will have an area of drainage in the Morrow formation which extends 67.2 net acres outside Section 29, an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

(16) That if both said Rio Well No. 1 and Rio Well No. 2 are permitted to produce, it will result in the proration unit having an additional net 192.8 drainage acres' advantage over offsetting proration units, an amount of acres equivalent to 60 percent of a standard proration unit.

(17) That to offset the advantage gained over the protesting offset operator resulting from the drilling of a well at the proposed unorthodox location, and the production of two wells on the proration unit, production from the N/2 of said Section 29 should be limited from the Morrow formation.

(18) That in the case where only said Rio Well No. 2 is produced, such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (15) above, and may best be accomplished by assigning the proration unit a production limitation factor of 0.71 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor, divided by 3).

(19) That in the case where both said Rio Well No. 1 and Rio Well No. 2 are produced, such limitation should be based upon all the factors set out in Finding No. (18) above plus the 192.8 net additional drainage acres described in Finding No. (16) above, and may best be accomplished by assigning the proration unit a production limitation factor of 0.63 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor plus 40 percent net additional drainage factor, divided by 4).

(20) That in the absence of any special rules and regulations for the prorationing of production from said undesignated Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's or wells' ability to produce into the pipeline as determined by periodic well tests.

(21) That the Special Rules and Regulations for the Application Of A "Production Limitation Factor" To A Non-Prorated Gas Well Or Wells set out in Division Order No. R-5856 entered November 9, 1978, provide the proper framework for application of the aforesaid production limitation factor.

(22) That said Special Rules and Regulations should be adopted and made a part of this order by reference.

(23) That considering the risks involved in drilling to the Morrow formation, each proration unit should have a reasonable minimum calculated allowable.

(24) That at a sustained flowing rate of 500,000 cubic feet per day, a Morrow well in this area would pay-out in approximately 2.5 years.

(25) That 2.5 years is a reasonable pay-out period for a Morrow well in this area.

(26) That Rule 13 of said Special Rules and Regulations should be amended to provide for a minimum allowable of one-half million cubic feet of gas per day rather than one million cubic feet.

(27) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Morris R. Antweil Rio Well No. 2 to be located at a point 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That a 320-acre proration unit consisting of the N/2 of said Section 29 shall be simultaneously dedicated to the above-described well and to the Rio Well No. 1 located in Unit G of said Section 29.

(3) That said proration unit is hereby assigned a Production Limitation Factor of 0.71 in the Morrow Formation if only said Rio Well No. 2 is produced, and 0.63 if both said Rio Well No. 2 and applicant's Rio Well No. 1 located in Unit G of said Section 29 are produced.

(4) That in the absence of any Special Rules and Regulations prorating gas production in said undesignated Morrow Gas Pool, the Special Rules and Regulations for the Application Of A "Production Limitation Factor" To A Non-Prorated Gas Well Or Wells set out in Division Order No. R-5856, and hereby adopted by reference, shall apply.

(5) That Rule 13 of said Special Rules and Regulations is hereby amended to read in its entirety as follows:

> "RULE 13. In no event shall the unit receive an allowable of less than one-half million cubic feet of gas per day."

(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

ALEX J. ARMIJO, Member

EMERY C. ARNOLD, Member

JOE D. RAMEY, Member & Secretary

S E A L

fd/

SIPES, WILLIAMSON & AYCOCK, INC.
CONSULTING ENGINEERS

Midland

1100 GIHLS TOWER WEST
MIDLAND, TEXAS 79701
915 683-1841

1212 THE MAIN BUILDING
SUITE 902
HOUSTON, TEXAS 77002
713 658-8278

May 17, 1978

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Attention Mr. D. S. Nutter
Chief Engineer

Gentlemen:

Subject: Case No. 6231
Case No. 6232
Case No. 6213

This letter will serve to introduce the exhibits and present related testimony on the behalf of Mesa Petroleum Co.

Exhibit No. 1 is a combination structure and isopach map for the Morrow formation. A cross section trace is also shown on the map.

Exhibit No. 2 is a cross section of seven wells showing a correlation of the Morrow Conglomerate section between wells. The Mesa Lincoln State Comm. No. 1 has a fine grained sand section in the Morrow above the Conglomerate section. This section has not been included in the isopach or reserve calculations but should contribute to production.

Exhibit No. 3 shows available production from wells in the Cass Ranch area.

Exhibit No. 4 shows well locations, perforations, drill stem test information and test data for wells on the cross section (Exhibit No. 2).

Exhibit No. 5 shows 320-acre circular drainage areas for the requested unorthodox location and an orthodox location. Note the increase in the drainage encroachment on acreage outside the 320 unit assigned to the well.

Exhibit No. 6 calculates the ratable take factor that should be applied to a well's producing rate to account for the additional drainage encroachment acres that would result from drilling a well at an unorthodox location.

Exhibit No. 7 calculates the expected ultimate recovery from orthodox and unorthodox locations utilizing the isopach map (Exhibit No. 1). Case 6232 and 6213 show an increase in reserves for a well drilled at the orthodox location. Case 6231 shows a slight reduction in reserves for the orthodox location over the unorthodox location.

Summary and Requests:

1. Orthodox locations will not result in inferior recovery as compared to the unorthodox locations requested in Cases 6231, 6232 and 6213.

2. The field has been developed to date on orthodox locations and there is no reason to change now.

3. Continued development of this field on orthodox locations will prevent underground waste and protect correlative rights.

4. Mesa will farm in all three standard locations that are counterparts to the unorthodox locations requested in Cases 6231, 6232 and 6213.

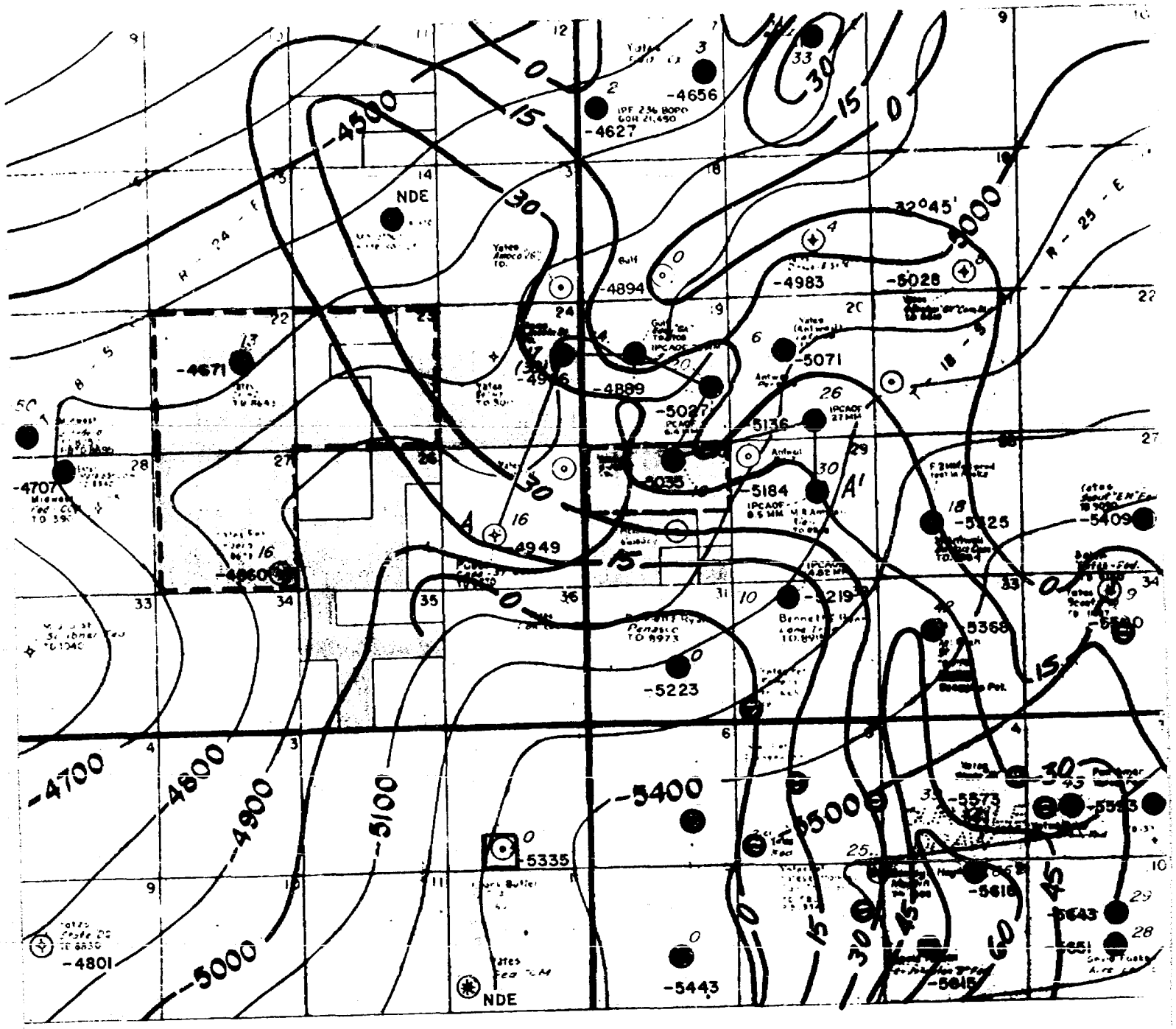
Respectfully submitted,

SIPES, WILLIAMSON & AYCOCK, INC.

Roy C. Williamson, Jr., P.E.
Consultant for Mesa Petroleum Co.

/pw

attachments



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco-Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 6213
Submitted by MESA Pet Co
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 1

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT

Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J	DRAWN BY T.D.M.
DATE 4-10-78	SCALE 1" = 5000'

PRODUCTION DATA
UNDESIGNATED MORROW POOL - CASS RANCH AREA
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWEIL, MORRIS R.				BENNETT & RYAN		GULF OIL CORPORATION			
	Penasco		Rio Com.		Lonetree		Eddy GK State Com.			
	1 0 20 18S 25E		1 G 29 18S 25E		1 C 32 18S 25E		1 I 19 18S 25E		2 F 19 18S 25E	
	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL
1977										
September	69,733	224	27,226	131	---	---	---	---	---	---
October	183,897	557	47,260	93	---	---	---	---	---	---
November	159,355	464	33,089	52	13,419	---	---	---	---	---
December	151,703	428	29,460	45	11,055	---	---	---	---	---
1978										
January	150,037	428	25,653	37	6,225	---	29,835	105	---	---
February	126,387	346	19,708	31	4,397	---	62,867	170	---	---
March	141,973	350	21,467	31	2,882	---	47,087	99	---	---
TOTALS	983,085	2,797	203,863	420	37,978		139,789	374		

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 3
CASE NO. 6213
Submitted by MESA PET. CO.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

X-SECTION WELL INFORMATION

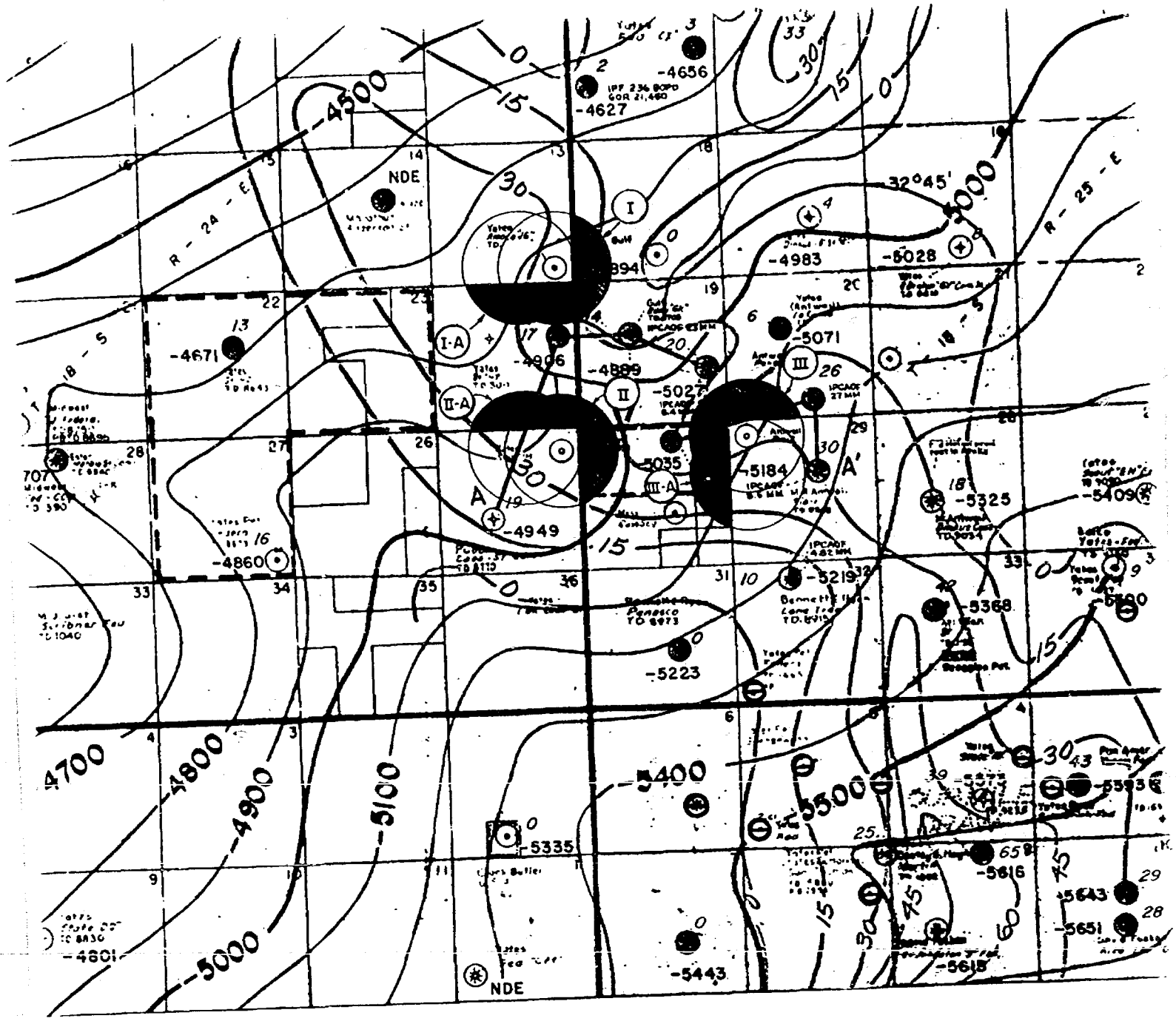
OPERATOR LEASE WELL NO.	WELL LOCATION	PERFORATIONS	DST INFO.	TEST DATA	CAOF
Morris R. Antweil Rio No. 1	Sec. 29-18S-25E 1980' FN & E	8685'-93'; 8694'-98'; 8700'-13' (Morrow)	8640'-8738' (Morrow) Rec. 500' O&GCM FSIP 3252#	F/919 MCFGPD, 1/8" ch., 60 min., TP2412# F/2007 MCFGPD, 3/16" ch., 60 min., TP2260# F/3268 MCFGPD, ¼" ch., 60 min., TP2025# F/5073 MCFGPD, 5/16" ch., 60 min., TP1989#	6,516 MCFGPD Dry; Gas Grav. .626 ~~SIBHP~~ 2447#
Morris R. Antweil Penasco No. 1	Sec. 20-18S-25E 660' FS & 1980' FE	8634'-62' (Morrow)	8610'-8705' (Morrow) Rec. 180' cond. & 120' DM FSIP 3356#	F/1049 MCFGPD, Orifice, 60 min., TP2639# F/1500 MCFGPD, Orifice, 60 min., TP2609# F/2295 MCFGPD, Orifice, 60 min., TP2556# F/3143 MCFGPD, Orifice, 60 min., TP2489#	27,143 MCFGPD GOR 382,000/1 Gas Grav. .614 SIWHP 2703#
Yates Petr. Corp. Federal "AB" No. 4	Sec. 30-18S-25E 660' FN & 1980' FE	8570'-90' (Morrow)	8545'-8642' (Morrow) Rec. 60' oil, 90' O&GCM FSIP 3269# (Also DST in Wlfcp.)	F/13,300 MCFGPD, 3/4" ch., 24 hr., TP918#	-
Gulf Oil Corp. Eddy "GK" St. Com. No. 1	Sec. 19-18S-25E 1980' FS & 660' FE	8603'-07'; 8618'-27'; 8634'-41' (Morrow)	NO DST	F/1062 MCFGPD, 1.5" Orif., 60 min., TP2320# F/1528 MCFGPD, 1.5" Orif., 60 min., TP2240# F/2099 MCFGPD, 1.5" Orif., 60 min., TP2130# F/2992 MCFGPD, 1.5" Orif., 60 min., TP1902#	6,424 MCFGPD Dry SIWHP 2425#
Gulf Oil Corp. Eddy "GK" St. Com. No. 2	Sec. 19-18S-25E 2310' FN & 1980' FW	8478'-80'; 8486'-98' (Morrow)	NO DST	F/3310 MCFGPD, 15/64" ch., 60 min., TP2450# F/4642 MCFGPD, 19/64" ch., 60 min., TP2330# F/6626 MCFGPD, 25/64" ch., 60 min., TP2095# F/9022 MCFGPD, 28/64" ch., 60 min., TP1645#	22,869 MCFGPD
Mesa Petr. Co. Lincoln St. Com. No. 1	Sec. 24-18S-24E 2030' FN & 660' FE	8497'-8513' (Morrow)	8402'-8552' (Morrow) Rec. 350' GCDM FSIP 3282#		P&A
Pubco Petr. Corp. Cass St. Com. No. 1	Sec. 25-18S-24E 1980' FS & W	None Reported	8245'-8475' Rec. 420' GCM FSIP 3111# (Alsc DST in Wlfcp.)		

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 6213
Submitted by MESA PET. CO.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco-Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 6213
Submitted by MESA PET. CO.
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 5

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT

Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J
DATE 4-10-78
DRAWN BY Y.D.M.
SCALE 1" = 50CO'

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

RATABLE TAKE FACTOR

AREA III & III-A

Orthodox Location - Drainage Encroachment Outside of 320 Unit = 86.78 ac.

Unorthodox Location - Drainage Encroachment Outside of 320 Unit = 151.86 ac.

Additional Drainage Encroachment of Well at Unorthodox Location = 65.08 ac.

$$\text{Ratable Take Factor} = \frac{\text{(STD Unit, ac.) - (Additional Drainage Encroachment, ac.)}}{\text{STD Unit, ac.}}$$

$$= \frac{\text{(320 ac.) - (65.08 ac.)}}{\text{(320 ac.)}}$$

$$= .7966*$$

* To Be Applied to Well Allowable for Standard 320 Acre Unit.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 6213
Submitted by MESA PET. CO
Hearing Date

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6213
EXHIBIT 6

CASE NO. 6213
EXHIBIT 6

CASS RANCH AREA
EDDY COUNTY, NEW MEXICO

RESERVE CALCULATIONS FOR
ORTHODOX AND UNORTHODOX LOCATIONS

AREA III & III-A

Section 29

Porosity, percent	14
Bottom-hole Pressure, psig	3290
Water Saturation, percent	15
Gas Gravity	.63
Drainage Area, acres	320

Gas Formation Volume Factor, $B_g = \frac{(35.35)(3305 \text{ psia})}{(0.86)(600^{\circ}R)} = 226.4 \frac{SCF}{RCF}$

$(43{,}560 \frac{Ft^3}{AF})$(Porosity 0.14)(Gas Saturation 1-.15) $= 5{,}183.6 \frac{RCF}{AF}$ $(226.4 \frac{SCF}{RCF})$

$= 1{,}174 \frac{MCF}{AF}$ (0.80 Rec.) $= 939 \frac{MCF}{AF}$

1980 FNL 6600 FWL

Orthodox Location:

(320 Ac) $\left[(0.8)(30)+(0.2)(25)\right]$ $(939 \frac{MCF}{AF})$ = 8,714 MMCF

Unorthodox Location:

(320 Ac) $\left[(0.35)(30)+(0.5)(22.5)+(0.15)(14)\right]$ $(939 \frac{MCF}{AF})$ = 7,166 MMCF

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 6213
Submitted by MESA PET. CO.
Hearing Date

ROY C. WILLIAMSON, JR., P.E./pw MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6213
EXHIBIT 7

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 12, 1978

COMMISSION HEARING

IN THE MATTER OF:	
Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County New Mexico.	CASE 6213 (DE NOVO)
Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico.	CASE 6231 (DE NOVO)
Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico.	CASE 6232 (DE NOVO)

BEFORE: Joe D. Ramey, Director

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: Lynn Teschendorf
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

MR. RAMEY: Call Cases 6213, 6231, and 6232.

MS. TESCHENDORF: Case 6213, application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

Case 6231, application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

Case 6232, application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Upon application of Gulf Oil Corporation this case will be heard De Novo.

It is requested that these cases be continued.

MR. RAMEY: This hearing is hereby continued indefinitely. The hearing is adjourned.

ATWOOD, MALONE, MANN & COOTER
A PROFESSIONAL ASSOCIATION
LAWYERS

JEFF D. ATWOOD [1883-1960]
ROSS L. MALONE [1910-1974]

P. O. DRAWER 700
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201
[505] 622-6221

CHARLES F. MALONE
RUSSELL D. MANN
PAUL A. COOTER
BOB F. TURNER
JOHN W. BASSETT
ROBERT E. SABIN
BRIAN W. COPPLE

RANDAL W. ROBERTS
STEVEN L. BELL

March 26, 1979

Mr. Joe D. Ramey, Secretary
Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

RE: Case No. 6213
Order No. R-5856-A

Dear Mr. Ramey:

Would you please file the enclosed Application for Rehearing in the captioned case.

Very truly yours,

Paul Cooter

PC:sas
Encl.
cc: W. Thomas Kellahin, Esquire
Terry I. Cross, Esquire

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING)
CALLED BY THE OIL CONSERVATION)
COMMISSION FOR THE PURPOSE OF)
CONSIDERING THE APPLICATION)
OF MORRIS R. ANTWEIL FOR AN)
UNORTHODOX GAS WELL LOCATION)
AND SIMULTANEOUS DEDICATION,)
EDDY COUNTY, NEW MEXICO.)

Case No. 6213
Order No. R-5856-A

APPLICATION FOR REHEARING

COMES NOW Morris R. Antweil, hereinafter referred to as Applicant, files this Application for Rehearing, and states:

1. Applicant heretofore filed his Application seeking approval of an unorthodox gas well location for his Rio Well No. 2 to be located 660 feet from the north line and 660 feet from the west line of Section 29, Township 18 South, Range 25 East, N.M.P.M., Eddy County, New Mexico, to test the Morrow Formation in what was then an undesignated Morrow Gas Pool, dedicating the N½ of said Section 29 to such well. Applicant's proposed Rio Well No. 2 would be the second well drilled on the N½ Section 29, his Rio Well No. 1 located 1980 feet from the North line and 1980 feet from the East line of Section 29 having been completed for Morrow Formation gas production on August 23, 1977; the N½ Section 29 would be simultanously dedicated to both wells.

2. After the original hearing before Examiner Richard L. Staments on May 17, 1978, the Director of the Oil Conservation Division entered Order No. R-5856. One of the protestants to the Applicant's application, Gulf Oil Corporation, thereafter filed its application for de novo hearing before the Oil Conservation Commission; that hearing was held on January 24, 1979, and the Commission thereafter entered Order No. R-5856-A dated March 7, 1979.

3. Order No. R-5856-A is unreasonable, unlawful, arbitrary and capricious, and therefore invalid and void on the following grounds:

(a) Findings Nos. 16 and 19 finding that if both wells be permitted to produce, the proration unit will have an additional net 192.8 drainage acres advantage over offsetting proration units is founded on the assumption that Applicant's Rio Well No. 1 actually drains 320 acres, which assumption is contrary to Findings Nos. 9, 10 and 11 and to the uncontroverted testimony of the witnesses, which established that the Rio Well No. 1 only drains from 22.3 to 23.0 acres.

(b) Finding No. 14 is correct, and is taken into consideration in Finding No. 15 which determines that Applicant's proposed Rio Well No. 2, at the unorthodox location will have an additional net 67.2 drainage acres advantage over a well at an orthodox location. However, incorporating both penalty factors in Findings Nos. 18 and 19 (i.e., the penalty factors for <u>both</u> the East/West factor and the net-acre factor) compounds the penalty attached to the proposed unorthodox location of the Rio Well No. 2.

Finding No. 15 imposes an adequate penalty for any advantage afforded Applicant's proposed well at an unorthodox location.

(c) Findings Nos. 20, 21 and 22 establishing Special Rules and Regulations for the Application of a "Production Limitation Factor" to a Non-Prorated Gas Well or Wells is an unnecessary departure from the well established principles of the Commission imposed by Sections 70-2-11 and 12, N.M.S.A. 1978 in that:

(i) The wells and lands involved were in an undesignated (but since designated the Penasco Draw-Morrow Pool) and non-prorated Morrow Gas Pool.

(ii) The application of a "production limitation factor", determined solely by acreage considerations against a well's ability to produce (i.e., deliverability), is improper.

(iii) Under the rules and regulations of the Commission, the pool may be prorated, thereby providing for the application of an acreage penalty factor to the acreage allowable, one of the factors necessary to ascertain the correlative rights of the various tracts within the reservoir.

(d) Finding No. 23 is correct in that a reasonable minimum calculated allowable should be set, but Findings Nos. 24, 25 and 26 are not supported by substantial evidence.

(e) Finding No. 27 is founded upon the erroneous Findings hereinabove referred to, which impairs Applicant's correlative rights and will result in waste if Applicant's Rio Well No. 2 not be drilled.

4. Order No. R-5856-A does not rest upon an authorized statutory basis, is not supported by substantial

evidence and deprives Applicant of his property without due process of law contrary to and in violation of the Fourteenth Amendment to the Constitution of the United States and of Article II, Section 18 of the Constitution of the State of New Mexico.

WHEREFORE, Applicant prays that this Application for Rehearing be granted, and that after notice and rehearing as required by law, the Commission modify its Order No. R-5856-A by striking and removing therefrom each and every erroneous and invalid Finding heretofore referred to, and in lieu thereof, enter its order granting Applicant's original application.

Respectfully submitted,

MORRIS R. ANTWEIL

By _____

Atwood, Malone, Mann & Cooter
P. O. Drawer 700
Roswell, New Mexico 88201

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
State Land Office Building
Santa Fe, New Mexico
24 January 1979

COMMISSION HEARING

IN THE MATTER OF:

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. CASE 6213

BEFORE: Commissioner Ramey
Commissioner Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

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I N D E X

E X H I B I T S

MR. RAMEY: The hearing will come to order. We'll call first Case 6213.

MS. TESCHENDORF: Case 6213. Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico.

The case will be heard de novo upon application of Gulf Oil Corporation.

MR. RAMEY: Ask for appearances at this time.

MR. COOTER: Paul Cooter of Atwood, Malone, Roswell, appearing on behalf of Morris R. Antweil.

We have one witness, R. M. Williams.

MR. KELLAHIN: Tom Kellahin of Kellahin and Kellahin, Santa Fe, appearing on behalf of Gulf Oil Corporation in association with Mr. Terry Cross, a member of the Texas bar and attorney for Gulf Petroleum Corporation.

We have two witnesses.

MR. RAMEY: We'll ask that all witnesses stand at this time and be sworn.

(Witnesses sworn.)

R. M. WILLIAMS

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. COOTER:

Q. Will you state your name for the record, please, sir?

A. R. M. Williams.

Q. And where do you reside, Mr. Williams?

A. Hobbs, New Mexico.

Q. By whom are you employed and in what capacity?

A. Morris R. Antweil as an engineer.

Q. Would you please relate briefly for the record your education and professional experience?

A. Graduate petroleum engineer from Penn State University; worked for Shell Oil Company, Monterey Oil Company, Humble Oil Company, and then with Morris Antweil; worked in New Mexico for twenty-four years.

Q. How long have you been employed by Mr. Antweil?

A. Twelve years.

Q. Are you familiar with Mr. Antweil's application in this case?

A. Yes, I am.

Q. Have you previously testified at the Examiner Hearing in this case on May 17, 1978?

A. That's correct.

Q. Relate briefly what Mr. Antweil seeks by this application.

A. Yes. We've requested approval of an unorthodox location for a Morrow gas well, to be located 660 feet from the north line, 660 feet from the west line, Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, with the north half of Section 29 to be dedicated to that well and simultaneously dedicated to a No. 1 Rio Well, located in the north half.

Q. There is a present well on that unit, is there not?

A. That's correct.

Q. Why do you seek the permission for a second well and at this location?

A. The original well on the gas proration unit, our No. 1 Rio, has failed to drain the 360 acre -- 320 acre proration unit, due to apparent limited drainage area available to that well. We seek to drill another well to recover the gas under our acreage and sought the location, unorthodox location, as being more favorable for the successful completion of that well.

Q For this hearing this morning did you prepare several exhibits, Numbers One through Eight?

A Yes, I have.

Q Before you is Exhibit One. Please identify that and explain it.

A Exhibit Number One is a land map of the area

surrounding the proposed well. The proposed location is indicated on the map with a red dot. The proposed gas spacing and proration unit is outlined in red, being the north half of Section 29. The other successful Morrow gas completions in the immediate area are marked with orange well spots and the dry or noncommercial Morrow tests in the area have been marked with blue well spots.

Q. I now hand you what has been marked as Exhibit Number Two. Would you please relate what is shown on that exhibit?

A. Yes. Exhibit Two is simply a tabulation of the offset operators to the proposed location. Gulf Energy and Minerals Company has working interest in the Section 19, all of this being in Township 18 South, 25 East. Mesa Petroleum Company has acreage in Section 30 and Yates Petroleum Corporation has acreage in Sections 20, 21, 29, and 30.

Some of the acreage shown on the Exhibit One, land map, designated to Atlantic or Huber-Hanlon in Sections 20, 28, and 29 is operated by Morris R. Antweil.

Q. I'll now hand you what has been marked as Exhibit Number Three. Please identify that and explain it.

A. Exhibit Three is a plat of the four sections in the immediate area of the proposed location. The proposed location is designated by a red well spot. The exact locations of the surrounding wells are indicated on the plat and

then at the bottom of the plat the calculated distances between the wells is shown.

Q. Let me direct your attention to what we have marked as Exhibit Number Four. Please explain that.

A. Yes. Exhibit Four is a structure map in the immediate area of the proposed location. The contours are 100-foot contours of a marker in the top of the Morrow formation. The structure shows the regional dip to the south and east. There's no prominant structural feature in this vicinity.

Q. Turn next, if you would, to Exhibit Number Five and explain that to the Commission.

A. Yes. Exhibit Number Five is an Isopach map of the Morrow pay interval. The thickness of the pay sand in the Penasco/Rio wells, the prospective completion interval for the proposed well, has been selected in the wells in the area from well logs. This thickness has been plotted on the map and then contoured for an Isopach map showing the localized thick Morrow Sand section in the vicinity centered on the north half of Section 29 and thinning rapidly to the northeast and southwest. There's some elongation of the sand body to the southeast and northwest.

Q. Turning back, if you would, a minute to Exhibit Number One, that is substantially the same exhibit as was offered at the prior Examiner Hearing, is it not?

A. That's correct, with one change.

Q. What is that change?

A. The well drilled in Section No. 30, located 1980 from the south and 1980 from the east lines of Section 30, at the time of the previous hearing was only a location; possibly it was drilling at that time. That well was unsuccessful.

Q. Was that unsuccessful completion -- strike that. Did that unsuccessful completion in any way change or alter your Isopach map, which is Exhibit Number Five?

A. No, it did not. The Isopach which had been previously submitted indicated that a well at that location would be expected to -- not to encounter any of this pay sand.

Q. Let's go next to Exhibit Number Five, Mr. Williams.

A. This would be Exhibit Number Six.

Q. Six, pardon me, yes, sir. Explain that to the Commission, if you would.

A. Yes. Exhibit Number Six is a correlation section showing the Morrow Sand intervals, the logged interval through the Morrow section, of the four wells which directly offset the proposed location. Those four wells being the Yates Petroleum Corporation Federal "AB" 4 in Section 30; Gulf Energy and Minerals Company's Eddy "GK"

State No. 1 in Section 19; Morris R. Antweil's Penasco No. 1 in Section 20; and the Morris R. Antweil Rio No. 1 in Section 29.

On the log of each well we have indicated the Morrow Sand pay that was encountered and in fact was a completion interval for these four wells.

The gamma ray log, side of the log, the left-hand side of each log, has been shaded in yellow to indicate the Queen sand interval in each well.

The sonic portion of the log to the right of the wellbore has been shaded in red to indicate the porous interval in that sand body in each well.

In addition there is a blue mark on each well-bore as our correlation of the Morrow marker. This is a marker at or near the top of the Morrow formation. It's showing that correlation.

The exhibit is submitted to show the similarity of the pay sand which has been encountered in these four wells and would be expected in the proposed well, or a well at the proposed location.

Q. Let me direct your attention on this exhibit specifically to the Penasco No. 1 and the Rio No. 1. From that, could you expect similarity in the structure on both wells?

A. The quality of the pay sand in the two wells,

as indicated by the logs, was very similar and when we drilled, logged, and completed these wells we anticipated that they would be very similar in performance.

Q. Okay, that leads up to the next exhibit, which is Exhibit Number Eight. Pardon me, Exhibit Number Seven. Explain Exhibit Number Seven, please, sir.

A. Yes. Exhibit Seven is a comparison of the production performance of our No. 1 Penasco Well and No. 1 Rio Well, the two wells being a half a mile apart. The production performance of the Penasco Well from September, 1977, when it was first put on production, to December of '78 indicates that 2,168,000,000 feet of gas have been recovered. The flowing tubing pressure of this well has been drawn down by its production from original pressure in the neighborhood of 2000 psi flowing tubing pressure to a current pressure of about 1600 psi. The well is still producing in excess of 4-million cubic feet of gas per day. It's quite -- a very good well.

In contrast, our No. 1 Rio Well never exhibited the production capacity that the Penasco Well enjoyed. The maximum production was approximately a million-and-a-half feet of gas per day. The production has declined and -- or dramatically the flowing tubing pressure has declined from original of about 1500 psi to a current wellhead pressure of 150 psi.

You notice by May of 1978 the Penaso Well was -- flowing tubing pressure had declined to a point that it was riding the line, flowing against the pipeline pressure. In October, '78, we set a compressor and have been compressing the gas to put it in the line since that date and have the wellhead pressure reduced now to 150 psi. That well has recovered just 343,000,000 feet of gas through December of '78.

At the bottom of the page we've indicated some of the pressure data that is available. The Penasco Well had an original bottom hole pressure on DST of 3356 psi. The calculated open flow potential for the well was 27-million. Bottom hole pressure taken 14 May 1977 before the well was put on production was 3408 psi and had a shut-in tubing pressure at that time of 2751 psi.

The well was put on production on the 15th of September of 1977 and a shut-in tubing pressure measurement yesterday, the well has shut-in tubing pressure of 1850 pounds. It was performing quite well.

The Rio Well, in contrast, had an original bottom hole pressure indicated on drill stem test of 3316 psi on initial shut-in and 3252 psi on the final shut-in of the drill stem.

The shut-in tubing pressure observed on the 4-point test of the Rio well was 2447 pounds. The well had

a calculated open flow potential of 6-1/2 million. Bottom hole pressure taken on the 9th of August, 1977, before the well was put on production was 2975 pounds bottom hole pressure. Shut-in tubing pressure at that same time was 2377 psi. The well was put on production on the 16th of September, 1977, and after one month's production bottom hole pressure measurement was taken on the 17th of October of '77; indicated a bottom hole pressure of 2119 psi; with shut-in tubing pressure of 1681 psi.

You notice here with one month's production the well had a pressure depletion of some 856 pounds, of pressure depletion in one month of bottom hole pressure. Shut-in tubing pressure on the No. 1 Rio Well on the 23rd of January was 625 pounds, so the well was approaching its economic limits.

Q. The north half of Section 29 is now dedicated to your Rio No. 1 Well, is that correct?

A. That's correct.

Q. From the exhibits which we have already discussed, do you believe that the full 320 acres dedicated to that well is productive?

A. From the observations that we can make of the logs in our Rio Well and the logs of the surrounding wells, as shown on our Isopach map that was presented, we believe that the sand body that has been productive in these wells

is present over the entire 320 acres and therefore, would expect it to be productive throughout the 320 acres. Our concern is that the performance of our No. 1 Rio Well, as compared here to our No. 1 Penasco Well, would indicate that our Rio Well was not successfully draining this 320 acres. Apparently its drainage area is, apparently, limited by some anomoly in the formation.

Q. Turn now to Exhibit Number Eight.

A. Yes. Exhibit Number Eight is an estimate that I have made of the apparent drainage area available to our No. 1 Rio Well based on its performance. Conditions of the reservoir were selected from the log data and pressure data. Porosity of 13 percent was indicated by the log. A sand thickness of 24 feet; water saturation of 25 percent. The initial bottom hole pressure of 2975 pounds would give you a gas/volume factor of approximately 220 standard cubic feet per cubic foot of reservoir pore space and for a gas reservoir of this type we have considered a recovery factor of 80 percent to be reasonable.

The estimated recovery then, per acre, can be calculated as shown here and would calculate to be 17,940 Mcf per acre.

The performance of the well, as shown on our Exhibit Seven, would indicate that we could expect to recover no more than 400,000 Mcf of gas from our No. 1 Rio Well. On

that basis the apparent area being drained by the well is calculated to be 22.3 acres and the radius of that 22.3 acres would be calculated to be 556 feet. We present this to show what the indicated limited recovery of our No. 1 Rio Well, what that translates into as far as the area apparently being drained by this well.

Q. Do you have an opinion as to whether or not the proposed Rio No. 2 Well is necessary to recover the reserves underlying this unit?

A. Yes. Because of the indicated limited recovery and limited area of drainage of our No. 1 Rio Well, we think that an additional well on the proration unit is necessary for us to have the opportunity to recover the gas under our lease.

Q. Why the unorthodox location, Mr. Williams?

A. The -- we selected a location which we felt would offer us the most favorable opportunity to realize a successful completion for a second well on this proration unit. We envision that there is some anomaly, some permeability barrier, possibly, whatever, but there's some condition in the reservoir which is limiting the production from our No. 1 Rio Well and we sought to locate the proposed well at the unorthodox location to be as far as possible from our No. 1 Rio Well, which we anticipate will give us the best opportunity to realize a successful completion.

Q. If the No. 2 Well is not drilled, do you have an opinion as to whether or not there would be unrecovered gas left under the north half unit?

A. Yes. We, due to the limited recovery from our No. 1 Well, we feel that there is gas that in all probability would not be recovered by the existing well and it is gas under our leases and we seek the opportunity to recover that gas.

Q. Have you calculated the estimated costs of drilling and completing the Rio No. 2 Well?

A. Yes. I made an estimate of what the cost would be at this time. I would estimate cost at this time would be approximately $450,000 to drill and complete a well in the Morrow Sand at this location.

Q. And you are familiar, are you not, with the Order Number R-5856 --

A. Yes, sir.

Q. -- entered by this Commission on November 9, 1978, as a result of the Examiner Hearing previously held in this case?

A. Yes.

Q. Let me direct your attention first to finding number seventeen of that order, as well as the proposed special rule number thirteen, which provides -- both of which provide for a minimum allowable of 1,000,000 cubic

feet of gas per day.

Using this minimum figure, did you compute the payout period?

A. Yes. A well producing a million cubic feet per day would pay out the estimated costs of $450,000 in 10.7 months. I would calculate that.

Q. All right, now, if the Commission's penalty provisions were applied to that minimum figure, would you compute what the payout period would be?

A. By that you mean if the penalty provisions provided elsewhere there in the order were allowed to apply below a million cubic foot minimum allowable, say, the .71 production limiting factor would extend the payout to 15 months.

Q. If the payout period were 15 months, and so if the penalty provisions of the prior order applied to production below that minimum of 1,000,000 cubic feet per day, and considering the inherent risk involved, would you drill the Rio No. 2 Well?

A. As we would see it, we probably would not. Our guidelines for consideration of a Morrow well, because of what we consider the high risk involved in drilling for Morrow production, we would need to anticipate a payout of 12 months or less for a project to be attractive for investments.

Q. And as you stated previously, if the Rio No. 2 Well is not drilled, would there, in your opinion, be unrecovered gas left under that north half unit?

A. Yes, we believe there would.

Q. And is your opinion a probability as distinguished from a mere possibility in that regard?

A. Yes, I would say a probability.

Q. Let me direct your attention back to Order Number R-5856 and cover some of the findings with you, Mr. Williams.

First, finding number five, which appears on the first page of that order.

A. Yes. That finding of fact stated that the Morrow interval encountered by our No. 1 Rio Well was less productive than said interval in offsetting wells. I think the statement is correct as far as it went, but the testimony in that hearing, as now, indicated that this was not only less productive but obviously draining less than 320 acres, or at least would say that it has a limited area of drainage.

Q. In your opinion is the quality of the Morrow interval in the Rio No. 1 Well similar to that in the -- Mr. Antweil's Penasco Well?

A. Yes. From all indications from the logs the quality of the pay in the two wells was very similar.

Q. All right, next let me direct your attention to finding number twelve, which appears on the second page of that order. It sets forth that if both wells are permitted to produce there would be an additional 192.8 acres advantage over other unit.

Let's go back into that just a little bit and see how that's computed. Let me direct your attention, if I may, to an exhibit introduced by Gulf at the prior hearing, which was then marked as Exhibit Number Nine.

A. Yes. That calculation was made based on the assumption that the No. 1 Rio Well was actually draining 320 acre area of the reservoir, and in a radial pattern, and we believe that that finding of fact was shown at the previous hearing to be erroneous and it's further been substantiated by the production performance since the previous hearing that the No. 1 Rio Well was draining substantially less than the 320 acres used in that calculation; therefore, the calculated 192.8 acres of drainage advantage is therefore erroneous.

Q. Is it your understanding that that computation of 192.8 acres was arrived at first by computing the 640 acres attributable to both wells, assuming both of them drained 320 acres, and then deducting the 60 acres overlap as shown on that Gulf exhibit?

A. That's correct.

Q. That leaves a total area to be drained by the two wells, theoretically, of 580 acres, does it not?

A. That's right.

Q. I'm talking about theoretically.

A. If you make that assumption that both wells will successfully drain 320 acres.

Q. Now then, a standard unit is 320 acres, so that would leave an excess of 260 acres theoretically being drained by the two wells here.

A. Yes.

Q. Now, one of the prior Gulf exhibits, I believe it was Five or Six, perhaps both, let me place them before you, the prior Gulf Exhibits Numbers Five and Six, showed that a well at a permissible location or at an orthodox location in the north half unit --

MR. RAMEY: Mr. Cooter, may I interrupt? Are you going to offer these as exhibits or will you offer them as exhibits so we know what you're talking about?

MR. COOTER: I'll hand you what I've got.

(There followed a discussion off the record.)

MR. COOTER: It might be a good idea if at the break I make Xeroxed copies and mark them as Exhibits Nine, Ten, and Eleven. I'm sorry I didn't do that ahead of time.

Q. (Mr. Cooter continuing.) The Gulf exhibits at the prior hearing show that a well drilled at an orthodox location on the north half unit would drain approximately 67.2 acres from outside the unit, assuming perfect drainage, circular drainage pattern, does it not?

A. Correct.

Q. So after deducting that permissible drainage from the 260 acres left the 192.8 figure that is set forth in finding number twelve.

A. Yes, that's my understanding how that was arrived at.

Q. But it's your testimony, is it not, that that figure is in there because the Rio No. 1 Well rather than draining 320 acres dedicated to it at this time, would, as a result of your Exhibit Number Eight, drain approximately 22 acres.

A. That's correct. The Rio Well has a limited area of drainage and we also are making a pre-assumption that the -- both wells will drain 320 acres and it's generally the production performance in the entire area would cast some doubt on that assumption.

Q. That same finding in twelve is also carried out, is it not, in finding number fifteen at the bottom of page two?

A. Yes. Fifteen is just an extension of the

same consideration that went into finding of fact number twelve.

Q. All right. Next let me direct your attention to finding number sixteen, which appears at the top of page three. In your opinion is the deliverability a measure of the gas in place or the recoverable gas in the unit?

A. No, it is not.

Q. That finding incorporates the limitation factor applied against the well's ability to produce into the pipeline. Do pipeline pressures vary?

A. Yes. We've had considerable variance of the pipeline pressure in this area. As additional wells have been added, as other changes in the El Paso system have occurred, and we've had pressure -- pipeline pressure ranges from, I would say, a low of 450 up to 740 pounds.

Q. And the finding is silent as to whether ... that would be -- deliverability would be with or without a compressor.

A. Yes, there's no mention of that made. It says the well's ability to produce into a pipeline. As seen from our previous testimony, we have already installed and are using a compressor on our No. 1 Rio Well and the price of gas today, the economics of compression are very drastic and probably be compression on most of these wells.

Q. Next, may I direct your attention to finding

number eighteen. Are the special rules proposed for this one well precedent setting?

A. Yes, as far as I know, this particular case and two similar cases that were heard on the same day, was the first time that this type of approach of applying a production limitation factor on prorated gas fields had been adopted.

Q. This field is not now prorated?

A. No, it is not.

Q. Have you reviewed the records of this commission for other unorthodox locations in the Morrow Sand in this general area?

A. Yes. We reviewed the records, tried to -- attempted to select all of the unorthodox locations which had been granted in this vicinity during the past -- previous two years. That's including 1977 and 1978.

Q. Excluding the three cases to be heard today, this case and the two others that are on the Commission's docket, were there special rules or penalty in any of the orders that you reviewed?

A. There were no special rules. There was a penalty factor applied on one well. This was in a prorated field, in Catclaw Draw.

Q. How many unorthodox locations were approved in the Morrow trend in this area by the Commission in 1978?

A. Seventeen.

Q. And how many in 1977?

A. Fourteen.

Q. And out of those fourteen approved by the Commission in 1977, that is unorthodox locations in the Morrow trend in this area, only one had a penalty factor, and that was in a prorated field.

A. That's correct.

Q. Mr. Williams, in your opinion would the granting of Mr. Antweil's application in this case enable Mr. Antweil to protect his correlative rights?

A. Yes, it would. We contend that there is recoverable gas under our acreage in the north half of Section 29, which we are not recovering with our No. 1 Rio Well, and we seek permission to attempt to recover that gas with an additional well.

Q. And the correlative rights of the royalty owners as well?

A. That's correct.

Q. And who --

A. The State is the royalty owner.

Q. The State of New Mexico? And would the drilling of the Rio No. 2 Well be in the interest of conservation and the prevention of waste?

A. Yes, we consider that it would.

Q. And absent the drilling of the Rio No. 2 Well there would be unrecovered gas left in place?

A. Yes, we believe that is the case.

MR. COOTER: Mr. Chairman, I offer Exhibits Numbers One through Eleven; One through Eight were prepared by Mr. Williams; Nine, Ten, and Eleven were Gulf exhibits at the prior hearing, which I will mark -- duplicate and mark at the recess.

MR. RAMEY: Without objection these will be admitted.

MR. COOTER: That concludes the presentation of my direct case.

MR. RAMEY: Any questions of the witness? Mr. Kellahin.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Williams, you've indicated that this is a nonprorationed gas pool?

A. That's correct.

Q. And the Commission or Division rules applicable to this particular gas, Morrow gas pool, are the statewide rules, I believe. There are no special pool rules for this Morrow gas pool.

A. That's correct.

Q. And that this is simply an undesignated Morrow gas pool.

A. I think at a hearing a week or two ago that this was designated the Penasco Draw-Morrow Pool.

Has the order been made? I don't know whether the order's been made. It was heard.

MR. RAMEY: I signed an order yesterday.

Q. (Mr. Kellahin continuing.) Okay, so it's now called the Penasco Draw-Morrow Gas Pool.

A. That's the correct name, to the best of my memory.

Q. The rules applicable to this particular pool provide for 320-acre spacing, do they not?

A. That's correct.

Q. And you desire to dedicate the north half of Section 29 to a second well, the Rio 2 Well. That acreage is already dedicated to the Rio No. 1 Well, that's also correct, isn't it?

A. That's correct. We've sought the simultaneous dedication of that acreage to the two wells.

Q. A standard location within the north half of Section 29 provides, does it not, Mr. Williams, that a well will be drilled no closer than 660 feet from the side lines of that spacing unit and no closer than 1980 feet from the in lines of the spacing unit. That's also correct, is it not?

A. That's correct. There are some other limitations but that's correct.

Q. The proposed Rio No. 2 Well will be 1320 feet closer to the west boundary than currently provided by spacing rules for this well.

A. Yes.

Q. Now, would you look at Exhibit Number One which you've presented for me, please?

I conclude from Exhibit Number One that there are currently producing five Morrow gas wells in this rather limited pool, is that true?

A. In the immediate vicinity. I believe there are some additional wells further west but I didn't feel that that was germane to this application.

Q. Could you give me the current cumulative production for each of the five producing Morrow gas wells in this pool?

A. No, I don't have that information with me. I submitted the information for our two wells.

Q. You don't believe it's relevant and important as to how those wells compare to the other wells in the pool?

A. Not to our application.

Q. Let's look at your Exhibit Number Three, if you please, Mr. Williams.

You've indicated on that exhibit the footage distances for all the affected wells in this pool, as well as the distances from each of those wells to the proposed Rio No. 2 Well, have you not?

A. That's correct.

Q. In the north half of Section 29 would you identify for us what, if any, standard locations would be available?

A. There is an area in the northeast quarter of the northwest quarter that's bounded by a line that's 660 feet from the north line and 1980 feet from the west line.

Q. That would be in Unit C of Section 29?

A. Let me see, yeah.

Q. Okay. Are there any others?

A. That's just two boundaries.

Q. Okay, are there any other --

A. I wasn't finished.

Q. Okay, what are they?

A. Huh?

Q. What are they?

A. I'm still on this one. It's an area that's bounded by a line 660 feet from the north line, 1980 feet from the west line, 990 feet from the north line, and 2310 feet from the west line. There's a square that's 330 feet by 330 feet that is a legal location for a well.

Similarly there are three additional locations, one located in Unit F, one in Unit G, on which our No. 1 Rio Well is drilled, and one in Unit B.

Q. What would be the footage distance from the Rio No. 1 Well to a standard location in Unit B?

A. It -- I don't have those figures. It would be a little more -- the maximum distance could be a little more than 320 feet and the minimum distance would be 990 feet.

Q. All right, sir. What would be the distance from the Rio No. 1 Well to a standard location in Unit C?

A. I have not calculated that. The square root of 2 times 1320.

Q. That would be in excess of a thousand feet, though.

A. Yes.

Q. Okay. What is the footage distance between the Rio No. 1 Well and a standard location in Unit F?

A. That would be a minimum of 990 and a maximum, which would be a little more than 320, depending on where you located the well.

MR. NUTTER: Mr. Williams, I think for the record's sake you mean 1320. That's the second time you've said that.

A. 1320. Oh, no, both those cases when I talked

Unit B and this Unit F, that distance would be a little more than 1320 feet.

MR. NUTTER: Right, from 990 to 1320.

A. And a little bit extra for a diagonal which you could realize, depending on how you located the well.

MR. NUTTER: Okay.

Q. (Mr. Kellahin continuing.) I'd appreciate your looking at your Exhibit Number Five for me and explaining some of the information contained in that exhibit.

Now, based upon your net pay Isopach map, Mr. Williams, what number of net feet of Morrow Sands would you feel necessary to distinguish between productive and nonproductive sands?

A. We would consider that you would -- the absolute minimum would probably have to have ten feet of sand to make any kind of an economic well.

Q. The number of net feet of Morrow Sand in the Rio No. 1 Well, I believe, is 24 feet on your exhibit?

A. This is what we selected from the log, yes.

Q. And your selection on the Penasco Well in Section 20, I believe that figure is 25 feet?

A. That's correct.

Q. What do you anticipate to be the number of net feet at your requested location for the Rio No. 2?

A. Okay, in the neighborhood of 23, 24, feet, we

would see it.

Q. If you moved to a standard location in Unit C, what would you anticipate to be the number of net feet at that location?

A. It would probably be a little bit more, say, maybe 25, 26, feet.

Q. And if you moved to a standard location in Unit F, what would you anticipate to be the net feet?

A. Probably similar to the proposed location, 23, somewhere.

Q. Okay. I can conclude from Exhibit Number Five can I not, Mr. Williams, that if you drilled at a standard location in Unit C, Section 29, you would encounter more potentially productive Morrow Sand than you will at your requested location.

A. This is the indication, yes.

Q. In addition, Mr. Williams, if you'll look at the standard location in Unit B, what would you anticipate to be the number of net feet of Morrow Sands for that location?

A. 25, 26, feet.

Q. I'd like to direct your attention to I believe it's Exhibit Number Six. It's your correlation section.

A. Right.

Q. Was it your conclusion, based upon this exhibit, Mr. Williams, that the sand pay that's been developed in each of these four wells appeared to be the same sand body?

A. Yes, that was our purpose for entering the exhibit, to show the similarity and apparent correlation of the -- this productive member of the Morrow Sands in these four wells, and this is the producing interval in these four wells.

Q. In your opinion, does this sand body appear to be continuous throughout these four wells?

A. As far as the correlation section or the log information, yes, we would consider it to be continuous.

Q. Can we also conclude, Mr. Williams, that production from the proposed location, the Rio No. 2 Well, would come from the sand body that's already being produced by these four wells?

A. That would be our objective for drilling.

Q. And can we also conclude, Mr. Williams, that unless a penalized allowable is imposed upon the Rio No. 2 Well, that the offsetting acreage will be drained?

A. I couldn't assume that. If you want to assume that, you'll have to enter testimony to that effect.

Q. Have you expressed an opinion as to the number of productive Morrow acres in the north half of Sec-

tion 29?

A. Yes, I did.

Q. And what was that opinion?

A. I thought from all indications the sand body appears to cover the entire north half of Section 29 and would anticipate it should be productive over the entire 320 acres.

Q. The only exception to that opinion would be the 22 or 23 acres which has been drained from the Rio No. 1 Well, is that correct?

A. Yes, the Rio No. 1 Well is obviously draining only a limited portion of that for some reason, some occurrence in the reservoir remote to the wellbore.

Q. Except for the area being drained by the Rio No. 1 Well, then, it's your testimony that the entire north half of Section 29 is reasonably productive in the Morrow.

A. I think, yes. Our contention is from all indications that the sand can be expected over the entire area and we would expect to be -- to contain gas over the entire area.

Q. Can we also conclude from your testimony, Mr. Williams, that a well at any of the three standard locations within the north half of the unit would be economic?

A. Depends on how successful completion that we are able to make. We found from the Rio No. 1 Well that

there is an anomaly as far as the sand body is concerned and this well is draining only a limited area for some reason, and we need to locate the proposed well at some distance from the No. 1 Well which we consider gives us the best opportunity to make a successful completion and drain the, say, the northwest quarter of that with the proposed well.

Q. Can I conclude from that statement, Mr. Williams, that a well located as proposed could not then drain the east half of the spacing unit?

A. We feel that the production performance indicates that we certainly wouldn't drain the area immediately the No. 1 Rio Well because of the indicated limited nature of the reservoir in that area. How much area any well will drain can only be established once the well is drilled and you have some production performance and have some indication of what that drainage is.

Q. You talk about this pressure anomaly. You do not know where it's located and what position it lies within the north half of Section 29, do you, sir?

A. No. I wouldn't call it a pressure anomaly. There is some sort of, as I would express it, a permeability barrier of some sort that restricts the flow somewhere in the vicinity of our No. 1 Rio Well, as indicated by the performance. This causes the pressure difference, the difference in pressure performance that we've seen indicated

between our No. 1 Penasco Well and our No. 1 Rio Well, that I guess could best be described as a permeability barrier of some sort.

Q. I assume you're satisfied with the mechanical completion on the Rio No. 1 Well.

A. Yes, we are.

Q. And you don't attribute the poor pressure performance, or the production performance from the Well No. 1 to any kind of mechanical difficulty or any reservoir damage resulting from the drilling of the well.

A. Long question. No. We do not consider that the low pressure with the removal of gas, the rapid pressure depletion, of the No. 1 Well can in any way be caused by reservoir damage, and no -- there's no reservoir theory to substantiate that formation damage is going to cause pressure depletion. It may restrict the flow but not cause the pressure to deplete rapidly.

Q. You've not treated the Rio No. 1 Well in any way, have you?

A. Yes, we did treat it.

Q. Has that well been fractured?

A. No.

Q. You talk about this permeability barrier. Do you know how wide it is?

A. No. The only thing we know, that it's effective

because the No. 1 Rio Well is draining, obviously draining a limited area of this sand body.

Q. Can we look for a moment at your Exhibit Number Eight, Mr. Williams?

You've attributed 22.3 acres to drainage area around the Rio No. 1 Well.

A. That's true.

Q. And that calculates out to show a drainage radius of 556 feet.

A. Assuming a radius pattern, yes.

Q. Now, based upon your exhibit, if we assume that the Rio No. 1 Well is in the center of the drainage circle, its drainage to the northwest portion of Section 29 would extend only 556 feet, is that correct?

A. Yes, that's what we're saying here.

Q. Now, a standard location in Unit C would be more than 1000 feet from the Rio No. 1 Well, true?

A. That's right.

Q. And that a standard location in Unit C would be on the other side of this permeability barrier.

A. Possibly.

Q. Mr. Williams, you've been through, in your direct testimony, a discussion of a number of the findings in the Commission's Order R-5856. Do you have a recommendation, Mr. Williams, on a penalty factor to be assessed in

this case to offset the advantage you'll gain by the unorthodox location?

A. No, we don't. We -- it would be our contention that this advantage is questionable and there was no testimony submitted to the examiner the last time to substantiate that there was an advantage.

Q. Have you calculated the additional offset acreage you would drain from the proposed location of the Rio No. 2?

A. I tried to make a point of that before, that that calculation really cannot be meaningfully made by drawing circles on the map. The well's performance is the only reasonable indication that we have of the effective drainage area of any well and the assumption it's a nice, clean, 320-acre radial patterns that are being drained is erroneous when made by anybody.

Q. You would agree, would you not, that one appropriate way to compute a penalty factor would be on a straight acreage basis, as was done in this case.

A. No.

Q. Do you have any other recommendation to the Division to offset this advantage?

A. I'll still go back to my reasoning that there was no advantage proven.

Q. You've indicated with regards to finding number

seventeen of the Division order, and that's the one that set forth the 1000 Mcf allowable, that without the penalty -- I'm sorry -- with the minimum allowable left in the Order, the well will pay out in 10.7 months.

A. Yes, and assuming a million cubic feet a day production would pay out a well of this type in 10.7 months.

Q. And it was also your testimony that if that provision of the Order was eliminated and the penalty factor applied regardless of the production of the well, then it would take fifteen months to pay out the well.

A. That's correct, if you applied the .71 penalty factor, assuming you had a well capable of million cubic feet, we limited that production to 710 Mcf per day, the payout then would be extended from 10.7 months to fifteen months.

Q. I believe it was also your testimony that any penalty that reduced or extended your payout beyond twelve months was not acceptable.

A. This is an arbitrary guideline. Everybody has to adopt some guideline --

Q. I understand but your purpose is for --

A. -- for themselves, and we would consider for a Morrow well, considering the risk of inheriting Morrow completions, a minimum of twelve months for -- that you would have to have -- anticipate a payout of twelve months

or less to be an attractive investment.

Q. At what point would the penalty factor of .71 have to drop off in order to allow you to pay the well out in twelve months?

A. I didn't calculate that. It could be calculated.

Q. The Division, if they believe that to be an appropriate solution, they could make that calculation; that wouldn't require expert testimony on your behalf, would it, Mr. Williams?

A. No, they came up with this on their own.

Q. You would find no objection if they made that type of calculation to allow you to pay off in twelve months, would you?

A. I disagree with your question. We -- our contention is that there's no need for a penalty factor, production limiting factor whatsoever.

Q. I understand that point, but assuming there is, in fact, a penalty imposed, then the Commission could calculate a penalty -- a minimum allowable which will allow the well to pay out in twelve months.

A. Yeah, as far as calculating it, they could.

Q. In calculating your payout in 10.7 months, Mr. Williams, what is the cumulative gas production used in that calculation?

A. I didn't calculate that. I calculated the revenue per month and divided it into the total cost of the well and did not actually calculate the cumulative volume.

Q. Mr. Williams, you've indicated that you've searched the Commission records to determine the number of unorthodox location cases in '77 and '78 that were approved by the Division. If I understood your testimony, those were Morrow unorthodox locations?

A. Not all Morrow, no. They were Pennsylvanian.

Q. Okay.

A. I think the majority of them were Morrow. Usually when someone's proposing a well they seek the unorthodox location for a fairly inclusive interval. I don't know where their completions were made on those wells, or if they were completed.

Q. In how many of those cases was Antweil the applicant?

A. On that basis just this one case that we have in consideration.

Q. How many of those cases were contested cases?

A. Three, the two Yates cases in this same -- same area that were going to be considered, or are on the docket for consideration today, and one case of Hanagan was objected to.

Q. Apart from the Antweil case today and the two

Yates cases, none of the wells involved were in a nonprorated gas pool, is that true?

A. The -- I would say most of them are in non-prorated gas pools.

MR. KELLAHIN: I have nothing further. Thank you.

MR. RAMEY: Let's take a quick ten minute recess.

(Thereupon a recess was taken.)

MR. RAMEY: Any further questions of the witness? Mr. Stamets?

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Williams, if the Order R-5856 is affirmed by the Commission, is there anything in that order which would cause Antweil not to drill a well?

A. As you know, we didn't seek a de novo hearing. We lacked a lot of being in entire agreement with the order, but we were willing to go ahead and consider drilling the well on the basis of that order.

Now that the thing has been re-opened, we have some serious challenges to the whole concept of the production limiting factor which was initiated by this order.

Q. Getting to the Rio No. 1 Well, you indicated

that it's draining 22.3 acres, I believe.

A. Yes. We emphasized that this was an estimate but from the data available this is -- it's a reasonable estimate, we feel.

Q. Now do you think that that's all that it's really draining or is that simply an amount of gas that you will recover from this well when it reaches its economic limit projected as a reservoir volume?

A. Yeah. Of course this would be to the economic limit and possibly there is communication through that barrier interval which would require time intervals to permit communicate of gas that would far exceed the normal productive -- production life of this type of a well.

Q. So in your own mind, then --

A. So I mean effectively that's all we're -- that we see that we're draining.

Q. Given an unlimited amount of time, in your own mind, the Rio No. 1 could drain the entire north half of Section?

A. Yes, if there was any trace of permeability between this drainage area and the rest of the reservoir, then it would return to original conditions at some date.

Q. I believe you indicated that finding number sixteen had something to do with gas in place, and I've reread that and I have a hard time finding that connection.

Would you --

A. Yeah. Our point was the application of a production limiting factor to the deliverability to try to compensate for some supposed difference in advantage in the drainage of this well and so as we understood it, in this manner the Commission was trying to compensate our well back to the gas in place under our lease and to do this, we feel that it's erroneous to apply factor to deliverability, which is not a measure of the gas in place or the gas that any well will recover.

Q. Could you tell us where specifically where in the order, or in the findings in this order, that it says that a determination is made as to gas in place and this penalty factor is applied against gas in place?

A. No, it does not say that. That's what we're saying that the -- making the application against the deliverability doesn't compensate for the gas that any well should or should not recover based on the acreage held by the different parties.

Q. What you have is a penalty factor just simply based on an advantage gained over offset operators.

A. Yes, as we see it, you're just trying to prolong our payout on the well.

Q. Okay. Now, you indicated, too, that finding number eighteen was precedent setting. You weren't trying

to say that the Division or Commission should never adopt precedent setting regulations, were you?

A. No, I wouldn't go so far as to say that, but I think that this is a precedent of a prorating -- pseudo-prorating one well in a nonprorated gas field, that is a precedent or a concept that -- that we would disagree with.

Q. Mr. Williams, are we today dealing with a gas demand situation which is considerably different than it was five, ten, years ago?

A. Yes, both pricewise and demandwise, this is correct.

Q. The demand is much greater now than it used to be.

A. Yes.

Q. Getting back to this 1-million base allowable, in your opinion a Morrow well that can produce a million a day, is that a good Morrow well, an average Morrow well, or a poor Morrow well?

A. This -- we've applied it as sort of a cutoff point if the well is not capable of producing a million a day or more, then we think that it is doubtful that it is really an economic well, and isn't -- isn't an attractive well to be drilling for. Obviously, we are drilling wells in anticipation of getting a million cubic feet a day or more capacity from the well.

Q. So the 1-million figure is your top limit to the pore range.

A. That's arbitrary, but that's as we've used it.

Q. Okay. Do you feel that a well at this location you propose, that is producing a million a day, do you feel that that can really affect the offset operators in any way?

A. From the performance that we've seen of the wells, our two wells in particular, and the wells in the area in general, it would appear that most of the wells are draining substantially less than 320 acres, and that we do not foresee that this well would cause interference with any other well in the reservoir, as we can't see any evidence of interference now between wells in the reservoir. Each seems to be performing independently.

Q. I'm not sure that that was a response to my question.

I think what you said was that no matter how much you made it's not going to affect any other well.

A. Well, yeah. I think you're stretching it there, when you're saying no matter how much it makes, but just generally this Morrow Sand appears to offer any well only a limited area of drainage and your chance of affecting other wells are remote.

Q. Maybe I should rephrase my question and say do you feel that the 1-million a day floor that is this order, R-5856, is fair and equitable to all parties and protects everybody's correlative rights?

A. Well, aside from the fact that we disagree with the production limiting factor at all, yes, we do believe that there's some minimum that should be applied if such an approach is made, and a million is a reasonable limit.

Q. Okay, very good. In the Morrow formation can anyone tell -- I'm talking about the Morrow formation in general and in this area in particular -- can anyone really tell the true direction and extent of any well's drainage pattern?

A. No. There would be a possibility of running some interference tests between wells but from the very independent production performance of the individual wells we do not believe that there would be interference between wells and the drainage areas are controlled by the reservoir. The drainage patterns are controlled by the rate of production.

MR. STAMETS: That's all I have.

MR. RAMEY: Mr. Arnold.

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CROSS EXAMINATION

BY MR. ARNOLD:

Q. Mr. Williams, having come from the San Juan Basin, a million cubic feet a day to me sounds like a barn-burner, you know, and I was wondering, when you were mentioning your economics and a ten-month payout, what other factors do you take into consideration to decide that economics? Is it total reserve --

A. Yeah, as I tried to express it when I made those statements, we have to consider this in light of developing Morrow production. The inherent risks that everybody has observed in drilling for Morrow gas sand are much different than the drilling in the San Juan Basin. The million cubic foot a day well, Morrow well, we all have observed, is only going to be around for, you know, four, six, seven years, where the wells in the San Juan Basin, why, they're talking about where there's fifty or a hundred years.

So it's entirely different concept, so both the rates -- the anticipated rates of production and the payout times have to be more -- have to be more attractive to offset the risks of the Morrow, general Morrow production and development.

MR. ARNOLD: Okay, thank you.

MR. PAMEY: Mr. Kellahin.

MR. KELLAHIN: In light of a couple questions by Mr. Stamets, I want to clarify a few things.

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Williams, you indicated in response to a question by Mr. Stamets that you believed all the five or six wells in the pool are each draining less than 320 acres.

A. I don't know whether I indicated that, but I indicated it looked like whether a particular well could be expected to drain 320 acres would be questionable.

I think the majority of the wells are in all probability draining less than 320 acres. The performance of our Penasco well is in a class by itself and it might well be draining more acreage.

Q. The Penasco Well is not the best well among the five, is it?

A. It was my understanding it was.

Q. How about the Yates AB No. 4 Well?

A. We wouldn't trade even. Our Penasco Well is a much better well, as we see it.

Q. You've not sought to establish special pool rules for this particular pool that would space it on other than 320 acre spacing, have you?

A. No, we have not.

Q. Okay.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Williams, I believe you testified that you think that there is gas in the north half of Section 29 that will not be recovered by your present well.

A. That is our real concern, yes.

Q. So I assume, you know, keeping in mind the Natural Gas Policy Act on infill wells, that if the Commission did approve your location, I would assume you would like a finding to that effect, that the well would be necessary to adequately drain gas from this proration unit.

A. That might well be helpful. We didn't ask for that specifically.

Q. I think under the --

A. We think, you know, we think that the reservoir will classify as a new gas reservoir and would be under Section 102 in either event, but this might clarify it a little further.

Q. Okay, thank you very much.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Mr. Cooter?

MR. COOTER: That concludes our case.

MR. KELLAHIN: I have a couple of motions to make here, Mr. Ramey.

MR. RAMEY: Proceed.

MR. KELLAHIN: I move that the Applicant's application be dismissed for failure to comply with the Division Rules and Regulations.

The application for the simultaneous dedication of acreage is not applicable to nonprorated gas pools, Mr. Ramey. It appears as if the Applicant is seeking to circumvent the spacing rules that are applicable to this particular pool. You'll note that the north half of Section 29 is already dedicated to the Rio Well, a currently producing Morrow Well, and that under Division Rule 104C-2(a) that unless otherwise provided by special pool rules, a well shall be drilled on a tract consisting of 320 surface contiguous acres or less.

It is our position that there are no special pool rules for this particular pool that provide for the drilling of two wells per 320-acre spacing unit and for that reason we seek the Division to dismiss the application.

MR. COOTER: Mr. Chairman.

MR. RAMEY: Yes, Mr. Cooter.

MR. COOTER: Before a decision is made may I make a statement for the record?

MR. RAMEY: Yes, sir.

MR. COOTER: If the rule be applicable, the statewide rule, we would ask that this case be considered as an exception to it, which we believe is always in order.

As an alternative to that, if the rule be applicable, and an exception not be granted, we would continue our case for the unorthodox location. We believe that actually the Rio No. 1 will be depleted and plugged, probably by the time that the Rio No. 2 was drilled.

MR. RAMEY: Well, Mr. Kellahin, we've always felt there's nothing to prohibit the drilling of a second well on a proration unit, so in view of that, I'm going to deny your motion.

MR. KELLAHIN: I have a second motion.

MR. RAMEY: All right.

MR. KELLAHIN: If the Chairman please, I'll move that the application will be dismissed on the grounds that the Applicant has failed to sustain his burden of proof at this point in the hearing.

The Applicant has sought to obtain an unorthodox location but he has failed to establish several critical elements of proof in his testimony.

One specifically and very critically important to him is to establish that the proration unit cannot be drained by a well located at a standard, permissible location, either Unit B, C, or F of the proration unit, and

without testimony upon that point it would be inappropriate to grant an unorthodox well location, as requested, and we seek to dismiss that application on that ground.

MR. RAMEY: Mr. Cooter, would you like to respond to that?

MR. COOTER: What rule are you referring to in that motion?

MR. KELLAHIN: Sir?

MR. COOTER: What rule are you referring to? I want to have it before me.

MR. KELLAHIN: I'm not referring to any particular rule. It's the Applicant's burden to sustain his application by testimony, and I maintain that you've failed to sustain that burden.

You've not established that an unorthodox location is necessary to drain this particular proration unit.

MR. COOTER: Well, if we get into an argument over what the proof is, our proof is, we believe, that there is some type of an anomaly that exists; that when the Rio No. 1 Well was completed from the logs and from the tests made at that time, that the expectations were that it would be similar to the Penasco No. 1 to the north.

Production from the well has shown that it is not draining 320 acres; most likely that it is not; and that

without wellbore damage, which has been eliminated as a cause for this, that there is some type of barrier that exists to restrict the drainage.

The testimony, I believe, was that to avoid that anomaly, or to evade it, that the unorthodox location is the preferable location and one that involves less risk than the orthodox locations, all of which are closer to the Rio No. 1 Well and present a greater possibility of encountering the same anomaly that plagues the No. 1 Well.

If we have not sustained the burden in that regard, I feel quite confident that the Commission will deny the application.

MR. RAMEY: Mr. Kellahin, I don't think we'll decide on the motion until we decide on the merits of the entire case.

MR. KELLAHIN: Thank you, Mr. Ramey, we're ready to present our case.

MR. RAMEY: All right.

C. D. STENBERG

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CROSS:

Q. Would you please state your name for the record?

A. C. D. Stenberg.

Q. By whom are you employed and in what position and where are you located?

A. Gulf Oil Corporation. I'm employed at Midland, Texas, and my title is Production Geotechnologist.

Q. Would you briefly describe your educational background and your work experience?

A. Bachelor of Science degree from the University of Kansas, a Master of Science in geology from the University of Iowa, and I've spent twenty-five and a half years working for Gulf in the Permian Basin.

Q. Have you previously testified before the Division and stated your qualifications?

A. Yes, I have.

MR. CROSS: Is he considered qualified?

MR. RAMEY: He's considered qualified.

Q. (Mr. Cross continuing.) Mr. Stenberg, referring to the Isopach map, which is designated as Gulf's Exhibit Number One, on that exhibit Morris Antweil's proposed location is depicted. Would you please explain what you are measuring when you assign a contour line the number five, ten, or whatever?

A. Yes. I believe this contour map agrees quite

well with the values on the -- on the Antweil map that was Exhibit Number -- was it Exhibit Five, the map? Yes.

The values are a net porosity and the net porosity is based on two parameters. One, the Queen sandstone, so called, based on a 50 API unit gamma ray on the gamma ray side of the logs, and 5 percent or more porosity on the neutron density side of the log.

Q. Would you please explain what is depicted by the red line marked A to A-prime?

A. A to A-prime is the line of section which applies to this case. It goes from the Yates AB 4 and east to the Antweil No. 1 Dinkus.

Now, the other line of section B/B-prime and C/C-prime marked on the exhibit are for the other two hearings.

Q. Referring to Exhibit Number Two, your cross section, would you please explain your correlation of those logs?

A. Yes. Now this -- the correlations on here, I think, also agree quite well with the cross section, Exhibit Number Six, which was presented by Antweil, and the pay sections, the clean sand sections and the same sand lens is shown. The only differences on these logs I have colored in yellow is the clean sand, which is 50 percent API units on the gamma ray side and the red depicting the porosity

over five percent, colored in red, is colored only from the five percent cutoff.

Q. Mr. Stenberg, in your opinion if Morris Antweil is allowed to drill the well at his proposed location he'll be draining the same sand body you've indicated on those three logs?

A. Yes, I believe the cross section indicates that the same sand body is pretty well present through the interval which is shown and the characteristics of the porosity and the gamma raY showing the formation lithology are quite -- are quite common to the area, so therefore it should be a continuous body through the whole section.

Q. In your opinion should this application be granted and an unorthodox well is drilled absent a penalty in the form of restriction on his production, would Morris Antweil be draining offset acreage?

A. Yes, I believe from the information here, I believe he would, yes.

Q. Mr. Stenberg, looking at your exhibits can you see any geologic evidence of a drainage barrier?

A. No. I see no geologic evidence at all of any permeability barrier. It can't -- it wouldn't be shown with these, and therefore, actually an orthodox location 1980 feet from the west line, actually, from the Isopach map, would show that the pay section would actually encountered

would be thicker than the unorthodox requested location.

Q. Would you expect Morris Antweil to encounter any less clean Morrow sand with porosity over five percent at his requested unorthodox location -- rather, excuse me, at an orthodox location than at his requested unorthodox location?

A. Would I expect him to encounter less?

Q. Yes, is there less clean sand at an orthodox than at the unorthodox?

A. There would be -- the most would be clean sand and the greater porosity over five percent would be at the unorthodox -- or at the orthodox -- unorthodox -- orthodox location. The unorthodox requested location would have the thinner pay.

Q. Thank you. Mr. Stenberg, did you prepare these two exhibits?

A. Yes, I did.

MR. CROSS: I have no further questions and move the Exhibits be admitted in evidence.

MR. RAMEY: The Exhibits One and Two will be admitted.

CROSS EXAMINATION

BY MR. RAMEY:

Q. MR. Stenberg, both your cross section and the

Antweil cross section indicate similar sands between the Penasco and the Rio, but there is considerable difference in the performance of the well. What do you attribute this difference to?

A. Well, I believe from looking -- just from looking -- from the logs it's very difficult to figure out why, because, as you say, the characteristics -- the gamma ray, for instance, in the two wells, the Penasco and the Rio Well, are very similar, and the gamma ray, when looking at Morrow sands or other formations, assumes a definite character for a lithologic formation, and they are so similar, the gamma ray side, and also the -- on the porosity side are similar to the point that I would personally have to dismiss any geological evidence of a barrier between them.

As a matter of fact, I'd also like to point out on the Rio Well, if you'll look at the red colored, the net pay thickness of porosity five percent or greater, is actually thicker in the Rio Well, and that's why we answered awhile ago that at an orthodox location the pay thickness encountered at an orthodox location should be greater than at the proposed unorthodox.

Q. So in essence you have no answer to my question.

A. From a geologic point of view I have no answer

to your question.

Q. Okay, thank you.

MR. RAMEY: Any other questions of the witness?

MR. COOTER: Just a couple questions.

MR. RAMEY: All right, Mr. Cooter.

CROSS EXAMINATION

BY MR. COOTER:

Q. What features of the cross section, your Exhibit Number Two, Mr. Stenberg, lead you to the conclusion that a penalty factor would be necessary were the Commission to grant Mr. Antweil's application to drill the Rio No. 2 Well at the location desired?

A. Well, from a geologic point of view I really don't know if -- I'm really not equipped to answer that question, and I would rather refer that to Mr. Kalteyer, who will handle the reservoir drainage type questions.

My only concern, or my exhibit only shows that from my point of view the orthodox location would be better than unorthodox. Outside of that I'm not prepared to answer reservoir questions.

Q. It wasn't your testimony, then, that such a penalty factor would be necessary.

A. I don't -- you mean prior, in the prior hearing

or --

Q. No, that is not your testimony here this morning.

A. My testimony is not -- no, does not concern that.

Q. If there is a permeability barrier existing, as the Applicant believes, that does not appear or would not appear on your cross section?

A. No, sir, that would not be -- would not be shown. I believe from logs, log information it would be -- I believe it would be impossible to show that from this type of information without subsequent drilling of wells and have more comparable data.

Q. Now by your testimony you certainly don't intend to rule out the existence of such a permeability barrier.

A. No, I cannot do that from this exhibit, no.

MR. COOTER: Thank you.

MR. RAMEY: Any other questions for the witness? Mr. Stamets?

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Stenberg, do you agree with Mr. Williams it would be very difficult, if not impossible, to determine

the nature and extent of the size and shape of the drainage pattern around any Morrow well?

A. Well, the only thing I look at from this standpoint is strictly the wellbore data per well, what it looks like in the wellbore.

Now concerning reservoir drainage radiuses, radii, and reservoir performances and characteristics, I leave up to the reservoir department down in Midland. All I supply them with is wellbore data from logs.

Q. Okay. Thank you.

RECROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Stenberg, I notice your cross section A-to-A prime does not take in any Gulf wells.

A. No, sir.

Q. Is the same sand measured present in the Gulf wells?

A. Yes, yes, it is. As a matter of fact, this A-to-A prime and roughly this plat is the same one that we used in the prior hearing last May and at that time the well -- I did include the Gulf well. I think it was the No. 1 "GK" up to the north, and it had the same sand body present.

Q. So you feel that this primary sand body that

is the completion interval in the wells shown on your Exhibit Two is more or less common to the whole area.

A. Yes, sir, it would include, if I'd put them in the cross section, it would have -- it would depict the same sand lens through both Gulf wells up here in Section 19, the "GK" No. 1 and 2.

Q. Okay. Thank you.

A. Which -- one of which is present in the old cross section.

MR. RAMEY: Any other questions of the witness? He may be excused.

CHARLES F. KALTEYER

being called as a witness and having been duly sworn upon his oath, then testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. CROSS:

Q. Would you state your name for the record?

A. Charles F. Kalteyer, K-A-L-T-E-Y-E-R.

Q. Mr. Kalteyer, who are you employed by?

A. Gulf Oil Corporation.

Q. And what is your title with Gulf?

A. Presently classified as Chief Proration Engineer for the Midland District.

Q. Would you briefly summarize your educational background and experience as a petroleum engineer?

A. I have a Bachelor of Science degree in engineering from the University of Texas. I've been a petroleum engineer with Gulf Oil Corporation approximately thirty-two years. Two and a half of that thirty-two years as -- was as Area Engineer in our Hobbs office.

Q. Have you previously testified before the Oil Conservation Division and stated your qualifications?

A. Yes, sir, I have.

MR. CROSS: Is the witness qualified?

MR. RAMEY: He's qualified.

Q. (Mr. Cross continuing.) Mr. Kalteyer, have you prepared an exhibit which contains the production data for the wells in the area of the location proposed by Antweil in Case 6213?

A. Yes, sir, I have.

Q. Would you please summarize that information for the Commission?

A. Did you pass all the --

Q. The Commission has the exhibits.

A. They have the exhibits.

If you will refer to Exhibit Three, we have tabulated the monthly production, the daily production rate of gas, Mcf per day, the condensate of the six wells that

have been recommended to be carried in the Penasco Draw - Morrow Gas Pool.

At the bottom of the exhibit you will note the cumulative gas production has been indicated for each of the wells. The Yates Petroleum Federal "AB" 4 has a cumulative production of some 1.1 billion cubic feet. The highest rate of production was 7,989 Mcf per day. Average, as of our November data, it was producing at a rate of 2,299 Mcf per day.

The Morris Antweil No. 1 Penasco has a cumulative production of in excess of 2-billion cubic feet of gas, or 2-million Mcf. Its highest rate of production in October -- this is the daily average production -- was 5,932 Mcf per day, and as of November it produced an average of 4,367 Mcf per day.

The Rio Com Well has a cumulative production of some 327,000 Mcf. Its highest rate of production daily average was for the month of October when it produced 1,525 Mcf per day. Its latest rate of production in November shows 621 Mcf per day.

The Bennett and Ryan Lone Tree in Section 32 shows a cumulative production of only 76.412 Mcf. Its highest rate of production was 447 Mcf per day average and the last report was producing 216 Mcf per day.

The Gulf Oil Corporation's No. 1 "GK" State

shows a cumulative production of 247,000 Mcf. The highest rate of production in that well was 2,245 Mcf per day average. And last report on this table shows 950 Mcf per day.

The "GK" State No. 2 has a cumulative production of some 617,000 Mcf. Its highest rate of production was 3,743 Mcf per day and in November was producing at the rate of 1,517 Mcf per day.

Q. Mr. Kalteyer, did you testify at the Examiner Hearing in this case in May of 1978?

A. Yes, sir, I did.

Q. You heard the testimony of all the witnesses at that hearing?

A. Yes, sir.

Q. Are you familiar with the order entered by the Division, Order Number R-5856?

A. Yes, sir.

Q. Will you basically state what Gulf's position is regarding an order of this type which authorizes a second well at an unorthodox location and implies -- and applies a limitation, an allowable limitation factor?

A. Gulf's position would be that a matter of a second well on a unit, and in particular a well to be drilled at an unorthodox location, would be -- should be considered very carefully, as it is a precedent for future applications for unorthodox locations. The items to consider

would be drainage encroachment advantage of a second well on a unit, and the productive acreage unit, or the productive acreage under the unit, if applicable.

Q. In your opinion would an allowable limitation factor that did not take into account these two items adequately protect the correlative rights of offset operators?

A. No, it would not.

Q. According to the Order R-5856 entered in this case, in finding seven, which I will read verbatim, the Division finds that a well at said unorthodox location will better enable Applicant to produce the gas underlying the proration unit.

Mr. Kalteyer, do you concur with that finding of fact?

A. I disagree that a well at an unorthodox location has been shown as necessary to better produce the gas underlying the proration unit.

Q. Assuming the Commission rules that an unorthodox location is not necessary in this case, but nevertheless, grants Morris Antweil's application for simultaneous dedication, and a second well is drilled on the north half of Section 29 at an orthodox location, how would you propose to determine the allowable limitation factor for the proration unit?

A. By referring to Exhibit Number Four, and our

proposal number one, we have depicted the theoretical 320-acre circular drainage area of the Rio Com 1 and the second well's drainage area at an orthodox location.

Exhibit Number Five are the calculations that we go through, or have gone through, under the conditions of leaving the No. 1 Rio Com on production and drilling a second well at an orthodox location. By assigning a 320-acre drainage area to No. 1 and also to No. 2, less the 145 acres drainage overlap, we have a net difference of 174 -- excuse me. A net effective drainage for Well No. 2 of 174.44 acres.

By combining these two, we have a combined drainage area 494.44 acres.

And then to establish a ratable take factor for the unit we would simply divide the standard unit acres by the combined drainage area, giving a ratable take factor of .65.

In addition, if productive acreage is a factor, then that should be applied also as the unit productive acreage as the numerator and the standard acreage of 320 as denominator, and we would then apply that factor against the ratable take factor of .65 to come up with an allowable limitation factor.

Q. Mr. Kalteyer, if this application is granted in its entirety and the Rio No. 2 is drilled at the requested

unorthodox location in the north half of Section 29, how would you propose to determine the allowable limitation factor for the proration unit?

A. Exhibit Number Six is our proposal number two, in which this depicts the, again, the theoretical 320-acre circular drainage pattern for the Rio Com 1 and for the second well's drainage area at the unorthodox location.

Exhibit Seven is our approach to the ratable take factor, which again applies 320-acre drainage area to each well, less the 60-acre overlap, to give a combined drainage area 580 acres, and in order to obtain a ratable take factor, we divided the 320 standard acres by the combined drainage area in acres and obtained a .55 ratable take factor for the unit.

Here again if productive acreage is a factor, then we would request that a productive acres factor be calculated using the unit productive acres over the standard unit acreage of 320, and then that would be multiplied times the allowable limitation factor to obtain -- that would be multiplied times the ratable take factor to arrive at an allowable limitation factor.

Q. You previously indicated that you disagree with finding seven and that in your opinion an unorthodox location is not warranted by the evidence in this case.

You've also heard Mr. Williams testify on

both the Examiner's Hearing and today that a permeability barrier separates the Rio No. 1 and the Rio Penasco and in his opinion because of this barrier Morris Antweil should receive an unorthodox location.

Have you directed a study be made in an attempt to ascertain the size of a reservoir which the Rio No. 1 is completed in?

A. Yes, sir, our reservoir unit has made a calculation in an attempt to establish the areal extent of the reservoir in which the Rio 1 is completed with the limited data that we had available to us. We did attempt a material balance calculation and then a volumetric estimate and we came up with an areal extent, amazingly, of 23 acres, which was almost identical to Mr. Williams. There were, of course, other assumptions in there that compensated, but -- so we would say that the areal extent of the reservoir was on the order of 20 to 25 acres, and if it -- if it is basically circular, then it would be draining at a radius of some 570 feet.

Q. And according to your --

A. Around the Rio No. 1.

Q. And according to your calculations, even if the Rio No. 1 is not in the center of the circle, but instead is on the southeastern edge of the reservoir in which it's completed, there is an orthodox location available in the

north half of Section 29 which falls outside the drainage area of the Rio No. 1?

A. Yes, sir, there would be three, three locations in Unit B, in Unit C, and Unit F, that would be outside the radius, or the diameter, of the assumed circular drainage area of the Rio No. 1.

Q. There's been some discussion about using circular drainage areas. Mr. Kalteyer, in your opinion is there sufficient data currently available from which a penalty factor can be computed on anything other than straight acreage encroachment plus nonproductive acreage?

A. Would you please run that by again?

Q. Is there any other basis on which to predict drainage other than using a circular?

A. Oh. There are certain tests that can be made in attempt to establish reservoir limits and the direction, but there is no sure fire method, and we would basically have to assume a radial flow in the circular drainage area.

Q. Referring to the order again, 5856, finding seventeen, --

MR. RAMEY: Mr. Cross, are you at a point you can stop?

MR. CROSS: I can stop.

MR. RAMEY: Let's recess the hearing until

around 1:15.

(Thereupon the noon recess was taken.)

MR. RAMEY: The hearing will come to order. Mr. Cross, you may continue.

MR. CROSS: Thank you.

Q (Mr. Cross continuing.) Mr. Kalteyer, referring to Order R-5856, specifically to the finding number seventeen, which I will read: The Division finds that the minimum calculated allowable for the subject proration unit should be reasonable and 1-million cubic feet of gas per day is a reasonable figure for such minimum allowable.

In your opinion does a limitation factor which applies only to allowables exceeding 1-million Mcf per day protect correlative rights?

A. No, sir, not necessarily.

Q. When production from a well at an unorthodox location drops to 1-thousand Mcf per day, or 1-million cubic feet per day, is it still draining off said acreage?

A. Yes, it could still drain off that acreage.

Q. It's your opinion it still benefits from the advantage of the unorthodox location even if that production rate?

A. Yes, sir.

Q. Would it be true if production dropped to

500 Mcf per day?

A. Yes, sir.

Q. And at 200 Mcf per day?

A. Yes, sir, still true.

Q. Mr. Kalteyer, what is your recommendation regarding finding seventeen?

A. I believe it's arbitrary. There's no evidence to support it and it should be stricken. As written it's very broad and could open to several interpretations. One question comes to my mind, if production rate drops below say 1587 Mcf, that is the 1587 times .63, as proposed in item fifteen, which would equal 1000 Mcf per day, would the well be allowed to produce at its full deliverability, say of 1500, if it's dropped below the 1587.

The other question that comes to mind is when deliverability drops below 1000 Mcf per day, say to 800, is its allowable still set 1000?

And I feel that there's no evidence to support the need for this sort of a limitation, especially if there are two wells on the unit.

Q. Mr. Kalteyer, have you calculated the average daily production rate of the six wells in this pool based on their initial monthly production?

A. Yes, sir, I have. Based on the six wells carried on this -- on our Exhibit Number Three, including

the Bennett and Ryan Lone Tree, which may or may not be in this same particular Morrow reservoir, the average of their highest initial month production, which represents the daily average, was approximately 3650 Mcf per day; well above 1000 Mcf per day, as set out in item seventeen, in finding seventeen.

Q. Have you made a study, or caused a study to be made, regarding the profitability of wells drilled in the Morrow in this area?

A. Yes, sir, my Exhibit Number Eight is a series of curves depicting two principal criteria for evaluating oil and gas prospects, and Exhibit Number Nine is a table of the data that was utilized for the plotting on Exhibit Six, with the basic conditions that we had used in which we include an investment of $430,000, which is very close to Mr. Williams' estimate of $450,000; initial price per Mcf based on the NGPA price starting in January of $1.98; condensate price initially of 1295; royalty 1/8th; taxes at 8.2 percent and a Federal income tax of 50 percent. Each operator would have his own Federal income tax bracket to calculate. Also an operating expense for a year of $8200.

The main one criteria -- one of the basic criteria is payout time, which is fairly obvious. The payout time is the measure of the elapsed time from the date of

first disbursement of funds until the cumulative cash flow from the sale of products becomes positive.

The other item is a discounted cash flow rate of return, which is common to the industry, and it is calculated for each project to take into account the time value of money. The discounted cash flow rate is defined as that interest rate which discounts the estimated cash inflows of a project to a present value equal to the present value of the estimated cash outflows of a project.

Referring to Exhibit Nine and our chart, if we take a well that has an initial daily production rate of 3000 Mcf per day and consider this before income tax, we would have a payout time of 8/10ths of a year is what we calculated.

After taxes it would be approximately 9/10ths of a year, which is a very suitable payout time, very attractive.

The discounted cash flow rate of return for such a well that was producing at 3000 Mcf per day initially, would be 295 percent. Now if we're -- our cost of investment and our cost of money runs on the order of 10 to 20 percent, this would show you the comparative rate of return that you would be getting on your money.

If we go to an initial daily rate of 1000 Mcf per day, this is initial, we would see a payout time before

Federal income tax of 1.3 years, and after Federal income tax, 1.5 years.

The discounted cash -- this of course is still very satisfactory payout time by Gulf's criteria.

The discounted cash flow rate of return before taxes would be 113 percent and after Federal income taxes would be 84 percent; still a good rate of return.

Even if the well initially came in at 500, the payout time would be 2.2 years before taxes and 2-1/2 years after taxes, which would still fall within the general criteria that the oil industry deals with.

The discounted cash flow rate of return before taxes would be 41.2 percent and discounted cash flow rate of return after taxes would be 30.8.

There was a recent ruling by the Department of Energy on an appeal by Phillips which would allow them a 23 percent, instead of 15 percent which was originally ordered, pre-tax rate of return on the investment by their company seeking oil ceiling prices for new oil field investments. This had to do with the proposed gas injection investment in Summit County, Utah, so this gives you a feel of what the Federal government is looking at in terms of the discounted cash flow rate of return, which is lower than we have indicated here for the rate of 500 Mcf per day.

Q. What conclusions do you draw from these two

exhibits with respect to the minimum calculated allowable of 1000 Mcf per day?

A. The average initial rate of return greater than -- the average initial production rate, which is greater than 3000 Mcf per day, gives excellent profitability. In fact, before Federal income tax it is greater than 400 percent and was off our curve.

The profitabilities of the average well by the time it reaches 500, the well would have paid out. Even with initial rate of 1000 -- excuse me -- by the time the average well has reached 500, or even 1000 Mcf, it would have paid out very handsomely.

Even if it came in at only 500 Mcf per day it would probably have a favorable payout and a favorable discounted cash flow. The OCD is under no obligation to guarantee a satisfactory, or any, payout of an operator's investment in an orthodox or an unorthodox location, and we have been unable to establish any precedent where the OCD has set a minimum allowable. There may be some.

Q. Referring to the Order R-5856, specifically on page three where --

A. Just a minute. Page three on what?

Q. The order. Here it is, it is therefore ordered -- you have Order Number One and Number Three, as well as the Rules 1-A and 1-B. What is your recommendation re-

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garding these rules?

A. On page four?

Q. Yes, three and four.

A. We recommend that the unorthodox location be denied. If a second well is granted on the unit, it should be at a regular location and the appropriate limitation be applied to the well's deliverability; that is 65 percent if its location is in Unit C of Section 29 times any productive limitation -- production acreage factor.

Q. Referring to -- excuse me. If a second well is allowed on this unit, referring to the Order R-5856, do you have any proposed changes regarding the special rules there provided governing the determination of delivery capacity?

A. Yes, sir. Our Exhibit Number Ten, we have added an extra sentence that is underlined to expand that rule in order to obtain a stable and representative rate, daily rate, we recommend that the deliverability be established over 72-hour production testing.

Also in Rule five we recommend that in establishing a well's subsequent deliverability it should specify that the daily average of the highest 72-hour continuous production rate.

Q. Do you have a recommendation regarding Rule 13?

This provides in no event shall the unit receive an allowable of less than 1-million cubic feet per day.

A. I think it should be deleted, Rule 13 should be deleted in its entirety.

Q. Mr. Kalteyer, were Exhibits Three through Ten prepared by you or at your direction?

A. Yes, sir.

MR. CROSS: I have no more questions and move these exhibits be admitted in the record.

MR. RAMEY: Exhibits Three through Ten will be admitted.

Any questions of the witness? Mr. Cooter?

CROSS EXAMINATION

BY MR. COOTER:

Q. Mr. Kalteyer, do you have any information about -- in hand on the pressure tests in the Gulf No. 1 and 2 Wells?

A. Yes, I believe I have that data that we supplied you. Was that the data we supplied you?

Q. We have no data that's been supplied.

A. Oh, all right. And the question was, do I have some information on --

Q. Yes, sir, on the pressure of your No. 1 and

No. 2 Wells?

A. Yes, sir, I have some, a limited amount of pressure data.

Q. Would you tell me what you do have, sir?

A. I have the shut-in tubing pressure, some shut-in tubing pressures and shut-in bottom hole pressures on Well NO. 1.

Q. What are those, sir?

A. On October 29th, '77 the tubing pressure was 2533.

MR. RAMEY: What's the date on that?

A. October 29th, 1977.

MR. RAMEY: And what was the number?

A. 2533.

MR. RAMEY: Okay.

A. On November the 4th, 1977 it was 2425. On March 20th, '78 it was 1497. On July 13th it was 1481.

Q. Is that the last date you have?

A. Yes, sir, that's the last one I have recorded here. The shut-in bottom hole pressure on October 29th was 3190 at a minus 4984, and on March the 20th it was 1857 at a minus 4585. Those are the only two bottom hole pressures that I have.

On Well No. 2 the first pressure that I have is January 5th, 1978, 2600 pounds of shut-in tubing pres-

sure; 72-hour shut-in.

July 13th, '78, 1547 on 24-hour shut-in. December 26th, 1978 was 640 pounds, the 72-hour shut-in. January 5th, 1979 was 700 pounds, 96-hour shut-in. January 12th was 725 pounds with 72-hour shut-in. And January 16th, '79 was 730 pounds with 72-hour shut-in.

That's the extent of the data I have here at hand.

Q. Do you have any recent tests about what the wells are capable of producing?

A. Let's see if I have some data that I may have gotten from El Paso.

I have some here of Gulf's data that -- on December 29th on Well No. 1,the tubing pressure of 520 pounds, it was flowing at the rate of 1139 Mcf a day and on No. 2, with a tubing pressure of 650 pounds it was flowing 563 Mcf per day.

Q. What was the date of that No. 2 Well, I'm sorry?

A. Same date.

Q. Same date, 12-29?

A. Yes, sir.

Q. Mr. Kalteyer, I believe that if I understood your testimony, that if a well is capable, and in fact does produce 1000 Mcf per day, which is the minimum of 1-million

cubic feet, as set forth in the order, that you, using your somewhat more sophisticated formula, the payout period for that would be 1-1/2 years.

A. Yes, sir.

Q. Let me direct your attention, please, sir, back to your Exhibit Number Six and Seven, which are similar to, I think, the Gulf Exhibits that were admitted at the prior hearing, which we offered this morning as part of our case in chief.

A. Just a moment, please, Exhibits Six and Seven?

Q. Yes, sir.

A. All right.

Q. This was your proposed computation of the penalty factor that should be applied, or you would recommend be applied, if Mr. Antweil's application was granted and the second well were permitted at the unorthodox location sought.

A. Yes, sir.

Q. All right. Now, in that you have put an area of drainage for Well No. 1, 320 acres.

A. Yes, sir.

Q. But then you testified that from your computations that Gulf made, that you concluded that that well is actually, or in all probability going to drain some 23 acres.

A. Yes, sir.

Q. So we take that conjecture out of conjecture and put it in as an established fact, that the No. 1 Well would in most likelihood drain 23 acres. That would change your computations, as figured in your Exhibit Number Seven, would it not?

A. Well, if we approached it that way, it would change the figures, but we're speaking on development on 320-acre proration units and that's -- we don't know what this well that you're proposing would drain, whether it would drain 640 or --

Q. Yeah, I haven't gotten to that yet. I'm just talking about the No. 1 Well. We know that in all likelihood it's just going to drain approximately 23 acres, 22.3 or some place between 20 and 25 acres.

A. This is what it appears unless it's a very slow feed-in from --

Q. Yes, sir.

A. And you do claim that all of your acreage is productive in that tract.

Q. And then if we assigned the 320 acres, which would be the optimum to the No. 2 Well, did you compute what that penalty provision would be, using the optimum figure for the proposed well but the known figure for the No. 1 Well?

A. What is optimum? Would you define that?

Q. The 320 acres that's going to be assigned to that well. It may produce less than that.

A. Or more?

Q. Well, so that the known --

A. No, I have not made that calculation.

Q. If I told you that sitting here at noon I did, and your penalty factor is changed from the .55, as indicated on your Exhibit Number Seven, to .93, you wouldn't battle me on that, would you?

A. I would have to go into it very carefully to weigh the matter, because you would still be claiming that the whole tract is productive.

Q. Well, we no longer claim that the No. 1 Well is going to drain it.

A. Well, the lawyers would have to ask whether you're going to deduct some productive acreage off of this application.

MR. COOTER: That's all.

MR. RAMEY: Any other questions of the witness? Mr. Stamets?

CROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Kalteyer, I believe you indicated that

finding number seven says something about this unorthodox location being necessary, and I've looked at finding number seven and I don't see the word "necessary" in there.

A. Let me get mine. Would better enable Applicant, and it's not "necessary". It would be correct. If written correctly, it would be very beneficial for the Applicant.

Q. Okay, so the word "necessary" is not in there.

A. No, sir.

Q. Okay. Now, let's talk a little bit about the base line allowable, this million cubic feet a day.

At the present time we have no gas prorationing of the form like we have outlined in Order R-5856, is that correct?

A. No, sir.

Q. In southeast New Mexico in the prorated gas pools what is the basis of the prorationing?

A. The basis where you have excess deliverability?

Q. Where you have prorated gas pools.

A. Where you have deliverability in excess of --

Q. No, no, in southeast New Mexico there are a certain number of prorated gas pools.

A. Yes, sir.

Q. What is the basis then of the formula for the allocation of production to the well?

A. Acreage, a 100 percent acreage.

Q. Straight acreage.

A. Yes, sir.

Q. Okay, very good. Now, I would -- I'm sure you're familiar with gas prorationing and the proration schedules. Are there both top allowable wells and marginal wells in the prorated gas pools in southeast New Mexico?

A. Yes, sir, I would imagine there are. I haven't examined one here real recently.

Q. Would you agree that a marginal well is a well that cannot produce a non-marginal or top allowable?

A. Yes, sir.

Q. And do you agree that a marginal well would be allowed to produce all it can make?

A. Yes, sir.

Q. Okay. Have you examined the prorated Morrow gas pools in southeast New Mexico to determine at what point of production wells are dropping from non-marginal status to marginal?

A. No, sir, I have not. It would depend on the market demand for gas, I would say. It would vary.

Q. If a person did examine these proration schedules, and the data contained in them, a person could arrive at some sort of a base line allowable below which wells become marginal and can produce all that they can --

or can have an allowable equal to their ability to produce.

A. I'm sure we could establish that if we investigated.

Q. Would you think that that would give us some clue as to what kind of a base line allowable we might put into an order such as we envision here, 5856?

A. Well, I'll go back to my earlier testimony, that I don't think the Commission is under any obligation to see that there is a floor on any allowable. It's produced at its capacity to produce after it gets below a top allowable well. There's no -- no floor that they're allowed to produce at.

Q. Getting a little -- I'm confused by your answer. Let's take, for example, let's just say that the field we're concerned with today, if it were prorated on a straight acreage basis, and the difference between a non-marginal well and a marginal well is 2-million cubic feet a day.

A. All right.

Q. If in that case the well that the Applicant proposes to drill became a marginal well, produced less than -- well, let's say it produced a million cubic feet a day.

A. Initially.

Q. At any time. The difference -- when you drop below 2-million a day you have a marginal well, the

Applicant's well is producing a million a day, if this field were prorated on straight acreage would the Applicant not be allowed to produce this million a day?

A. If it were capable, yes, it could produce it.

Q. Okay, should the Division or Commission in establishing a different type of prorationing give any less consideration to marginal, non-marginal status, and establish, if necessary, some definition of marginal?

A. I don't see the relationship at all. I would think if there is a limitation factor applied to it at 3-million a day it would still be applied on the basis of its advantage all the way to the time you abandon the well, because it would still have that advantage whether it was making 1000 Mcf a day or not.

Q. Going back to a pool that's prorated on a straight acreage basis, even though a well might maintain its reduced acreage factor for its life, in fact when it becomes marginal that acreage factor has no effect on its production, is that correct?

A. Its capacity is its only limitation.

Q. Okay, so what I'm asking is there any necessity to treat a well which you might call marginal in this case, and I'm saying a marginal well to me is a well that produces a million or less, is there any reason to treat a marginal well in this type of proration setup any differ-

ently from a marginal well in a straight acreage situation?

A. I don't understand where we get 1000 Mcf as anything approaching marginal when we -- when we talk in terms of -- are we talking about stripper or are we talking about just marginal?

A stripper well would be 60 Mcf a day, and here we're talking in terms of 1000 Mcf a day, which is a very handsome rate of return on the investment in this case.

Q. I'm talking about a marginal well and I believe if the Commission would look at its gas proration schedules that they would show at what level a well would become marginal, this type of well, and I believe the Commission could establish a marginal classification or a lower allowable limit classification, such as we have with this 1-million cubic feet a day, based on what they would see in those gas proration schedules.

That's not a question.

A. I'm sure it could be established.

Q. Okay, let's go on from that point. Do you agree, Mr. Kalteyer, that it is difficult, if not impossible, to determine the size, shape, and extent of the particular horizon, sand, zone, whatever, being drained by a Morrow gas well? The average Morrow gas well?

A. That's correct. That's what this oil business is all about. We cannot establish it accurately or else

we would never drill a dry hole.

Q. In the absence of this ability, do you believe that the circular drainage estimate which you made in this case is as good a method as any to calculate the advantage gained by a non-standard location over offset operators?

A. Generally speaking I believe that's about the best criteria that we could use.

Q. Okay. In finding number ten in Order 5856, it says that proposed location is 67 percent closer to the west line in Section 29 than is permitted by Division rules and regulations.

A. Yes.

Q. Do you agree with that finding?

A. Yes, I believe that's correct.

Q. In finding number eleven it goes on to say that a well at the proposed location will have a net -- let's see, an area of drainage in the Morrow formation which extends 67.2 net acres outside Section 29. Do you agree with that finding?

A. Yes, sir, I think that we had an exhibit earlier, or in one of the prior hearings, that supported that.

Q. And in finding number twelve it states in essence that if both wells are allowed to produce it will result in the proration unit having an additional net 192.8

drainage acres advantage over offsetting proration units. Do you agree with that statement?

A. Well, I think Mr. Williams went through that figure and came up with that, on how that was arrived at.

Q. Do you agree with that, sir?

A. Do I agree that that --

Q. Do you agree that that 192.8 acre figure is a correct figure?

A. That the additional drainage --

Q. Yes.

A. I'd say it's probably correct.

MR. STAMETS: That's all I have.

CROSS EXAMINATION

BY MR. RAMEY:

Q. Mr. Kalteyer, I take it you're in agreement with Mr. Stenberg's Isopachous map?

A. No, I've accepted it. I have done no work on it.

Q. Well, in looking at this map, and looking at your compilation, your Exhibit Three compilation of production, you would think that the Rio Well would have the most production, or should be the best well.

A. Based on that net thickness, yes.

Q. The Penasco second and then perhaps --

A. Behind it, yes, sir.

Q. And then perhaps your Eddy State No. 1 is third and the No. 2 is the fourth best well?

A. Yes, sir.

Q. And the Yates is the fifth best well?

A. If it were based entirely on thickness of pay irrespective of any permeability measure or fractures or whatever. Based on thickness alone we would agree.

Q. So there's no -- actually no rhyme or reason for the, you know, for the Isopachous map in regards to what the well is going to produce?

A. No, sir, it does not correlate by sand thickness, net sand thickness.

Q. Do you think any of your wells have hit any kind of a permeability barrier?

A. I really don't know. We're having problems with our No. 2 Well, as indicated by our low tubing pressure and low production rate, and we're investigating that now.

Q. And the No. 1 Well should be a better well than it is, I would think.

A. Beg pardon?

Q. Your No. 1 Well should be a better well than it is?

A. Based on its nearness to the Penasco 1 it should be much better, but it has been the poorer of the two

wells in the past, but we're having our problems on No. 2.

Q. So you would -- there is no way you could determine where -- you do feel that there is some kind of a barrier around the Antweil Rio 1?

A. I think based on the data that's been presented, there's something that is showing a limited reservoir that that is draining from.

Q. And you would have to assume there's some kind of a barrier between the Rio 1 and the Penasco 1.

A. Yes. Whether it be a fault plane or whether it be a wide band thousands of feet wide, I don't know.

Q. Putting yourself in Antweil's shoes, so to speak, would you recommend drilling a well at one of the three available orthodox locations?

A. Yes, sir, I think so.

Q. You think you would? You think you would move north, move directly north and drill a well in Unit B?

A. I don't believe that our people -- I don't do the recommending in my company.

Q. Well, if you could recommend --

A. But if I were --

Q. Based on your knowledge as an engineer with considerable experience, why, would you, would you recommend drilling a well in Unit B? Knowing there's a permeability barrier between the two wells?

A. I would probably want to drill it in Unit C instead of B, but -- if I owned both tracts; but if I didn't own both tracts, that might be a different matter.

Q. Yeah, so you would prefer to drill it in C but would you recommend a well in C?

A. Yes, sir, I would.

Q. You would recommend it?

A. I would not seek an unorthodox location for a second well on the unit.

Q. You would not seek?

A. At an unorthodox location, I would not recommend that we seek that second well on the unit at an unorthodox location, such as this case.

Q. You would recommend one at the orthodox location?

A. Yes, sir.

Q. You would recommend drilling a second well to your management if you were in a position to recommend it?

A. Yes, sir, if I found that I was only draining a limited area, I would recommend it be considered.

Q. On your Exhibit Nine you carry figures from 500 to 3000. Is 500 your minimum recommendation there or is it --

A. No, I have no minimum recommendation. This was just to show at the initial rate of production of a well,

and these wells are coming in at greater than 3000 Mcf a day. This is if the well just initially started producing at 500, but that is not typical of these wells in this area to be completed for only 500 Mcf a day.

Q. Well there again your No. 1 Well, it looks like the first full month you had you only produced 2000 Mcf a day.

A. In which well?

Q. Your No. 1, your "GK" State Com No. 1, your maximum production there was 2245 Mcf a day during February of '78.

A. Yes, sir.

Q. Which dropped off in two months to less -- quite a bit less than that, approximately a third of it.

A. Well, this does not necessarily represent the maximum flow rate of the well. That's subject to our field operators.

Q. You pinch your wells back? You don't produce at capacity?

A. I don't have control over that but they have. We've had a battle with them on it -- on that particular fact.

Q. Your field operators, who are those? Who do you mean?

A. It would be our production superintendents and

our area managers as to what -- what rate they would like to produce them at.

Q. Oh, I see.

A. I might point out that based on Mr. Williams' data and my own data, that these wells should pay out with cumulative production of some 350,000 to 450,000 Mcf, and if you'll note, the cumulative production on these wells, they look like very excellent wells.

Q. How much are you getting paid for your gas on the "GK"?

A. I think under the original contract it's on the order of $1.63, or something like that.

Q. And it would pay out at $1.63?

A. Yes, sir.

Q. At that much?

A. But we should be subject to the rate increase under NGPA as of January 1st.

Q. That would be effective --

A. Yes, sir. This would be --

Q. Or December 1, whatever it is.

A. Our assumption on our calculations is based on January 1 escalated estimated starting price, subject to revision by NGPA.

Q. But most of the gas produced, or all of the gas you show on here is not subject to the new prices.

A. No, sir.

Q. They're subject to the $1.60-something that you --

A. Yes, sir, and they -- well, they should -- in that broad range they should be paying out, say on the 400 to 450,000 Mcf cumulative.

MR. RAMEY: Any other questions of the witness? Mr. Cooter?

MR. COOTER: I have a very short one.

RECROSS EXAMINATION

BY MR. COOTER:

Q. Mr. Kalteyer, to what do you attribute the production and pressure declines on the two Gulf wells?

A. I imagine it's poor permeability.

Q. Do you have an opinion as to whether or not one or both of these wells might be draining limited areas and not the full 320 acres?

A. I have made no study on that at all.

Q. At this point you have no opinion?

A. No, I think it would take some pulse testing or something to try to establish just how far they are draining.

Q. Is that certainly one of the possibilities?

A. Well, I don't think we'll spend that kind of

money to just establish whether it is.

Q. No, I'm just asking for your opinion. That is --

A. That is one approach to it that sometimes can be established.

Q. All right, thank you. That's all.

MR. CROSS: Could I ask one more redirect question?

MR. STAMETS: I have one more.

MR. CROSS: Okay, excuse me.

MR. RAMEY: Mr. Stamets.

RECROSS EXAMINATION

BY MR. STAMETS:

Q. Mr. Kalteyer, why have you recommended on Exhibit Number Ten a 72-hour flow periods and daily averages based on that for your delivery capacity?

A. Well, as I mentioned, I thought it would represent a little more stable -- stable rate to be used.

Q. What are you attempting to avoid by --

A. To avoid any peaks, peak rates of any sort that would artificially establish a higher allowable.

Q. So you're trying to avoid the operator shutting in his well for a week and opening it up and getting extra high delivery capacities?

A. That's a possibility. It could happen, because just let the well build up and then get a higher rate than under normal continuing to operate.

Q. Is it also possible if the operator has to take a 72-hour test that line pressure or one condition or another could cause one low day in there and actually bring the delivery capacity down below what the well is really capable of producing?

A. Well, he has the option of retesting, I assume. He doesn't have to take the first 72-hour test he makes.

Q. That could get to be quite a bit of a problem, though, couldn't it, to an operator and start being an unnecessary expense?

A. Just to read the meter? I would think that -- that's all we're talking about, really, is just to see the gas volume over a 72-hour period rather than just a 24-hour rate.

Q. Okay. Couldn't the same thing be accomplished just by making certain that the well had been producing on a continuous basis both before and after the peak day?

A. Very definitely if it were in a certain range and it had produced three days in advance, or two days in advance, then that would be fine also.

MR. STAMETS: That's all.

SALLY WALTON BOYD
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1010 Plaza Blanca (505) 471-4462
Santa Fe, New Mexico 87501

RECROSS EXAMINATION

BY MR. RAMEY:

Q. You mentioned something about some Federal agency is allowing a rate of return of 43 percent, or something?

A. Yes, sir.

Q. Do you think that's the maximum anybody should expect?

A. You're not hanging Gulf on that. That just gave you a ballpark, because some people don't talk in terms of discounted rate of return. They may not be involved with it much, but that just -- I used that as a basis to get a feel for what the Feds are thinking in terms of; not that we endorse it at all.

Q. You're not indicating that this may be right?

A. No, sir.

Q. Okay, good. I wanted to get that in the record.

A. No, sir. We like those 3000 Mcf a day wells, to make up for those 300 Mcf a day wells and those zero Mcf a day wells.

Q. Yes, sir, I think everybody in the industry would like to see that.

MR. RAMEY: Mr. Cross, do you have some

questions?

MR. CROSS: Yes.

REDIRECT EXAMINATION

BY MR. CROSS:

Q. Mr. Kalteyer, you recommended that the Commission impose an allowable limitation factor computed on straight acreage encroachment and nonproductive acreage. In your opinion is there sufficient data currently available on which a penalty could be based on any other factors?

A. No, sir, I don't believe there are readily available. Those are the only two I would consider.

MR. CROSS: That's all.

MR. RAMEY: Any other questions of the witness? He may be excused.

Do you have anything further, Mr. Cross?

MR. CROSS: No. I'm through.

MR. RAMEY: Mr. Cooter, do you have anything?

MR. COOTER: I'd like to recall Mr. Williams for just a few short questions.

MR. RAMEY: All right.

R. M. WILLIAMS

being recalled as a witness and having been previously sworn upon his oath, testified as follows, to-wit:

REDIRECT EXAMINATION

BY MR. COOTER:

Q. Mr. Williams, so that the record will be complete, you are the same Mr. Williams who testified previously in this case?

A. That's correct.

Q. Mr. Williams, do you have an opinion as to whether or not there is some type of a barrier existing between the Rio and the Penasco Wells?

A. Yes. This was the point that we were trying to make in our comparison of the performance, the production performance, both production and pressures of our No. 1 Rio Well and our No. 1 Penasco Well. There is a considerable difference in the performance of the two wells. The Penasco Well is an excellent well and the Rio Well being limited in production and suffering a severe decline in pressure.

We believe the reason for this being the limited reservoir volume that the No. 1 Rio Well is draining, obviously caused by some sort of a barrier located somewhere between these two wells.

The orientation, the size of that barrier cannot be determined, but it is effective.

Q. From the information you have from the production data on the completion of the two wells, are you able to locate that barrier?

A. No.

Q. Why do you seek the unorthodox location which is set forth in this application rather than one of the orthodox locations that would be available to you?

A. Due to the evidence of the existence of some sort of a permeability barrier between our No. 1 Rio Well and No. 1 Penasco Well, our not being able to determine the orientation of such a barrier or the width of it, we feel that a location more remote from the No. 1 Rio Well should be the most favorable for us to avoid the effects of this barrier, and afford us the opportunity of successful completion, permit the drainage of the gas that we believe to be contained on our 320-acre proration unit.

Q. Mr. Williams, you previously testified with reference to the Applicant's Exhibit Number Eight calculating the drainage that has occurred to the No. 1 Rio Well. From the similar data with reference to the Gulf No. 1 Well in Section 19, as reflected on the logs and then from the production data, did you make similar computations on the drainage of that well?

A. Yes, I made an estimate. I felt from the appearance of the production history and the records which were available to us, particularly the low flowing tubing pressure at this time, riding the pipeline pressure, that the well is approaching its economic limit without com-

pression. It appears that it will be much like our No. 1 Rio Well with recovery somewhere in the order of 400-million cubic feet of gas and based on a porosity of approximately 11 percent and a pay thickness of 16 feet, we would calculate a drainage area of approximately 38.6 acres or a drainage radius of 732 feet.

This is an approximation. The well may recover slightly more oil than this -- I mean gas than this, but it's the drainage area we believe in this order of magnitude and is a limited area.

Conversely, then, if the performance of the Gulf "GK" No. 1 is indicating that it's draining only a limited area of the reservoir, then the location of our proposed well can have no affect on the "GK" No. 1 Well.

MR. COOTER: Thank you. That's all.

MR. RAMEY: Any questions of Mr. Williams?

RECROSS EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Williams, based upon your last testimony, do I conclude from that that you believe that some portion of the southeast corner of Section 13 is nonproductive?

A. I think the Yates well at that location has fairly well established that.

Q. Excuse me, it's Section 19. It's the Gulf

"GK" No. 1 Well. Now you've indicated the location of the Rio No. 2 Well. I understand your testimony to indicate that you believe the "GK" 1 Well is also in a limited reservoir.

A. Yes. The production performance of the well appears to indicate that it is not recovering the amount of gas that you would expect if it was recovering -- draining a full 320 acres. In fact, that area is quite limited.

Q. That does not, however, preclude Gulf from drilling another well on that proration unit from which they could then drill -- drain the east half of Section 19, does it?

A. Well, they would have to seek an unorthodox location which they are very much opposed to.

Q. And by approval of your unorthodox location we lead ourselves to drilling of numerous unorthodox locations. do we not?

A. I don't think that follows, no, sir.

Q. Regardless of the limited reservoir for the "GK" No. 1 Well, in fact if the Rio No. 2 Well is allowed, you're going to drain some portion of the acreage in the east half of Section 19, are you not?

A. I don't think there's any certainty of that, no, sir.

MR. KELLAHIN: I have no further questions.

MR. RAMEY: Do you have any further questions? He may be excused.

Anything further. Mr. Cooter?

MR. COOTER: No, sir.

MR. RAMEY: Mr. Cross, do you have anything further?

MR. KELLAHIN: Mr. Ramey, if you please, I have one more exhibit I'd like to introduce It's Gulf Exhibit Number Ten, which I show to Mr. Kalteyer and ask him if he'll simply identify that exhibit.

THE REPORTER: I have already an Exhibit Ten. Tom.

MR. KELLAHIN: Make it Exhibit Eleven then, please.

(The reporter marked Gulf Exhibit Eleven for identification.)

MR. KELLAHIN: Mr. Kalteyer, would you please identify what I've marked as Gulf Exhibit Number Eleven and state what information it contains?

MR. KALTEYER: Gulf's Exhibit Number Eleven is just actually re-identifying some data on Number Four. It does, for the Commissioners benefit, it does set out the distances from the Rio Com No. 1 to an orthodox location in Unit B and in Unit C, as well as the unorthodox location, being 2352 feet from the Rio Com 1, and also the distance

to a regular location in Unit F.

MR. KELLAHIN: Mr. Ramey, I move the introduction of Gulf's Exhibit Number Eleven.

MR. RAMEY: Gulf Exhibit Number Eleven will be admitted.

I think I will have, in line with Mr. Stamets' questioning, I think I will have the staff go through the gas proration schedules to determine at what point in the prorated gas pools that a well does become a marginal well, if you have no objections to that procedure.

It's just a matter of curiosity.

MR. KELLAHIN: I would object, Mr. Ramey. That goes to some of the points in my closing argument. If that's the appropriate time, I'll make them now.

If I understand Mr. Stamets' questions, he's attempted by the provisions of the Examiner order to effectuate a way to enforce the penalty factor against a non-prorated gas pool. In order to arrive at that order, he's patterned it after what would happen in a prorated gas pool. He's assumed that the penalty factor, however it may be computed -- we contend that the penalty factor itself ought to be calculated taking into consideration two things: One, number of nonproductive acres in the unit versus the productive acres. That's one of the factors that ought to be in the formula. Second of all, we believe that for Morrow wells

the formula ought to take into consideration an encroachment factor.

The testimony has been that it is practically impossible to determine any other kind of encroachment formula except one that's based on straight acreage. I believe that the Commission has determined that for itself in a number of other cases in the Catclaw Draw-Morrow proration order. It outlines half a dozen different ways of trying to prorate that pool. It simply concludes it cannot be done as a practical matter any other way than on a straight acreage basis.

I believe the Division is fully within its authority and there is substantial evidence to justify an encroachment factor based upon acreage.

The point is that if you apply that type of penalty factor in a prorated gas pool, if I understand Mr. Stamets correctly, that the penalty factor is going to drop off on the marginal wells. The penalty factor is applied to the allowable and once the production for the marginal well drops below its allowable, then the penalty, I assume, also drops off.

I assume then, also, that by setting 1000 Mcf minimum in this non-prorated gas pool he sought to establish the same kind of system that is being used in a prorated pool.

My basic disagreement is that I don't believe that dropping off the restriction in a prorated pool for a marginal well is an appropriate solution. I think for the non-prorated gas pool, as well as the prorated gas pool, that if the operator is going to obtain an advantage in location not permitted by the rules, in other words, an unorthodox location, he ought to bear that penalty regardless of the ability of the well to produce.

Specifically in this case it is a substantial disadvantage to Gulf if that minimum allowable remains in the order, and if you'll look at the production history of the Gulf "GK" State No. 1, you'll see that if Antweil's Rio No. 2 Well performs like the "GK" 1, within less than a year, and in fact almost immediately, that new well will be in a position where it would not have a penalty. Within a very short period of time the Rio No. 2 Well will be competing directly for the same gas as the Gulf well and the Antweil well will not suffer a penalty for doing so.

So I think it's logically inconsistent to have any kind of minimum allowable. If the Division feels otherwise, I believe the testimony here by Mr. Williams establishes that the 1000 Mcf is much too generous. You can note from his testimony that if the 1000 Mcf remains in the order, he's going to pay his well out in 10.7 months, I believe his testimony was. I think that's extremely generous.

His testimony also showed that if the penalty factor continues down from the life of the well, this well will pay out within 15 months. I think that's super. Mr. Williams' testimony was that Mr. Antweil's cutoff point was 12 months. If you assume that to be a reasonable figure, a well should pay out in 12 months for this particular area, then we're going to have to reduce that minimum to some other figure.

We contend that whatever the figure is, it is going to arbitrary and that to be logically consistent the penalty ought to remain on the well without benefit of any minimum allowable. And that's really the principal reason we have sought the de novo hearing today.

The other problem is one that we've already addressed and which the Division has denied. It is the fact that we believe by allowing two wells on the same proration unit we've circumvented the spacing rules. But principally we feel that the minimum allowable is totally unsatisfactory and ought to be removed from the order.

MR. RAMEY: Thank you, Mr. Kellahin.

Do you have anything, Mr. Cooter?

MR. COOTER: I think there might be some other statements.

MR. RAMEY: Anybody else have a statement they want to make?

Mr. Losee, did you have something you wanted to say?

MR. LOSEE: I have a statement to make.

Yates Petroleum Corporation owns a small interest in the Antweil spacing unit in the north half of Section 29. They own 5/8ths interest in the adjoining spacing unit in the north half of Section 30, and they are the operator of the Yates "AB" No. 4 Well, which is one of the two spacing units which is being crowded by the proposed well of Mr. Antweil.

Notwithstanding that fact, Yates supports the application of Morris Antweil for an unorthodox location without any allowable limitation factor. We feel that the imposition of an allowable limitation factor in a non-prorated Morrow gas field will discourage the drilling of wells that are necessary to recover gas from the various sand stringers that are present throughout the Morrow.

Thank you.

MR. RAMEY: Thank you, Mr. Losee.

Anything further? If not, the Commission will take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Court Reporter, DO HEREBY CERTIFY that the foregoing and attached Transcript of Hearing before the Oil Conservation Division was reported by me; that said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability, knowledge, and skill, from my notes taken at the time of the hearing.

Sally W. Boyd CSR

Sally W. Boyd, C.S.R.

SALLY WALTON BOYD
CERTIFIED SHORTHAND REPORTER
1010 Paseo Blanco (505) 471-2462
Santa Fe, New Mexico 87501

NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date JANUARY 24, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION
TERRY CROSS	Gulf Oil Corp.	Midland, TX
CHARLES F. KALTEYER	" " "	" "
Tom Kellahin	Kellahin & Kellahin	Santa Fe
C.D. STENBERG	Gulf Oil Corp	Midland TX
Earl Foster	Morris R. Antweil	Hobbs
R.M. Williams	Morris R. Antweil	Hobbs
Peyton Yates	Yates Petr Corp	Artesia
A Lopez	Lopez Carson & Dickinson	Artesia
Ray Beck	Yates	Artesia

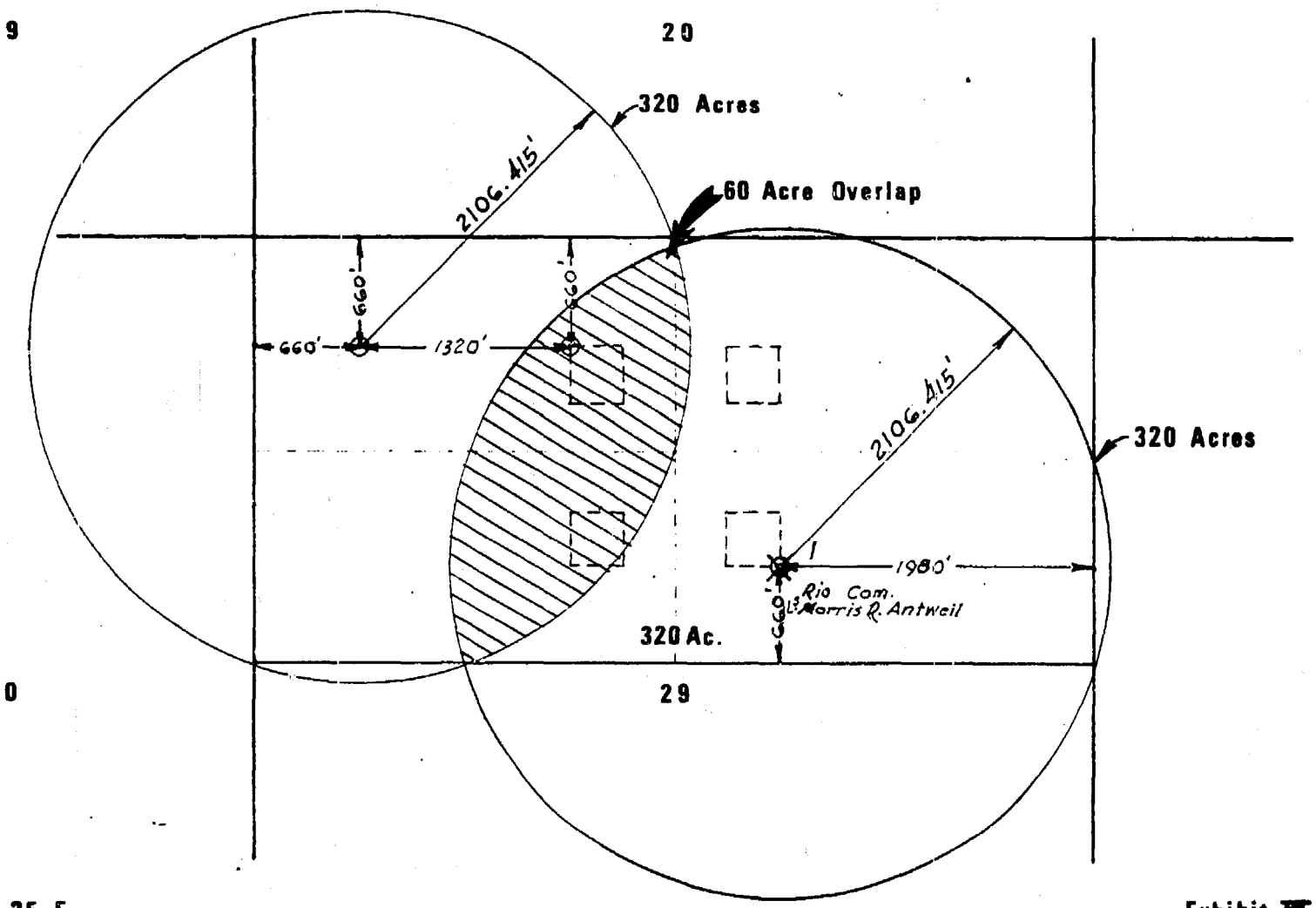
NEW MEXICO OIL CONSERVATION COMMISSION

COMMISSION HEARING

SANTA FE, NEW MEXICO

Hearing Date JANUARY 24, 1979 Time: 9:00 A.M.

NAME	REPRESENTING	LOCATION



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit [redacted] 9
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 10
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE III

Conditions: a) Leave Well No. 1 Rio Com. on Production
b) Drill Well No. 2 Rio Com at Unorthodox Location

1) Drainage Area

a) Well No. 1	320.00 Acres	
b) Well No. 2	320.00 Acres	
	-60.00 Acres	Drainage Overlap
	260.00 Acres	

2) Combined Drainage Area

Well No. 1	320.00 Acres
Well No. 2	260.00 Acres
	580.00 Acres

3) Rateable Take Factor for Unit

Standard Unit Acres = (Combined Drainage Area Acres) X (RTF)

$$RTF = \frac{\text{Standard Unit Acres}}{\text{Combined Drainage Area Acres}}$$

$$= \frac{320.00}{580.00}$$

$$= .55$$

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

JERRY APODACA
GOVERNOR

NICK FRANKLIN
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Re: CASE NO. 6213
ORDER NO. R-5856

Mr. William F. Carr
Catron, Catron & Sawtell
Attorneys at Law
Post Office Box 788
Santa Fe, New Mexico

Applicant:

Morris R. Antweil

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Yours very truly,

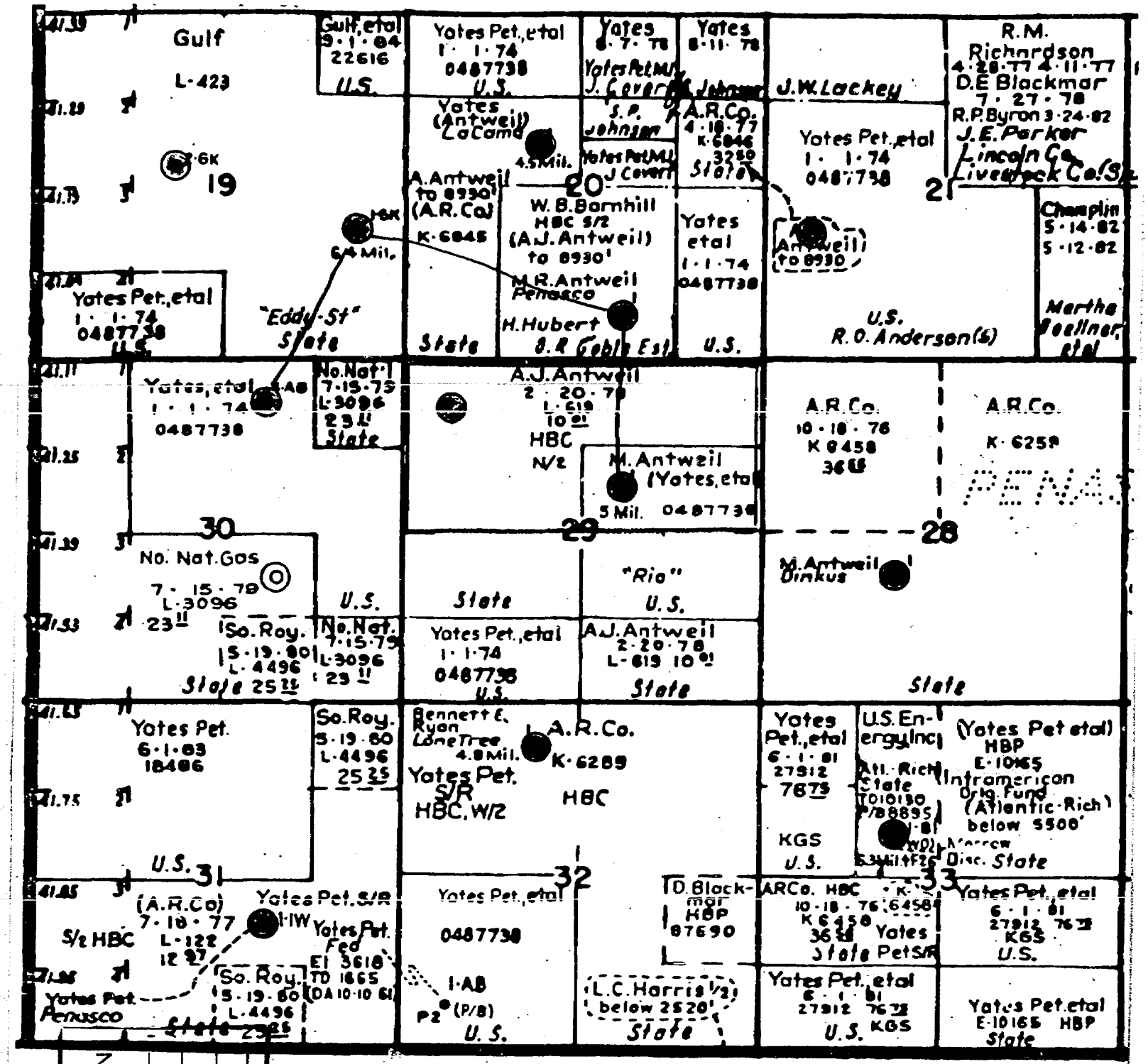
JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other Jack Campbell, Terry Cross, Don Dent



BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl
CASE NO. 6213
Submitted by Antweil
Hearing Date 17 May 78

MORRIS R. ANTWEIL
CASE NO. 6213

- Proposed Location - 660 FNL & 660 FWL Sec.29
- Location
- Morrow Gas Completion
- Dry or Non-commercial Morrow Test
- Gas Spacing & Proration Unit

Exhibit 1

TABULATION OF OFFSET OPERATORS

Section 19	-	Gulf Energy & Minerals Company P. O. Box 670 Hobbs, New Mexico 88240
Section 30	-	Mesa Petroleum Co. 1000 Vaughn Building Midland, Texas 79701
Sections 20, 21, 29 & 30		Yates Petroleum Corp. 207 South 4th Artesia, New Mexico 88210

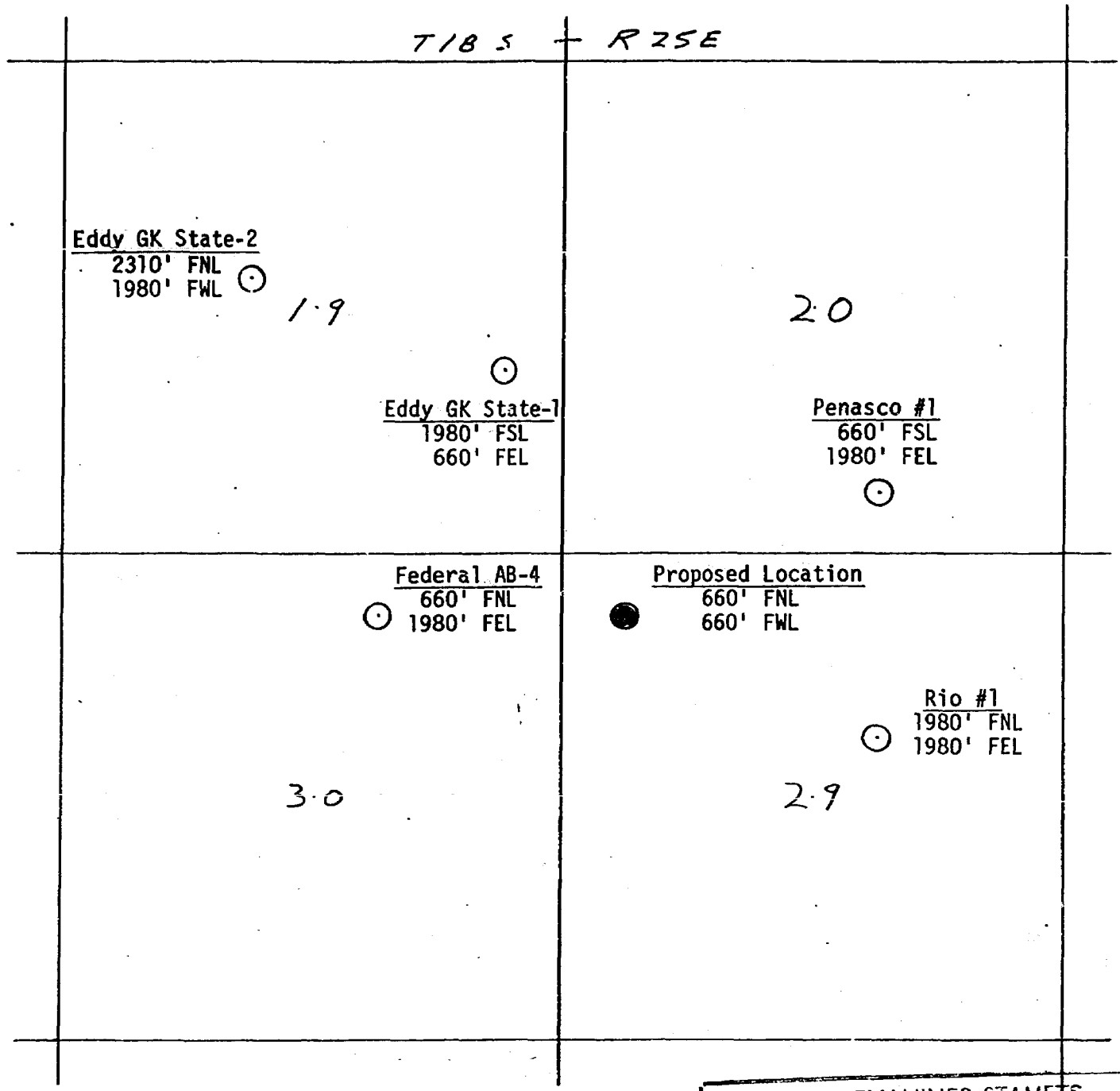
Note: The acreage in Sections 20, 28 & 29 shown to be leased to Atlantic Richfield, Huber, and Hanlad is operated by Morris R. Antweil.

MORRIS R. ANTWEIL
CASE NO. 6213
Exhibit No. 2

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 2
CASE NO. 6213
Submitted by Antweil
Hearing Date 17 May 78

MORRIS R. ANTWEIL

CASE NO. 6213

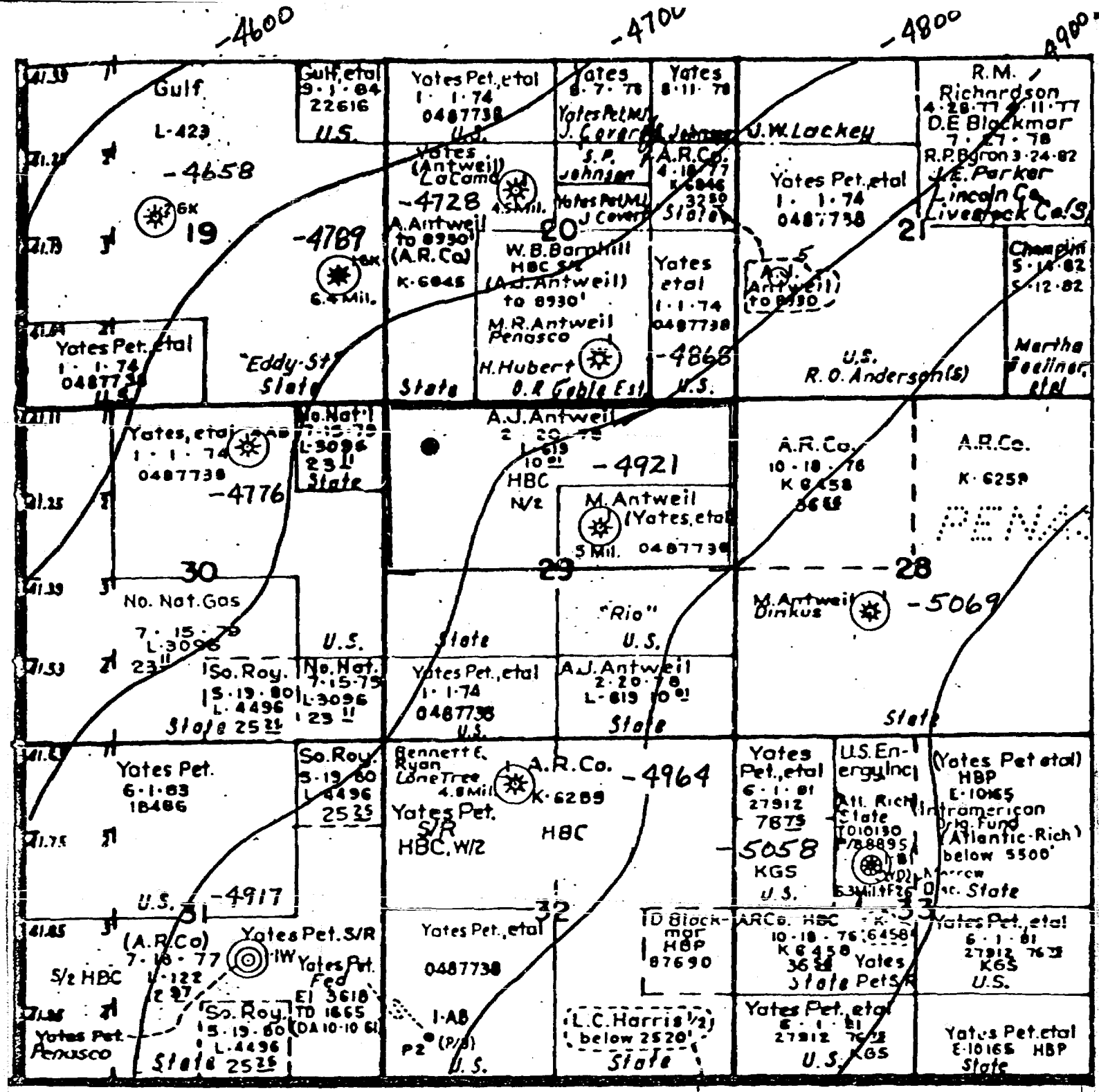


Distance from Proposed Location to:

Morris R. Antweil No. 1 Rio	-	2952'
Morris R. Antweil No. 1 Penasco	-	2952'
Yates Petroleum No. 4 Federal AB	-	2640'
Gulf Oil No. 1 Eddy GK State	-	2952'

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl EXHIBIT NO. 3
CASE NO. 6213
Submitted by Antweil
Hearing Date 17 May 78

Exhibit No. 3



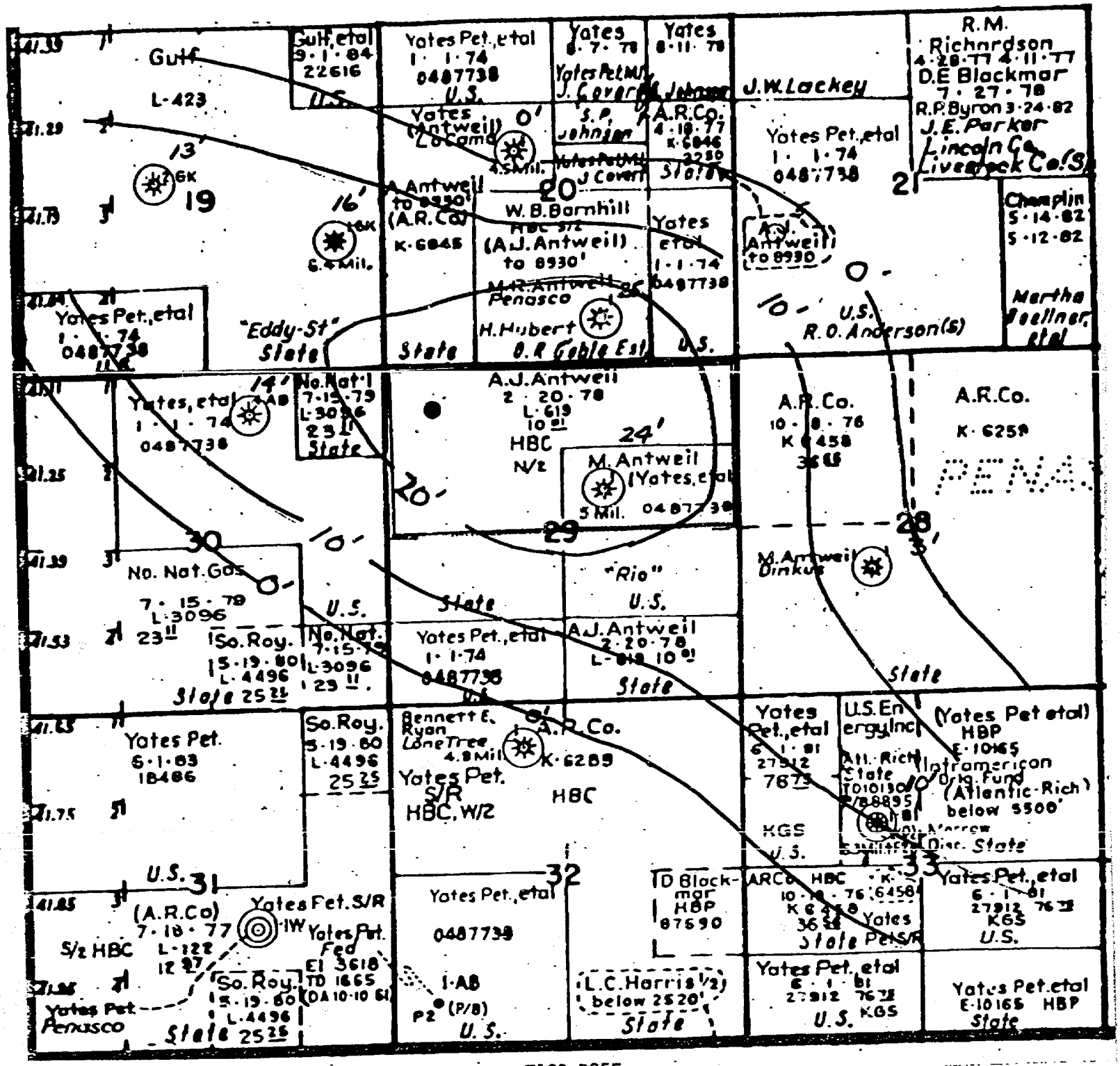
T18S-R25E

MORRIS R. ANTWEIL
CASE NO. 6213

STRUCTURE MAP
100-foot Contours - Morrow Marker

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl. EXHIBIT NO. 4
CASE NO. 6213
Submitted by Antweil
Hearing Date 17 May 78

Exhibit No. 4



BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl. No. 5
CASE NO. 6213
Submitted by Antweil
Hearing Date 17 May 78

MORRIS R. ANTWEIL
CASE NO. 6213

NET PAY ISOPAC MAP
MORROW PAY

Exhibit No. 5

COMPARATIVE PRODUCTION PERFORMANCE

ANTWEIL NO. 1 PENASCO AND NO. 1 RIO

PRODUCTION

	PENASCO		RIO	
	MCF	FTP	MCF	FTP
September '77	69,733	2000 psi	27,226	1500 psi
October '77	183,897	2000	47,260	1200
November '77	159,355	2050	33,089	1100
December '77	151,703	2100	29,460	1000
January '78	150,037	2050	25,653	900
February '78	126,387	2025	19,708	850
March '78	141,973	2000	21,467	800
	983,085		203,863	

PENASCO

Original BHP - 3356 psi (DST)
CAOF - 27,143 MCFPD
BHP - 14 May 1977 - 3408 psi SITP - 2751 psi
First Delivery - 15 September 1977

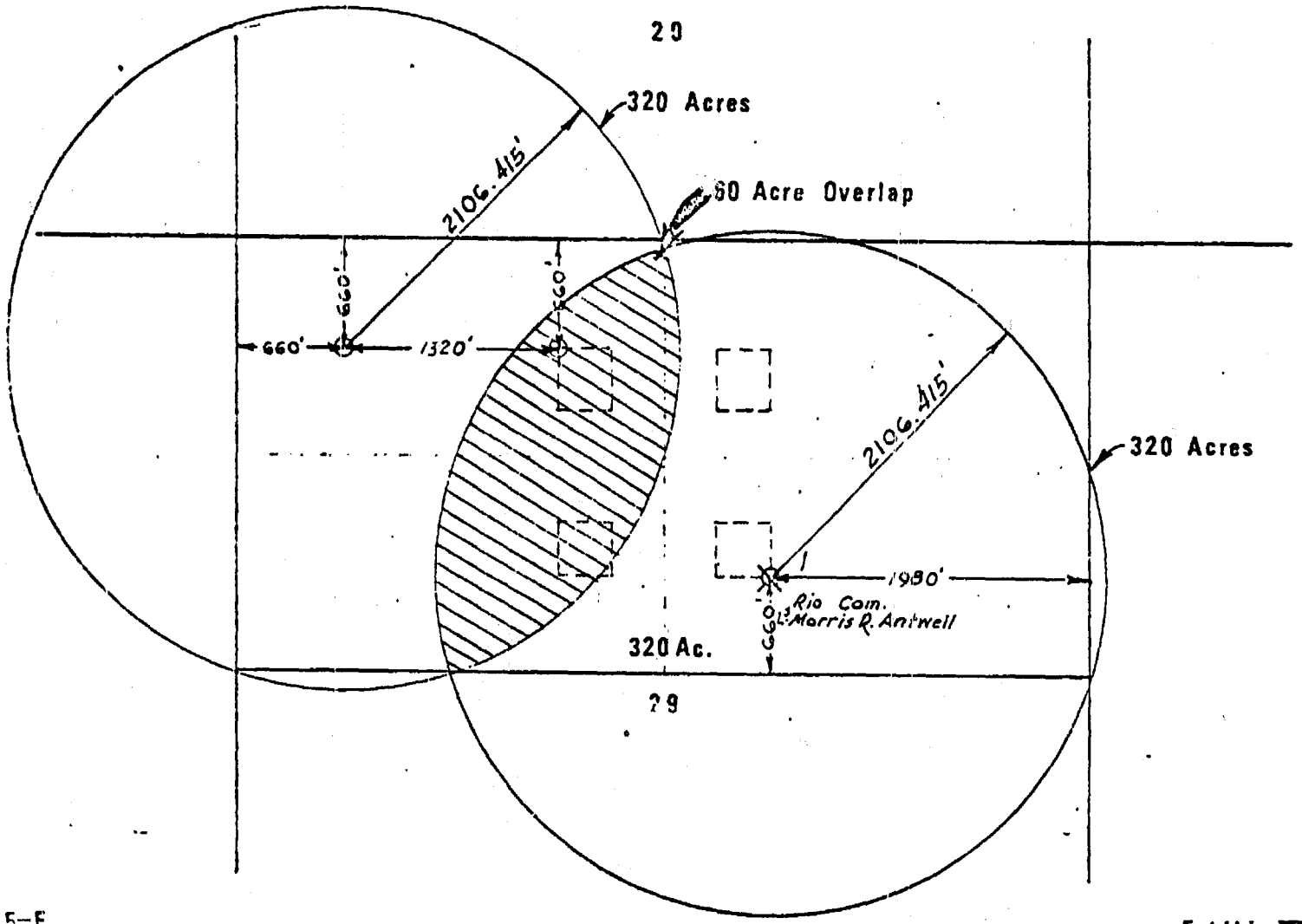
RIO

Original BHP - 3316-3252 psi (DST)
Original SITP - 2447 psi (4-pt test)
CAOF - 6516 MCFPD
BHP - 9 August 1977 - 2975 psi SITP - 2377 psi
First Delivery - 16 September 1977
BHP - 17 October 1977 - 2119 psi SITP - 1681 psi

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
Appl. EXHIBIT NO. 7
CASE NO. 6213
Submitted by: Antweil
Hearing Date: 17 May 78

MORRIS R. ANTWEIL
CASE NO. 6213

Exhibit No. 7



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit # 9
Case 6213
Date 5-17-78
Gulf Oil Corporation

#9

6213

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6213
Order No. R-5856

APPLICATION OF MORRIS R. ANTWEIL
FOR AN UNORTHODOX GAS WELL LOCATION
AND SIMULTANEOUS DEDICATION, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 17, 1978, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 9th day of November, 1978, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Morris R. Antweil, seeks approval of an unorthodox gas well location for his Rio Well No. 2 to be located 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, to test the Morrow formation, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the N/2 of said Section 29 is to be dedicated to the well.

(4) That said Rio Well No. 2 would be the second well drilled on the N/2 of said Section 29, applicant's Rio Well No. 1, located in Unit G of Section 29, having been completed for Morrow formation gas production on August 23, 1977.

(5) That the Morrow interval encountered in said Rio Well No. 1 is less productive than said interval in offsetting wells.

(6) That the applicant seeks to drill a second well on the proration unit (Rio Well No. 2) to permit better drainage of said unit and to protect his correlative rights.

(7) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(8) That the offset operators have objected to the proposed location.

(9) That a well at the proposed location is at a standard location relative to the North and South lines of said Section 29.

(10) That a well at the proposed location is 67 percent closer to the West line of said Section 29 than permitted by Division Rules and Regulations.

(11) That a well at the proposed location will have an area of drainage in the Morrow formation which extends 67.2 net acres outside Section 29, an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

(12) That if both said Rio Well No. 1 and Rio Well No. 2 are permitted to produce, it will result in the proration unit having an additional net 192.8 drainage acres' advantage over offsetting proration units, an amount of acres equivalent to 60 percent of a standard proration unit.

(13) That to offset the advantage gained over the protesting offset operators resulting from the drilling of a well at the proposed unorthodox location, and the production of two wells on the proration unit, production from the N/2 of said Section 29 should be limited from the Morrow formation.

(14) That in the case where only said Rio Well No. 2 is produced, such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (10) above, and may best be accomplished by assigning the proration unit an allowable limitation factor of 0.71 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor, divided by 3).

(15) That in the case where both said Rio Well No. 1 and Rio Well No. 2 are produced, such limitation should be based upon all the factors set out in Finding No. (14) above plus the 192.8 net additional drainage acres described in Finding No. (12) above, and may best be accomplished by assigning the

proration unit an allowable limitation factor of 0.63 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor plus 40 percent net additional drainage factor, divided by 4).

(16) That in the absence of any special rules and regulations for the prorationing of production from said undesignated Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's or wells' ability to produce into the pipeline as determined by periodic well tests.

(17) That the minimum calculated allowable for the subject proration unit should be reasonable, and 1,000,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(18) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Morris R. Antweil Rio Well No. 2 to be located at a point 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That a 320-acre proration unit consisting of the N/2 of said Section 29 shall be simultaneously dedicated to the above-described well and to the Rio Well No. 1 located in Unit G of said Section 29.

(3) That said proration unit is hereby assigned a Production Limitation Factor in the Morrow Formation of 0.71 if only said Rio Well No. 2 is produced, and 0.63 if both said Rio Well No. 2 and applicant's Rio Well No. 1 located in Unit G of said Section 29 are produced.

(4) That in the absence of any Special Rules and Regulations prorating gas production in said undesignated Morrow Gas Pool, the Special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well or wells:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL OR WELLS

APPLICATION OF RULES

RULE 1.(A) These rules shall apply to the proration unit consisting of the N/2 of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, upon completion and connection as a Morrow formation producing well of the Morris R. Antweil Rio Well No. 2 located 660 feet from the North line and 660 feet from the West line of said Section 29.

RULE 1.(B) A Production Limitation Factor of 0.71 shall be applied to the proration unit's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production if said Rio Well No. 2 only is to be produced, and a Production Limitation Factor of 0.63 shall be applied if both the Rio Well No. 2 and the Rio Well No. 1 located in Unit G of said Section 29 are to be produced.

RULE 1.(C) Any deliverability determined by any of the hereinafter described procedures shall be the total deliverability of any Morrow producing wells on such proration unit as determined by adding such deliverabilities.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject unit shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the Rio Well No. 2 the operator shall determine the open flow capacity of producing wells on the proration unit in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's or wells' initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's or wells' "subsequent deliverability" shall be determined twice a year, and shall be equal to its or their highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well or wells have been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The unit's allowable as determined by these rules shall commence upon the date of connection to a pipeline of said Rio Well No. 2 and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The unit's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The unit's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the unit shall not have been producing under these rules for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the unit receive an allowable of less than one million cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the unit has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the unit shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the unit has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the unit is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the unit, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would cause undue hardship, provided however, such permission shall be rescinded for the unit if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well or wells.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the unit. No further allowable shall be assigned to the unit until all rules and regulations are complied with. The Division shall notify the operator of the unit and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is 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

JOE D. RAMEY
Director

S E A L

fd/

DOCKET: COMMISSION HEARING - WEDNESDAY - JANUARY 24, 1979

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases are continued from the December 12, 1978, Commission Hearing.

CASE 6231: (DE NOVO) (Continued and Readvertised)

Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6232: (DE NOVO) (Continued and Readvertised)

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6213: (DE NOVO) (Continued and Readvertised)

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Rio Well No. 2, a Morrow test to be drilled at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be simultaneously dedicated to the aforesaid well and to applicant's Rio Well No. 1 located in Unit G of Section 29.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

(bb) EXTEND the Penasco Draw-Atoka Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM
Section 27: W/2
Section 28: All

(cc) EXTEND the South Peterson-Pennsylvanian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 5 SOUTH, RANGE 33 EAST, NMPM
Section 31: SE/4 SE/4

(dd) EXTEND the Sioux-Yates Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 26 SOUTH, RANGE 36 EAST, NMPM
Section 8: N/2
Section 9: NW/4

(ee) EXTEND the Sombrero-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 12: W/2

(ff) EXTEND the Tom-Tom San Andres Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 7 SOUTH, RANGE 31 EAST, NMPM
Section 32: SE/4

TOWNSHIP 8 SOUTH, RANGE 31 EAST, NMPM
Section 5: NE/4

(gg) EXTEND the West Tonto-Pennsylvanian Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 33 EAST, NMPM
Section 8: W/2

(hh) EXTEND the Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
Section 6: SW/4
Section 7: NW/4

(ii) EXTEND the North Turkey Track-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 29 EAST, NMPM
Section 5: N/2

(jj) EXTEND the Wantz-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
Section 34: NE/4

(kk) EXTEND the Warren-Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 38 EAST, NMPM
Section 26: SE/4

(q) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the South Millman-Atoka Gas Pool. The discovery well is Hondo Oil and Gas Company Hondo 22 State Well No. 1 located in Unit H of Section 22, Township 19 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 22: E/2

(r) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Premier production and designated as the Pavo Mesa-Premier Gas Pool. The discovery well is Carl A. Schellinger Exxon Federal Well No. 1 located in Unit M of Section 29, Township 16 South, Range 29 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 29 EAST, NMPM
Section 29: SW/4

(s) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Penasco Draw-Morrow Gas Pool. The discovery well is Morris R. Antweil Dinkus Com Well No. 1 located in Unit O of Section 20, Township 18 South, Range 25 East, NMPM. Said pool would comprise:

TOWNSHIP 18 SOUTH, RANGE 24 EAST, NMPM
Section 24: E/2

TOWNSHIP 18 SOUTH, RANGE 25 EAST, NMPM
Section 19: All
Section 20: S/2
Section 29: All
Section 30: N/2
Section 32: N/2

(t) EXTEND the vertical limits of the Monument-Tubb Pool in Lea County, New Mexico, to include the Drinkard formation and redesignate said Monument-Tubb Pool as the Monument Tubb-Drinkard Pool.

(u) EXTEND the Blinebry Oil and Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
Section 8: S/2

(v) EXTEND the Southeast Chaves Queen Gas Area in Chaves County, New Mexico, to include therein:

TOWNSHIP 13 SOUTH, RANGE 31 EAST, NMPM
Section 3: S/2

(w) EXTEND the South Empire-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM
Section 36: E/2

(x) EXTEND the Jenkins-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 35 EAST, NMPM
Section 27: SW/4

(y) EXTEND the Langley-Ellenburger Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 36 EAST, NMPM
Section 21: S/2

(z) EXTEND the Lovington-Queen Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 36 EAST, NMPM
Section 1: S/2
Section 12: W/2

(aa) EXTEND the South Millman-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 19: S/2

(h) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the Fenton Draw-Morrow Gas Pool, the discovery well is Perry R. Bass Big Eddy Unit Well No. 53 located in Unit G of Section 8, Township 21 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 28 EAST, NMPM
Section 8: E/2

(i) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Cherry Canyon production and designated as the Herradura Bend-Cherry Canyon Pool. The discovery well is Eastland Oil Company City of Carlsbad Well No. 1 located in Unit K of Section 29, Township 22 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 29: SW/4

(j) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the East High Hope-Atoka Gas Pool. The discovery well is Beard Oil Company Hagstrom Well No. 1 located in Unit K of Section 8, Township 17 South, Range 24 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 24 EAST, NMPM
Section 8: W/2
Section 17: W/2
Section 18: All

(k) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Atoka production and designated as the Hume-Atoka Gas Pool. The discovery well is Mewbourne Oil Company State E Com Well No. 1 located in Unit V of Section 6, Township 16 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 6: S/2

(l) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the Loafer Draw-Strawn Gas Pool. The discovery well is Inexco Oil Company Arroyo Federal Well No. 1 located in Unit K of Section 26, Township 21 South, Range 22 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 22 EAST, NMPM
Section 26: S/2

(m) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Cisco-Canyon production and designated as the Logan Draw Cisco-Canyon Gas Pool. The discovery well is Mesa Petroleum Company Potter Federal Com Well No. 1 located in Unit B of Section 29, Township 17 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM
Section 29: N/2

(n) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the North Loving-Morrow Gas Pool. The discovery well is Cities Service Company Polk A Com Well No. 1 located in Unit B of Section 17, Township 23 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM
Section 16: W/2
Section 17: N/2

(o) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the North Loving-Strawn Gas Pool. The discovery well is Cities Service Company Polk A Com Well No. 1 located in Unit B of Section 17, Township 23 South, Range 28 East, NMPM. Said pool would comprise:

TOWNSHIP 23 SOUTH, RANGE 28 EAST, NMPM
Section 17: N/2

(p) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Drinkard production and designated as the Lovington-Drinkard Pool. The discovery well is Getty Oil Company State O Well No. 12 located in Unit J of Section 31, Township 16 South, Range 37 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 37 EAST, NMPM
Section 31: SE/4

CASE 6390: (Continued from January 3, 1979, Examiner Hearing)

Application of C & E Operators for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests down thru the Pictured Cliffs formation underlying the SW/4 of Section 10, Township 30 North, Range 11 West, San Juan County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6421: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating and extending vertical and horizontal limits of certain pools in Chaves, Eddy, Lea, and Roosevelt Counties, New Mexico:

(a) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the Avalon-Wolfcamp Pool. The discovery well is Maralo, Inc. Hanson Federal Well No. 2 located in Unit O of Section 28, Township 20 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM
Section 28: SE/4

(b) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Black River-Atoka Gas Pool. The discovery well is HNG Oil Company Bowden 25 Federal Com. Well No. 1 located in Unit I of Section 25, Township 24 South, Range 26 East, NMPM. Said pool would comprise:

TOWNSHIP 24 SOUTH, RANGE 26 EAST, NMPM
Section 25: E/2

(c) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Strawn production and designated as the Box Canyon-Strawn Gas Pool. The discovery well is Yates Petroleum Corporation Huber IA Federal Well No. 2 located in Unit P of Section 15, Township 21 South, Range 21 East, NMPM. Said pool would comprise:

TOWNSHIP 21 SOUTH, RANGE 21 EAST, NMPM
Section 15: S/2

(d) CREATE a new pool in Eddy County, New Mexico, classified as an oil pool for Delaware production and designated as the Cotton Draw-Delaware Pool. The discovery well is Coquina Oil Corporation El Paso Federal Well No. 1 located in Unit K of Section 12, Township 24 South, Range 31 East, NMPM. Said pool would comprise:

TOWNSHIP 24 SOUTH, RANGE 31 EAST, NMPM
Section 12: SW/4

(e) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the East Cottonwood Creek-Atoka Gas Pool. The discovery well is Yates Petroleum Corporation Lizzie Howard HK Well No. 1 located in Unit K of Section 13, Township 16 South, Range 25 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 25 EAST, NMPM
Section 13: W/2

(f) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Yates-Seven Rivers production and designated as the North Custer Yates-Seven Rivers Pool. The discovery well is Gifford, Mitchell & Wisenbaker Amoco State Well No. 1 located in Unit B of Section 36, Township 24 South, Range 35 East, NMPM. Said pool would comprise:

TOWNSHIP 24 SOUTH, RANGE 35 EAST, NMPM
Section 36: NE/4

(g) CREATE a new pool in Eddy County, New Mexico, classified as a gas pool for Atoka production and designated as the Diamond Mound-Atoka Gas Pool. The discovery well is Northern Natural Gas Company Vandagriff Federal Well No. 1 located in Unit K of Section 1, Township 16 South, Range 27 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 27 EAST, NMPM
Section 1: All
Section 2: Lots 1, 2, 7, 8, 9, 10, 15 and 16

Dockets Nos. 3-79 and 4-79 are tentatively set for hearing on January 24 and 31, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 17, 1979

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

ALLOWABLE: (1) Consideration of the allowable production of gas for February, 1979, from fifteen prorated pools in Lea, Eddy, and Chaves Counties, New Mexico.

(2) Consideration of the allowable production of gas for February, 1979, from four prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico.

CASE 6418: Application of Gulf Oil Corporation for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Eddy "GR" State Well No. 1 located in Unit E of Section 16, Township 23 South, Range 28 East, Eddy County, New Mexico, to produce gas from the Atoka and Morrow formations through parallel strings of tubing.

CASE 6413: (Continued from January 3, 1979, Examiner Hearing)

Application of Atlantic Richfield Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its Langley Getty Com Well No. 1 located in Unit N of Section 21, Township 22 South, Range 36 East, Langley Field, Lea County, New Mexico, to produce gas from the Devonian and Ellenburger formations, through parallel strings of tubing.

CASE 6414: (Continued from January 3, 1979, Examiner Hearing)

Application of Atlantic Richfield Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through the perforated interval from 13,590 feet to 13,685 feet in its Lea 396 State Well No. 1 located in Unit K of Section 35, Township 15 South, Pange 36 East, Dean-Devonian Pool, Lea County, New Mexico.

CASE 6415: (Continued from January 3, 1979, Examiner Hearing)

Application of Yates Petroleum Corporation for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp thru Devonian formations underlying the W/2 of Section 20, Township 14 South, Range 36 East, Lea County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6419: Application of Yates Petroleum Corporation for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Lanning JC Well No. 1 located in Unit B of Section 7, Township 18 South, Range 26 East, Eagle Creek Field, Eddy County, New Mexico, to produce gas from the Strawn formation through the casing-tubing annulus and from the Morrow formation through tubing.

CASE 6420: Application of LaRue and Muncy for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Abo formation underlying the NW/4 SE/4 of Section 34, Township 18 South, Range 26 East, Dayton-Abo Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6416: (Continued from January 3, 1979, Examiner Hearing)

Application of Anadarko Production Company for special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules for the Cedar Lake-Morrow Gas Pool, Eddy County, New Mexico, to provide for 320-acre spacing rather than 160 acres. In the absence of objection, this pool will be placed on the standard 320-acre spacing for Wolfcamp and Pennsylvanian gas pools rather than the present 160-acre spacing.

CAMPBELL, BINGAMAN AND BLACK, P. A.
LAWYERS

JACK M. CAMPBELL
JEFF BINGAMAN
BRUCE D. BLACK
MICHAEL B. CAMPBELL

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

December 4, 1978

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Division
Department of Energy & Minerals
State Land Office
Santa Fe, New Mexico 87501

Re: Case Nos. 6213, 6231 and 6232.

Dear Mr. Ramey:

Since I filed on behalf of Gulf Oil Corporation Motions for Hearings De Novo in the captioned cases, Mr. William F. Carr has joined our law firm. As you are aware, Mr. Carr represented Morris R. Antweil in one of these cases.

As a result of this new association, Mr. Carr has withdrawn his representation of Morris R. Antweil in Case No. 6213, Application of Morris R. Antweil for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico, and I am withdrawing my representation of Gulf Oil Corporation in all three of these cases, inasmuch as they may be consolidated for hearing.

I regret that this situation may cause some inconvenience to your office but I am sure you understand that under the circumstances it would be inappropriate for either Mr. Carr or I to continue in these cases.

Very truly yours,

Jack M Campbell

Jack M. Campbell

JMC:ama
cc: William F. Carr, Esq.
Morgan Copeland, Esq.
A. J. Losee, Esq.

Dockets Nos. 41-78 and 42-78 are tentatively set for hearing on December 20, 1978 and January 3, 1979. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: COMMISSION HEARING - TUESDAY - DECEMBER 12, 1978

OIL CONSERVATION COMMISSION - 9 A.M. - ROOM 205
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

CASE 6213: (DE NOVO)

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Rio Well No. 2, a Morrow test to be drilled at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be simultaneously dedicated to the aforesaid well and to applicant's Rio Well No. 1 located in Unit G of Section 29.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6231: (DE NOVO)

Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CASE 6232: (DE NOVO)

Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JG" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

Upon application of Gulf Oil Corporation this case will be heard De Novo pursuant to the provisions of Rule 1220.

CAMPBELL, BINGAMAN AND BLACK, P. A.
LAWYERS

JACK M. CAMPBELL
JEFF BINGAMAN
BRUCE D. BLACK
MICHAEL B. CAMPBELL

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

November 20, 1978

Mr. Joe D. Ramey
Director, Oil Conservation Division
Department of Energy and Minerals
State Land Office
Santa Fe, New Mexico 87501

Re: Application of Morris R. Antweil for an unorthodox gas well location, Eddy County, New Mexico - Case No. 6213.

Dear Mr. Ramey:

Enclosed for filing is an Amended Application for De Novo Hearing in the above-captioned matter. We would appreciate your taking the necessary steps to set this matter down for hearing before the Oil Conservation Commission.

Very truly yours,

Jack M. Campbell

JMC:ama
enclosures

cc: William F. Carr, Esq.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

NOV 20 1978

Application of Morris R. Antweil for an unorthodox gas well location and simultaneous dedication, Eddy County, New Mexico.) Case No. 6213

AMENDED APPLICATION FOR DE NOVO HEARING

COMES NOW Gulf Oil Corporation (Gulf), a party to the above-styled matter and, pursuant to Chapter 255, Section 48, Laws of 1977 and Rule 1220 of the Oil Conservation Division, applies for a de novo hearing before the Commission in this matter, and as its grounds therefor states:

1. Order No. R-5856 issued in this matter on November 9, 1978 provides, among other things, under Rule 13 therein as follows:

> "Rule 13. In no event shall the well receive an allowable of less than one million cubic feet of gas per day."

2. Said Rule 13 adversely affects Applicant's correlative rights and has the effect of nullifying other provisions of said Order limiting Morris R. Antweil's production from the proposed well.

WHEREFORE, Gulf seeks a hearing de novo in this matter before the New Mexico Oil Conservation Commission, and following such hearing, for an order modifying said proposed Rule 13, in such a manner that the correlative rights of Gulf shall be protected as provided by law.

Dated: November 17, 1978.

Respectfully submitted,

CAMPBELL, BINGAMAN AND BLACK, P.A.

By Jack M. Campbell
Jack M. Campbell
Attorney for Applicant Gulf Oil Corporation
Post Office Box 2208
Santa Fe, New Mexico 87501

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6213
Order No. R-5856

APPLICATION OF MORRIS R. ANTWEIL
FOR AN UNORTHODOX GAS WELL LOCATION
AND SIMULTANEOUS DEDICATION, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 17, 1978, at Santa Fe. New Mexico, before Examiner Richard L. Stamets.

NOW, on this 9th day of November, 1978, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Morris R. Antweil, seeks approval of an unorthodox gas well location for his Rio Well No. 2 to be located 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, to test the Morrow formation, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the N/2 of said Section 29 is to be dedicated to the well.

(4) That said Rio Well No. 2 would be the second well drilled on the N/2 of said Section 29, applicant's Rio Well No. 1, located in Unit G of Section 29, having been completed for Morrow formation gas production on August 23, 1977.

(5) That the Morrow interval encountered in said Rio Well No. 1 is less productive than said interval in offsetting wells.

(6) That the applicant seeks to drill a second well on the proration unit (Rio Well No. 2) to permit better drainage of said unit and to protect his correlative rights.

(7) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(8) That the offset operators have objected to the proposed location.

(9) That a well at the proposed location is at a standard location relative to the North and South lines of said Section 29.

(10) That a well at the proposed location is 67 percent closer to the West line of said Section 29 than permitted by Division Rules and Regulations.

(11) That a well at the proposed location will have an area of drainage in the Morrow formation which extends 67.2 net acres outside Section 29, an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

(12) That if both said Rio Well No. 1 and Rio Well No. 2 are permitted to produce, it will result in the proration unit having an additional net 192.8 drainage acres' advantage over offsetting proration units, an amount of acres equivalent to 60 percent of a standard proration unit.

(13) That to offset the advantage gained over the protesting offset operators resulting from the drilling of a well at the proposed unorthodox location, and the production of two wells on the proration unit, production from the N/2 of said Section 29 should be limited from the Morrow formation.

(14) That in the case where only said Rio Well No. 2 is produced, such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (10) above, and may best be accomplished by assigning the proration unit an allowable limitation factor of 0.71 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor, divided by 3).

(15) That in the case where both said Rio Well No. 1 and Rio Well No. 2 are produced, such limitation should be based upon all the factors set out in Finding No. (14) above plus the 192.8 net additional drainage acres described in Finding No. (12) above, and may best be accomplished by assigning the

proration unit an allowable limitation factor of 0.63 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor plus 40 percent net additional drainage factor, divided by 4).

(16) That in the absence of any special rules and regulations for the prorationing of production from said undesignated Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's or wells' ability to produce into the pipeline as determined by periodic well tests.

(17) That the minimum calculated allowable for the subject proration unit should be reasonable, and 1,000,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(18) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Morris R. Antweil Rio Well No. 2 to be located at a point 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 25 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That a 320-acre proration unit consisting of the N/2 of said Section 29 shall be simultaneously dedicated to the above-described well and to the Rio Well No. 1 located in Unit G of said Section 29.

(3) That said proration unit is hereby assigned a Production Limitation Factor in the Morrow Formation of 0.71 if only said Rio Well No. 2 is produced, and 0.63 if both said Rio Well No. 2 and applicant's Rio Well No. 1 located in Unit G of said Section 29 are produced.

(4) That in the absence of any Special Rules and Regulations prorating gas production in said undesignated Morrow Gas Pool, the Special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well or wells:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL OR WELLS

APPLICATION OF RULES

RULE 1.(A) These rules shall apply to the proration unit consisting of the N/2 of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, upon completion and connection as a Morrow formation producing well of the Morris R. Antweil Rio Well No. 2 located 660 feet from the North line and 660 feet from the West line of said Section 29.

RULE 1.(B) A Production Limitation Factor of 0.71 shall be applied to the proration unit's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production if said Rio Well No. 2 only is to be produced, and a Production Limitation Factor of 0.63 shall be applied if both the Rio Well No. 2 and the Rio Well No. 1 located in Unit G of said Section 29 are to be produced.

RULE 1.(C) Any deliverability determined by any of the hereinafter described procedures shall be the total deliverability of any Morrow producing wells on such proration unit as determined by adding such deliverabilities.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject unit shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the Rio Well No. 2 the operator shall determine the open flow capacity of producing wells on the proration unit in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's or wells' initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's or wells' "subsequent deliverability" shall be determined twice a year, and shall be equal to its or their highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well or wells have been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The unit's allowable as determined by these rules shall commence upon the date of connection to a pipeline of said Rio Well No. 2 and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The unit's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The unit's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the unit shall not have been producing under these rules for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9.

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the unit receive an allowable of less than one million cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the unit has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the unit shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the unit has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the unit is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the unit, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would cause undue hardship, provided however, such permission shall be rescinded for the unit if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well or wells.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the unit. No further allowable shall be assigned to the unit until all rules and regulations are complied with. The Division shall notify the operator of the unit and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is 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

JOE D. RAMEY
Director

S E A L

fd/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. ~~6213~~ 6231 - DE NOVO
Order No. ~~R-5056~~ - A 5831

APPLICATION OF ~~MORRIS R. ANTWEIL~~ YATES PETROLEUM CORPORATION FOR AN UNORTHODOX GAS WELL LOCATION ~~AND SIMULTANEOUS DEDICATION~~, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on ~~February 7~~ February 7, 1979, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this ~~20th~~ day of ~~February~~ March, 1979, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, 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, ~~Morris R. Antweil~~ Yates Petroleum Corporation, seeks approval of an unorthodox gas well location for his ~~Rio~~ State Well No. ~~2~~ 1 to be located 660 feet from the North line and 660 feet from the ~~West~~ East line of Section ~~29~~ 25, Township 18 South, Range ~~28~~ 27 East, NMPM, to test the Morrow formation, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the N/2 of said Section ~~29~~ 25 is to be dedicated to the well.

~~(4) That said Rio Well No. 2 would be the second well drilled on the N/2 of said Section 29, applicant's Rio Well No. 1, located in Unit G of Section 29, having been completed for Morrow formation gas production on August 23, 1977.~~

4 ~~(5)~~ That upon receipt of the application of ~~Yates Petroleum Corporation~~ Yates Petroleum Corporation in this matter, the same was set for hearing on May 17, 1978, before Examiner Richard L. Stamets.

5 ~~(6)~~ That subsequent to said hearing (5831) the ~~Commission~~ Oil Conservation Division entered Order No. ~~R-5056~~ approving the unorthodox location of said well for the Morrow formation and providing for special rules and regulations limiting production therefrom.

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

6 (8) That subsequent to the entry of said Order No. R-~~5855~~ 5831, Gulf Oil Corporation, an offset operator, filed timely application for hearing De Novo of Case No. ~~6212~~ 6231, and the matter was set for hearing before the Commission.

7 (6) That the matter came on for hearing De Novo on February ~~7, 1979.~~ ~~January 29~~, 1979. February 7,

~~(9) That the Morrow interval encountered in said Rio Well No. 1 is less productive than said interval in offsetting wells,~~ + will not adequately drain the N/2 of said Section 29. That the applicant seeks to drill a well at an unorthodox location to permit better drainage of said unit + to protect his correlative rights.

~~(10) That the applicant seeks to drill a second well on the proration unit (Rio Well No. 2) to permit better drainage of said unit and to protect his correlative rights.~~

(8) ~~9~~ (~~10~~) That a well at said unorthodox location will better enable applicant to produce the gas underlying the proration unit.

(9) ~~10~~ (~~11~~) That ~~the~~ offset operator~~s~~ ~~have~~ objected to the proposed location.

(10) ~~11~~ (~~12~~) That a well at the proposed location is at a standard location relative to the North and South lines of said Section ~~29~~. 25.

(11) ~~12~~ (~~13~~) That a well at the proposed location is 67 percent closer to the West line of said Section ~~29~~ than permitted by Division Rules and Regulations. 25

(12) ~~13~~ (~~14~~) That a well at the proposed location will have an area of drainage in the Morrow formation which extends 67.2 net acres outside Section ~~29~~, 25 an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

~~(14) That if both said Rio Well No. 1 and Rio Well No. 2 are permitted to produce, it will result in the proration unit having an additional net 192.8 drainage acres' advantage over offsetting proration units, an amount of acres equivalent to 60 percent of a standard proration unit.~~

(13) ~~14~~ (~~15~~) That to offset the advantage gained over the protesting offset operator~~'s resulting from the drilling of a well at the proposed unorthodox location, and the production of said wells or the proration unit~~, production from the N/2 of said Section ~~29~~ 25 should be limited from the Morrow formation.

(14) ~~15~~ (~~16~~) That ~~in the case where only said Rio Well No. 2 is produced,~~ such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (12) above, and may best be accomplished by assigning the proration unit ~~an allowable~~ a production limitation factor of 0.71 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor, divided by 3).

~~(17) That in the case where both said Rio Well No. 1 and Rio Well No. 2 are produced, such limitation should be based upon all the factors set out in Finding No. (14) above plus the 192.8 net additional drainage acres described in Finding No. (12) above, and may best be accomplished by assigning the proration unit an allowable limitation factor of 0.63 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net acre factor plus 40 percent net additional drainage factor, divided by 4).~~

(15) ~~16~~ (~~17~~) That in the absence of any special rules and regulations for the prorationing of production from said undesignated Morrow Gas Pool, the aforesaid production limitation factor should be applied against said well's or wells' ability to produce into the pipeline as determined by periodic well tests.

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

Orange underlined OK

(16) That the Special Rules and Regulations for the Application Of a "Production Limitation Factor" To A Non-Prorated Gas Well Or Wells set out in Division Order No R-5831 entered September 29, 1978, provide the proper framework for application of the afore said production limitation factor.

(17) That said Special Rules and Regulations should be adopted and made a part of this order by reference.

(18) That considering the risks involved in drilling to the Morrow formation, each proration unit should have a reasonable minimum calculated allowable.

(19) That at a sustained flowing rate of 500,000 cubic feet per day, a Morrow well in this area would pay-out in approximately 2.5 years.

(20) That 2.5 years is a reasonable pay-out period for a Morrow well in this area.

See under

PAGE 22. In no e[vent] of less than ~~one million~~ five hundred thousand cubic

(6) That jurisdiction of this cause is 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 herein-above designated.

(21) That Rule 13 of said Special Rules and Regulations should be amended to provide for a minimum allowable of ~~one million cubic~~ one-half million cubic feet of gas per day rather than one million cubic feet.

(22) That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the ~~Morris R. Antweil Rio Well No. 2~~ Yates Petroleum Corporation State JM Well No. 1 to be located at a point 660 feet from the North line and 660 feet from the ~~West~~ East line of Section ~~25~~, Township 18 South, Range ~~24~~ East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That a 320-acre proration unit consisting of the N/2 of said Section 25 shall be ~~simultaneously~~ dedicated to the above-described well, ~~and to the Rio Well No. 1 located in Unit G of said Section 29~~.

(3) That said proration unit is hereby assigned a Production Limitation Factor in the Morrow Formation of 0.71 ~~if only said Rio Well No. 2 is produced, and 0.63 if both said Rio Well No. 2 and applicant's Rio Well No. 1 located in Unit G of said Section 29 are produced~~.

(4) That in the absence of any Special Rules and Regulations prorating gas production in said undesignated Morrow Gas Pool, the ~~Special rules hereinafter promulgated shall apply~~. Special Rules and Regulations for the Application of a "Production Limitation Factor" to a Non-Prorated Gas Well or Wells set out in Division Order No. R-5831, and hereby adopted by reference, shall apply.

(5) That Rule 13 of said Special Rules and Regulations is hereby amended to read in its entirety as follows:

"RULE 13. ~~RULE 23~~. In no event shall the unit receive an allowable of less than ~~one million cubic~~ ~~five hundred thousand cubic~~ one-half million cubic feet of gas per day."

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

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

BEFORE THE
NEW MEXICO OIL CONSERVATION DIVISION
SANTA FE, NEW MEXICO
MAY 3, 1978

EXAMINER HEARING

IN THE MATTER OF:

Application of Morris R. Antweil for an unorthodox gas well location, Eddy County, New Mexico.

Case 6213

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Division:

Lynn Teschendorf, Esq.
Legal Counsel for the Division

LANPHERE REPORTING SERVICE
P.O. BOX 449
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SANTA FE, NEW MEXICO 87501

I N D E X

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MR. NUTTER: Call Case No. 6213.

MS. TESCHENDORF: Case 6213. Application of Morris R. Antweil for an unorthodox gas well location, Eddy County, New Mexico.

MR. NUTTER: Case No. 6213 also involves the simultaneous dedication to the Applicant's Rio Well No. 1, which is located on the proposed proration unit here and has been readvertised to include the simultaneous dedication for the May 17th hearing.

Therefore, Case No. 6213 at this time will be continued to the Examiner hearing scehduled to be held at this same place, at nine o'clock a.m., May 17, 1978.

(WHEREUPON, Case 6213 continued.)

REPORTER'S CERTIFICATE

I, BETTY J. LANPHERE, CSR-RPR with offices in Santa Fe, New Mexico, do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me stenographically and reduced to typewritten transcript by me or under my supervision.

DATED at Santa Fe, New Mexico, this twenty-second day of May, 1978.

Betty J. Lanphere, Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6213, heard by me on 5/3, 1978.

New Mexico Oil Conservation Commission, Examiner

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BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

SANTA FE, NEW MEXICO

MAY 17, 1978

COMMISSION HEARING

IN THE MATTER OF:

Application of Morris R. Antweil for an unorthodox gas well location, Eddy County, New Mexico.) Case 6213

BEFORE: Richard L. Stamets, Staff Member

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission:

Joe Ramey, Chairman
Emery Arnold, Commissioner
Phil Lucero, Commissioner
Richard L. Stamets, Staff Member

Lynn Teschendorf, Esq., Legal Counsel

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MR. STAMETS: Call the next case on the docket.

MS. TESCHENDORF: Case 6213. Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico.

MR. STAMETS: Call for appearances in this case.

MR. CARR: William F. Carr, Catron, Catron and Sawtell, Santa Fe appearing on behalf of the Applicant.

I have one witness.

MR. CAMPBELL: Jack M. Campbell, Campbell, Ringaman & Black appearing on behalf of Gulf Oil Corporation.

I'd like to again introduce Terry Cross who will be participating as a member of the Texas bar.

MR. STAMETS: Other appearances in this case?

MR. DENT: Don Dent for Mesa Petroleum Company. Associated with me also is Dale Gillette of Mesa, a member of the Texas bar and through entry of appearance with Mr. Paul Eaton. We're here in this case for Mesa.

MR. STAMETS: Any other appearances?

I'd like to have all those who are the witnesses in this case stand and be sworn.

(WHEREUPON, the witnesses were duly sworn.)

R. H. WILLIAMS

The witness herein, having been duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q Will you state your name and place of residence?

A R. H. Williams, Hobbs, New Mexico.

Q Mr. Williams, by whom are you employed and in what position?

A Employed by Morris R. Antweil, Petroleum Engineer.

Q Have you previously testified before this Commission, had your credentials accepted and made a matter of record?

A Yes.

Q Are you familiar with the subject matter of case 6213?

A Yes, I am.

MR. CARR: Are the witness' credentials acceptable?

MR. STAMETS: They are.

Q (Mr. Carr) Mr. Williams, what does Morris R. Antweil seek by its application in this case?

A We seek approval of an unorthodox location and

simultaneous dedication of the north half of Section 29, Township 18, South, Range 25 East for our number one, existing number one Rio Well and a proposed number two Rio Well. Location of the proposed Rio No. 2 to be 660 from the north line and 660 from the west line in Section 29.

Q Will you please refer to what has been marked for identification as Exhibit Number 1 and explain what it is and what it shows?

A Exhibit Number 1 is a map of the area as shown on the existing proration unit for our Rio Number 1 Well showing the proposed location with the red dots for the Rio Number 2 well, shows, has shown the existing Morrow gas completions in the immediate area and dry and noncommercial Morrow tests in the immediate area in one location, in Section 30.

Q Will you now refer to what has been marked as Exhibit Number 2 and explain to the Examiner what it is?

A In Exhibit Number 2 I've just tabulated the offset operators, Gulf Energy and Minerals Company has offsetting acreage in Section 19, Mesa Petroleum has offsetting acreage in Section 30, and Yates Petroleum has offsetting acreage in Sections 20, 21, 29 and 30.

You might note there is acreage shown on the land

map designated to Atlantic Richfield, Huber and Hanlad (sic) in Sections 20, 28 and 29. This acreage is farmed out and operated, farmed out to and operated by Morris R. Antweil.

Q Mr. Williams, have you notified all offset operators of the hearing today?

A Yes, we have.

Q Would you refer to what has been marked for identification as Exhibit Number 3 and explain to the Examiner what it is and what it shows?

A Exhibit Number 3 is the plot of the wells in the immediate four section area and the exact location of those wells in Sections 19 and 20, 29 and 30 of Township 18 South, Range 25 East.

At the base of the map I calculated the distances from the proposed location to the existing four nearest existing wells.

Q Are there other wells in the general area that are drilled at unorthodox locations?

A Yes. In the immediate area of this Morrow development and in the general area of several townships in this area south and west of Artesia. I testified earlier there were some 33 out of 114 unorthodox wells, Morrow wells.

Q Are there other wells in the area drilled at

locations similar to the proposed location?

A Yes.

Q Are you aware of any penalties on the production from any of these wells?

A No, I'm not.

Q Would you please refer to what has been marked for identification as Exhibit 4 and explain to the Examiner what it is and what it shows?

A Exhibit 4 is a structural map on a Morrow marker which we selected the contour width. The contour map shows the location of the existing wells. It shows the general regional dip to the southeast, and no prominent structural features.

Q Now, refer to Exhibit Number 5 and again explain what this is.

A Exhibit Number 5 is a Isopach Map of the Morrow net sand pay. We have selected by our log analysis the feet of net productive sand in each of the wells and contoured those values and have shown generally trend northwest to southeast trending channel with a thicker sand development in the area of the north half of Section 29.

Q Now, will you refer to Exhibit Number 6 and explain what it is?

A Exhibit Number 6 is a correlation section. It shows four of the wells that are, have been completed in the immediate area, the Yates Federal MB Number 5 in Section 30, 18-25; a Gulf Eddy GK State Number 1 in Section 19; a Morris Antweil Penasco Number 1 in Section 20; and the Morris Antweil Number 1 Rio Well in Section 29, simply attempting to show here that the sand pay that has been developed by each of these wells appears to be the same sand body in each well and from the correlation section would appear to be a continuous sand body.

Q Mr. Williams, I believe you stated the acreage you are proposing to dedicate to the proposed Rio Number 2 is presently dedicated to another well on the same unit; is that correct?

A That is correct.

Q Which well is that?

A Our Number 1 Rio Well drilled in the north half of Section 29, the gas spacing and proration unit consisting of the north half of 29 is dedicated to that well.

Q Will you refer to Exhibit Number 7 and using this, give the Examiner a brief history of the Rio Number 1?

A Exhibit Number 7 is a comparison of our production history, production performance of our two wells, the

Number 1 Penasco and the Number 1 Rio.

Could I direct your attention first to the data at the lower portion of the pays? The Penasco well, the first well that was drilled, had an original bottom hole pressure of 3356 as measured on drill stem test. The well was completed with a calculated open flow potential of 27 million. We ran a bottom hole pressure survey at or near the time of that potential test about the 14th of May of '77 and measured a bottom hole pressure of 3408 psi. At that same time the shut-in tubing pressure was 2751. The well then was put on stream on the 15th of September of '77.

In the section above then the production history of the Penasco well since it's been put on line is shown. The well has produced quite well. It began initially producing approximately 6 million feet of gas a day, 183 million feet of gas in October of '77, the first full month of production. Flow-in tubing pressure at that time was 2,000 pounds. The most recent data in March of '78, the well produced approximately 142 million cubic feet of gas, and flow-in tubing pressure is still 2,000 psi. The well shows excellent performance, and to date there have been nearly a billion feet of gas withdrawn from the well and no significant

decline in the flow-in tubing pressures.

In comparison then, we'd like you to look at our Number 1 Rio Well. The original bottom hole pressure is measured on DST, was 3316 psi on the initial shut-in tubing pressure run in the drill stem test and 3252 psi on the final shut-in pressure on that drill stem test, indicated some 60 pounds of difference in the shut-in pressures between initial and the final shut-in period. The original shut-in tubing pressure on our 4 point test was 24.47. The calculated open flow potential was approximately 6-1/2 million cubic feet. The bottom hole pressure on the 9th of August of '77 at or near the 4 point test was 2975, bottom hole pressure, shut-in tubing pressure 2377. So here we have shown some loss in pressure between pressure at this stage and at the original drill stem test.

We put the well on production on the 16th of September. After 30 days production, we ran a bottom hole pressure on the 17th of October of '77. The bottom hole pressure measured 2119 psi, pressure of depletion of some 850 pounds, pressure depletion with one months production. The shut-in tubing pressure at that same time was 1681 psi.

If you'll look then at the production history above, the Rio Well initially produced approximately a million

and a half feet of gas a day or 47 million during October, the first full month of production. The well had declined in productivity and is currently producing some 700 Mcf per day. The flow-in tubing pressure has decreased very drastically. The well has recovered only 200, approximately 204 million feet of gas per day to this point.

From this data, we would interpret that the Number 1 Rio Well even though it is shown by our correlation section, Exhibit 6, as appearing to be in the same section with our Penasco well and the same section with the Yates and the Gulf well further west, the correlation of the logs is excellent, but the production history show two vastly different producing performances in these two wells; and the Number 1 Rio Well obviously is not draining a significant area. We feel that this well is draining much less in the 320 acre gas spacing and proration units.

If you refer back to our Exhibit 5, interpreting from the log data, we feel that by any reasonable interpretation we would expect that we in our position in the north half of Section 29 in the State as a royalty owner have significant, should have significant gas reserves under our 320 acre proration unit, and our Number 1 Rio Well is not adequately recovering those reserves. So we

have proposed a second well on the proration unit to allow us to recover our reserves. The reason for this lack of drainage from our Rio Well is apparently an affect of barrier of some sort between the Rio Well and our Penasco well. The location of this we cannot determine from the existing data. Possibly the draw down, 60 pound draw-down during the drill stem test of the Rio well would indicate that there is a barrier fairly close to that well board. The well was produced a very short period of time on drill stem test and indicated some pressure depletion. So apparently that barrier is somewhat close to the well, but the exact location we do not feel can be determined. It's obviously between the Penasco and Rio wells. We hoped that the barrier, whatever affects that barrier would take some attitude of trending from northeast to southwest and that a well on the west half of the north half proration unit could recover the gas that we believe to be under that proration unit. As far as the location, the application for an unorthodox location, we feel that because of the indication of some permeability disturbance in this area that the location to the farthest west location is of course the most favorable to make a successful completion and permit the recovery of the reserves.

Q Mr. Williams, are you familiar with the Morrow formation in this general area?

A Yes.

Q Does the experience Antwell has had with the Rio Number 1 indicate to you that this is a homogeneous reservoir?

A No, I wouldn't call the Morrow in any way a homogeneous reservoir. Our experience would indicate that this is more the usual case than the unusual.

Q Mr. Williams, in your opinion can the Rio Number 1 drill the entire unit which is dedicated to it?

A Did you say drill or drain?

Q Drain.

A No, this is our reason for proposing a second well on the proration unit.

Q Do you consider the entire north half of Section 29 to be productive?

A As we've been able to interpret the data that is available to us, yes, we do.

Q In your opinion, is the Rio Number 2 a necessary well?

A In order for us to recover the reserves that we feel are under our acreage and acreage of our royalty

owner, we believe the well is necessary.

Q Mr. Williams, why are you drilling at the proposed unorthodox location instead of that of an orthodox location?

A As I pointed out, we feel that this is the more favorable location for a successful completion to permit us to recover these reserves. I think the closer the location would be moved towards the Rio Well, the more risk that anyone would have to assign to that well being more like the Rio well.

Q In your opinion, Mr. Williams, will approval of this application enable you to protect your correlative rights?

A Yes.

Q Will approval of the application be in the interest of conservation and the prevention of waste?

A Yes.

Q Were Exhibits 1 through 7 prepared by you and under your direction and supervision?

A They were.

MR. CARR: At this time, Mr. Examiner, I will offer Applicant's Exhibits 1 through 7.

MR. STAMETS: These exhibits will be admitted.

Are there questions of this witness?

Mr. Campbell?

CROSS-EXAMINATION

BY MR. CAMPBELL:

Q Mr. Williams, would you refer to your Exhibit No. 5--

A Yes, sir.

Q --which is your isopach map? Based upon that isopach map, you show of course that all of the north half of Section 20 is productive and favorably located, do you not--

A That's correct.

Q --Section 29, north half of Section 29?

And the only reason you have for seeking an unorthodox location in the northwest corner of that section is distinguished from a location farther to the east is that you think there's some sort of a barrier between the present Rio well and the proposed location or do you think that's all producing sand?

A I think the production performance of the Rio well has established that there's some sort of a permeability change in this area, and exactly where that change and what shape and form that takes we cannot describe.

Q Well, it's true, isn't it, that the location

that you're suggesting, unorthodox location 660 from the north and west lines of Section 29, is located closer to presently producing wells, is it not?

A It's closer to some presently producing wells. Actually in this general area of the wells, it's rather centrally located.

Q Well, if the north half of Section 29 is all productive, why can't you locate your well in an orthodox location?

A As I testified, we feel that the risk of a successful completion would be higher the closer that you move to the Number 1 Rio well.

Q Because of the performance of the Rio well.

A --because of the indicated performance of the Number 1 Rio.

Q Let's talk a little bit about that. At the time of the drill stem test, the Rio well performed quite comparably with the Penasco well, did it not?

A Yes, the recovery on the drill stem test was good. We got 8, about 8 million feet of gas, flowed 8 million feet of gas; and we were a little bit concerned about this indicated difference in the shut-in pressures, but with that volume of gas we at least hoped that that

wasn't going to be too significant, and it's proved that it apparently was telling us something.

Q What was your completion procedure generally?

A It's basically the same procedure that we used on the Penasco. We perforated the well, and we used a small acid treatment to insure that the perforation had worked with ball feelers to be sure that all perforations were open.

Q What kind of an acid treatment did you give it?

A (No response.)

Q Do you have the completion data with you?

A I do not have that with me, available here.

Q Don't you consider, Mr. Williams, that the difference in performance in these wells at these locations even giving some consideration to this non-homogeneity or whatever it is in the Morrow formation, that that was a rather unusual situation that called significant investigation by your company?

A I don't think I understand your question.

Q Well, you are basing your request upon a well performance that is so significantly dramatically different from the Penasco well, are you not?

A That's correct.

Q Well, when that developed, what did you do to try to discover the causes of it? Did you check your completion procedures? Did you apply additional acid? Did you frac the well? Did you use any surface tension reducing agents? What did you do, if anything?

A We ran the two bottom hole pressure surveys. These were actually build up surveys that were run and analyzed, one on August the 9th and the subsequent one on the 17th of October after some 30 days production. Analysis of these bottom hole pressure buildups indicates that there is not a condition of formation damage that could be corrected by treatments, surface active agents, fracating or whatever, that the reason for the reduction in productivity was simply a matter of pressure depletion, that the pressure in the reservoir at this point was being depleted very rapidly and which is an indication then that this well was draining a limited reservoir.

Q Do you have the data with you on your build-up, on your pressure test, the build-up test as to the length of time, the results of those tests, and your analysis of those tests?

A Yes, I do.

Q Would you make those available?

A Well, you want to---

Q I want the information on what you did in connection with the pressure build-up tests on this well and the basis on which you reached the conclusion that there was no well-board damage.

A Here's a copy of the bottom hole pressure that was run on the 8th of--

Q --August, 9th of August.

A --9th of August, and here's the one run on the 17th of July.

Q 17th of July?

A 17th of October.

Q Yes.

A The August test was a 48 hour test, for all practical purposes, nearly fully build-up.

The October test we ran for 72 hours, and was a fully build-up pressure test. I have--

Q Let me see those, please.

A (Complies.) --sheets on them.

Q You have your work sheets on those?

A I have work sheets then of the review of the data as far as seeking to determine the, if there was a damage situation that could be improved by treatment upon

the well or if it was a matter of simply a matter of pressure depletion. And in both cases, the damage ratio calculated very close to one.

Q Did you make those analyses or someone with your company make them?

A No, actually Halbert & Engineering made those for us.

Q May I see those, please?

A (Complies)

Q Now, based upon your conclusions and in connection with those tests, are those all of the tests you ran?

A Yes, sir.

Q You concluded that there was some reservoir problem in connection with permeability or some barrier of some sort; is that correct?

A That's correct.

Q Did you do anything to, remedial work, self help work on the well?

A We don't consider there was any self help that can be done to improve that condition.

Q You didn't think fracturing might help?

A No.

Q Why?

A Because it's not a matter of a small radius of damage that can be removed. The barrier that's affecting this loss in pressure in the well is somewhat removed from the well-board. It's not going to be treated with fractures.

Q Well, Mr. Williams, as an engineer you must be aware that there a number of things that could've happened that could've caused that, are there not?

A No. Name some.

Q Well, there could've been invasion by drilling fluids of some kind.

A No.

Q Why not?

A Because the bottom hole pressure analysis does not indicate, as I've stated, that there was a damage condition of the well-board.

Q Perforations could've been plugged?

A No. The pressure just is not there. This is the purpose for running the bottom hole pressure analysis. If it is a damage condition, perforations plugged, damage from drilling fluids, treating fluids, invasions by solids, whatever and when you shut the well in for extended period of time, the well will reflect the true reservoir pressure

because very little movement of gas is required to build up against the shut-in to build up that pressure to the reservoir pressure if the higher reservoir pressure actually exists behind this damaged zone; but the analysis indicates there is no damaged zones. The permeability in the well-board was excellent, but the pressure was being depleted.

Q Well, let's assume that your analysis is correct and that there is some situation that caused the decline in the performance of the well and refer to your Exhibit No. 7.

A Okay.

Q That well in a period of 7 months has produced about 204,000 Mcf.

A That's correct.

Q How much does it take to pay out one of these wells, Mr. Williams, how much production?

A It takes, I'd say, approximately 350 to 400 million on this well.

Q So in 7 months, you're better than half paid out on this well despite its poor performance?

A That's correct.

Q And that gas that you're producing in that well is coming from somewhere, isn't it?

A Obviously.

Q And you say that the entire 320 acres is productive. You consider this is a good well?

A No, sir.

Q Well, the well that pays out in a year or 14 months isn't a good well?

A I didn't say that it would pay out in 14 months.

Q Well, at this rate it will.

A It won't produce at this rate.

Q Well, what makes you think that?

A Because of the declining flow in tubing pressure. The pipeline pressure in this area is 560 to 600 pounds--

Q How long do you think it would take to pay out?

A I think it'd be questionable whether the well will pay out. It'd be close to break even operation.

Q Do you have any idea, Mr. Williams, what kind of a well you may encounter as to your proposed unorthodox location?

A Obviously, since we're proposing it, we hope that it would be a better well.

Q You believe that there's a chance of being a good well as the Penasco well?

A I think that's a possibility that the Penasco

well is the only well in the area that has production performance like it's shown here.

Q And you're asking the Commission to grant you authority to produce your new well at capacity under the present rules and to continue to produce the Rio No. 1 well at whatever rate you can make it produce; is that correct?

A That's correct.

Q And you believe that that doesn't adversly affect any of your offset operators' correlative rights?

A The drainage area that are established by these wells have no respect to the property line.

MR. CAMPBELL: I have no more questions.

MR. STAMETS: Are there other questions of the witness?

CROSS-EXAMINATION

BY MR. DENT:

Q Mr. Williams, looking at your isopach map, Exhibit No. 5.

A Correct.

Q And I believe Mr. Campbell has asked you a similar question. I'll try not to duplicate his question. I believe he had stated that the proposed location you are crowding other wells, and I believe you stated that they

were about equal distance to all wells in the area; is that not correct?

A That was that again?

Q That I believe he asked you that in looking at Exhibit 5 that the proposed location does crowd other wells, and you supply that not necessarily, that it was more or less equal distance to the other wells in the area; is that correct?

A Yes. See, you're moving it closer to some other wells. I indicated it was closer to some and farther away from others.

Q Okay, let's follow that up a little bit. You are closer, are you not, to the Gulf well over in Section 19, are you not, if you move to the unorthodox location?

A That's correct.

Q And you're also closest to the well in Section 30; is that not true?

A Section which?

Q Thirty.

A Yes, sir.

Q Now, as we look at the other wells in the area, who owns those wells?

A Two wells to the east, we do.

Q Antweil. So you're really moving away from the Antweil well towards the Gulf wells and the wells not operated or any interest owned therein by Antweil; is that correct?

A That's correct.

Q So when, I think Mr. Campbell's question when you're talking about crowding other wells, I'm going to ask you: Are you crowding wells with interest not owned by Antweil?

A Yes, sir.

Q All right, what has occurred to the wells in the area owned by Antweil?

A I don't know what you mean by--

Q Which direction are you moving from the wells in the area owned by Antweil?

A Away from them.

Q And so therefore as an engineer, would you conclude that the less drainage occurring to those wells than if you were at a regular location?

A Well, from our analysis of the Rio well, we don't think that it would have any effect of drainage on it whatsoever. It seems to be in a reservoir by itself. Maybe some of these other wells are also when we get enough

production history for that to be determined, but the wells regardless of the location establish their own pattern of drainage based on the permeability, the verocity, depth of distribution in that sand and the producing rate in that well.

Q In looking at your information filed with the Commission on the Rio well, I believe you had a flowing rate there of about 5 million a day with a flowing pressure of approximately 2,000 pounds per square inch; is that correct, do you remember that?

A That's in the range that the well was in initially. I don't remember specifically.

Q And then do you recall what the calculated open flow potential was?

A 6.5 million.

Q Is there any relationship between the calculated open flow and the flow rates? Is that anything uncommon about having a calculated open flow that near a flow rate? You had a flow rate of a little over 5 million a day and a calculated over flow of 6 million a day. Is there anything unusual about that?

A Yeah, I thought it was at the time, but that's the way it came out.

Q Why did you think it was at the time?

A It seemed to be fairly close to what we actually produced out of the well.

Q So is your problem really one of a lack of pressure or is it a problem of permeability?

A The problem is at the well-board we have excellent permeability. Our bottom hole pressure build-up curve indicates a very good permeability in the area of the well-board. Somewhere in the vicinity of the well, I'm not pinning down the distance of vicinity, there is some sort of a permeability barrier. At that point, there's a permeability problem, but the permeability problem is not at the well-board.

Q Not at the well-board, so your application is based upon the fact that, I believe you stated that a more favorable location to permit the recovery of reserves and that the more risk would be involved if you moved toward the Rio well.

A Yes, sir, that's the way we view the situation.

Q What risk is involved if you move toward the Penasco well?

A I wouldn't see any risk of moving towards the Penasco well. I can't see what you're asking. Somewhere,

as we see it, somewhere the Rio and the Penasco there is some kind of a permeability barrier. We attempted to locate the well as far from that area where the permeability barrier could be as possible.

Q Suppose you move that well 1,000 feet to the east toward, more toward the Penasco well?

A It would be towards the Penasco and towards the Rio equally I think, and so I guess you have a 50/50 deal. It could be like the Penasco. It could be like the Rio, but somewhere in that middle ground is the permeability change. We think it's reflected in the difference in the productivity of these two wells, and this is what we're attempting to stay away from.

Q And if in the interference or the incompass, let's say interference with the well, it would be the one in Section 20 and less interference with wells of Section 30 and 19, would it not? Pressure wise, I'm talking about the pressure.

A Okay. Depends on what size drainage patterns that these wells establish. You can't draw circles around them and call those drainage areas.

Q I'm kind of like Mr. Campbell. It's difficult for me to understand why you chose the unorthodox location

rather than somewhere more near your better well, in the area of the Penasco well.

A Because we considered this to be more favorable.

Q I believe you just testified that the Penasco well is an excellent well.

A That's correct. We still selected the location that we felt to be the most favorable to making a successful completion and recover the reserves that we believe to be under that north half.

Q Does it not also give you the most favorable opportunity to recoverable, recover any reserves situated in Sections 19 and 30 as compared to orthodox locations?

A These wells are on production or already have their drainage patterns established, and it would be difficult for our well to interrupt those drainage patterns very drastically.

Q Will the movement of the proposed location in an unorthodox location as compared to an orthodox location permit Antweil a better opportunity to recover reserves underlying Sections 30 and 19 or not?

A We're not trying to recover reserves under Sections 30 and 19. We're trying to recover the reserves under our 320 acres. We don't believe that the well, our

Rio well is recovering that. We believe a second well on the 320 is required. We believe that the proposed location is the most favorable location to affect the successful completion and recover those reserves.

Q You say "successful completion" do you anticipate problems?

A Yes, I think if you encounter a well say and correctly in say a permeability barrier of some kind or perhaps this is the entire shale out of this sand somewhere in this interval, intervening distance; and if you encounter that you may not make a completion at all. Our Lacoma well up in the north half of Section 20 that we drilled, when we drilled it we thought it was in an excellent location and there's no sand development there at all. You notice in the contour maps that were presented here today, isopachs yet they twist some of them around quite a bit which allows for that well. Perhaps it's indicating another permeability barrier of some type in that region.

Q Mr. Williams, I believe you stated that in your Rio well it's your opinion that the whole characteristics and lack of productivity is because of bottom hole pressure; is that correct?

A That's right, the depletion of the bottom hole

pressure.

Q That is not in any way in your opinion trouble by any damage to completion or simulation treatment given to that well?

A No.

Q Well, isn't it a fact that there's a positive damage ratio indicated from your second build-up as compared to your first?

A I didn't think so. Did you look at them?

Q Did those indicate positive damage?

A The second indicates the well cleaned up a little from the first one. The first one had a damage ratio of what, 1.33 as I read it; and the second one indicates the damage ratio of 1.16 which indicates that the well has cleaned up some and has practically no damage and that the measured pressure is the reservoir pressure and this well is actually showing some serious depletion after one month's production.

Q So it's your testimony you don't want this record to show that it's your testimony there's been no damage to that well.

A I'd say-- I would testify a calculated damage ratio of 1.16 in view of the accuracy of those calculations.

and assumptions that go into them as an indication of no damage.

MR. DENT: I have no further questions.

MR. STAMETS: Any other questions of this witness? Mr. Carr.

REDIRECT EXAMINATION

BY MR. CARR:

Q Mr. Williams, if I understand your testimony correctly, if you move the proposed location from where it's indicated in the application here today toward the Penasco well are you increasing the risk of an unsuccessful completion, is that what you said?

A This is with our interpretation of it, the only way you could move towards the Penasco is to simultaneous move towards the Rio well and somewhere in this area between the Rio and Penasco well there's some sort of permeability barrier that is affecting the vastly different production performance of the two wells; and we feel that as you move towards the Rio well you are increasing the risk.

Q Mr. Williams, in your opinion does drilling at the proposed location afford you the best opportunity to produce the gas under the north half of 29 which is not being produced by the Rio one?

A Yes, it does.

MR. CARR: I have no further questions.

MR. STAMETS: Any other questions of the witness? He may be excused.

Does that complete your--

MR. CARR: Yes, it does.

MR. STAMETS: Mr. Campbell?

MR. CAMPBELL: Mr. Cross will take the stage now.

C. D. STENBERG

the witness herein, having been previously sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CROSS:

Q Will you please state your name, employer, position and location for the record?

A C. D. Stenberg. Employer is Gulf Oil Corporation, Midland, Texas.

Q Have you previously been qualified before the Commission?

A Yes, sir.

MR. STAMETS: The witness is considered qualified.

Q (Mr. Cross) Mr. Stenberg, have you prepared

an exhibit which shows the north half of Section 29, Township 18 South, Range 25 East in the surrounding area?

A Yes, sir. These are exhibits 1 and 2, Exhibit 1 which is the same one that was supplied for the other first two cases and this is a copy of the same one.

Q Would you please explain what it shows?

A Okay. This is the same, it's a structural contour map. You follow the lines of the structural contour based on a correlative point in the Pennsylvanian showing east, south, east regional dip and which has been established with various testimonies show that this is a, the regional dip shows that there is no structural features actually involved in that this is a stratographic problem.

The heavy dash lines are the Isopach thicknesses of the verocity 5% and greater.

Q Would you please explain the red line AA prime?

A Okay, the red line AA prime is the cross-section line of section that the logs are on, however, this will differ from the first one in that the two appendix logs at the end, they were in the first, the other exhibit and don't actually apply to this.

Now, the actual wells under discussion for this, for the location of request on the north half of

Section 29, 18 South, 25 East will involve primarily a discussion of the Antweil No. 1, the Rio, the Penasco, the Gulf No. 1 GK and the Yates No. 4 AB. Now, the, starting with the Rio, with the Antweil Rio which is the second well from the right-hand side of the cross-section, you will notice we have, as I take it, we have 24 ft. of porosity which is 5% or greater.

The Penasco, the next well going to the left, is 19 feet and the proposed location is in between and then the next line, on the line of section will be the Yates No. 4 AB which will take 14 feet and the Eddy GK Gulf No. 1 GK 17 feet. Therefore, these four wells actually form more or less of a box diagram around the proposed location area.

Now, the correlative zones are, or the continuous pay that runs through the section is the one that is the gamma ray section, is marked in yellow opposite which the red colored section of the log opposite the yellow is the, depicts the porosity that's 5% or greater.

This is hung on a structural marker in the lower Pennsylvanian which is depicted by the heavy solid line and the blue color gamma ray sections.

Q Do these logs indicate to you that an unorthodox location is necessary to complete a producing well in the

north half of Section 29?

A No, I do not. In my opinion, the pay thicknesses that are hereby depicted demonstrate that in the unorthodox location will actually have a thiner pay section than an orthodox location. As I have depicted, I have 24 feet of net pay in the No. 1 Rio well in Section 24, therefore, an orthodox location which would be 1980 feet from the west line will be towards the thickest well of the four that we were describing and it would be thicker than the unorthodox location in the 660 feet from the north and west.

Q And as I understand you, as a geologist, if your purpose was to drain the north half of Section 29, you would not place the well 660 feet from the north and from the west.

A No, in my opinion I would rather drill toward the thicker pay section.

Q Do you have anything else to add?

A Yes, I'd just like to add a few notes why I think that the orthodox location versus the unorthodox location may or does not really have a lot of bearing. Okay, in the first place is the pay thickness or the thickness of porosity over 5% that is encountered in the No. 1 Rio well. And to reiterate from the Exhibit No. 2 and the

cross-section as shown that the pay section is actually the thickest in the Rio well. Now, there seems to be a lot of talk about the homogenity of the reservoirs. Now, I believe that the way these, that this pay section correlates through this area, that as far as Morrow is concerned there is quite a bit of homogenity actually here, in fact, a lot more than you can find a lot of places in the Morrow.

Analyzing a lot of logs and a lot of fields, non-homogenity will apply to a lot of fields whether it's a carbony or a sand or a reef development or whatever because of the way porosity, lenses and zones and so forth will be encountered in the wells.

Also when we run porosity logs in a well they're only looking at about 6 to 8 inches of the side of the bore hole. So therefore, it's already been mentioned before today, if this well, if this same hole were logged 50 feet or 100 feet from the one which, from the present one, it might show a little bit different of a picture. However, I think the correlation that we have through here do show quite a bit of homogenity in my estimation.

Now, looking at Exhibit No. 1, if we go up as far north as Section 18, 18 South, 25 East to the No. 1 GX

well which had given only a value of 2 feet of porosity, 5 feet or greater. Now, that is not on the cross-section but I have correlated, I believe that is a correlative sand with the others in this area; and if we go from there clear down across, down for instance toward the Pubco well we have an area there over 2 miles wide in which we have Morrow sands with porosity.

Now, if indeed there is some sort of barrier between the Rio well and the Penasco well, the Rio well in Section 24 which is the, in the north half of Section which is under the, under question for the unorthodox location, the Penasco well to the north, this could probably be by-passed with an unorthodox location as well as an orthodox location. If one just draws a line from the Yates No. 4 AB in Section 14 over towards the Penasco well, the lateral distance to the unorthodox location in the 660 in the north-west will not be very far removed from the or be just about as close to the line as the orthodox location would be 1980 from the west, which-- What I'm trying to say is, that an orthodox location would still be removed from a possible barrier between those two wells which are more or less north and south.

Now, I'd like to point out one thing on Exhibit

No. 2 which is the characteristic of the logs on the Antrell No. 1 Rio and the No. 1 Penasco, that's the number 1 Rio second from the right and then the one adjacent to it, the third to the right.

Now, if you'll notice those gamma rays that are colored yellow have a pretty good correlative characteristic. They have small, what might be a small shale break right in the middle. They are approximately the same thickness, and they have, they're actually quite identical.

Now, opposite them we have the red colored porosity depicted which is greater than 5%; and actually the Rio well has the larger maximum porosity than the Penasco well does. As a matter of fact, the Rio well will have a maximum porosity of approximately 15 or 16 percent porosity whereas the Penasco well as far as the logs are concerned have about 10. So therefore, all things being equal, the permeability should have been greater with the increase in porosity in the Rio well than it would in the Penasco well.

Now, one more comment about the correlation of sands and probably the width of extent of these which I think are correlative sands in the Morrow, and that is

the Antweil No. 1, the Common well which is in section up to the north, Section 20, in the northwest part of the section 20, 18-25 north and a little west of the Penasco well. Okay, there is a correlative sand up there which is, which correlates very well with other sands. However, it doesn't have porosity developed into it; but from my reference line it correlates very well with my rest of my logs, and I have 22 feet of fairly good sand in there, however, the maximum porosity is 3%; and that along with the GX which I described before helps to bear out the fact that we have sands we can call clean sands, sand bodies to the Morrow, however, the percent of net porosity and net pay and probably in the permeability relative to it in each case is going to be a little different.

That's all I have.

Q Were Exhibits 1 and 2 prepared by you?

A Yes, sir.

MR. CROSS: I'll have them--

MR. STAMETS: These exhibits will be admitted.

Are there any questions of the witness?

Mr. Carr.

CROSS-EXAMINATION

BY MR. CARR:

Q Mr. Stenberg, your Exhibit 2 wouldn't reflect a barrier to the west of the Rio No. 1, would it, if one existed?

A To the west of the Rio 1?

Q Um-hum.

A Going to the west of the Rio 1?

Q I mean, there could be a barrier there, and it wouldn't be reflected in this exhibit.

A Well, the one to the west of the Rio 1, all you have to do is leave out the Penasco well, then you'd be over to the Yates No. 1. That's about the best you can do. Is that what you mean?

Q Well, how far can you read from the well board as to whether or not you've got a barrier or not?

A Oh, that's impossible from the well board. That's what I said, a logging tool, a porosity logging tool when you reach 6 to 8 inches from the side of the bore hole unless you have something like a bore hole barometer which is not, in this case we have not--

Q So there could be a barrier there that just wouldn't show up.

A Well, it's very possible because we have decided that this is a stratographic situation. So, yes it is very possible, however, I still will maintain that in this area that the characteristics of these sands to correlate them in this distance is not always encountered in Morrow sand work.

Q Now, what might indicate a barrier if it doesn't show on the cross-section, what other factors--

A Well,--

Q --rates of production?

A Well, probably greater, well, I think the only way you could do it would be a greater density of drilling and correlation of the logs, along with whatever production results might be encountered. The gamma ray is an excellent tool for correlating logs and for correlating the sections and also to determine non-shaveness (sic).

Q Could a lower rate of production indicate to you that there might be a barrier?

A Well, I will say this, that in my work, in log analysis, in looking at production, if you're lucky it's just relative. I mean, if you have a good clean sand as far as the gamma ray is concerned and sometimes I go by what the boys that have been at the field working on the well

tell me about the samples and what the porosity side looks like, and from that and the electric logging you can pretty well predict, quite well predict what the well's going to be.

Q But if you have a lower rate of production, is that not one thing that might indicate to you there could be a barrier?

A Well, I would say, yes, it certainly could indicate that there would be one, however, that's, that comes under the engineering bracket and I don't really follow that.

Q Did you testify that, looking in your research stuff, the Rio No. 1 had the thickest pay section?

A Yes, sir. The way I count the pay, it does, yes.

Q Well, wouldn't you expect it to be the best well in the pool?

A From a relative point of view, from what I have presented here and the maximum amount of porosity, I believe it would because I believe these are quite, these logs are very similar. I mean, they're all, except the one in this case we're not using the one on the end, but all these on this exhibit they are all neutron density logs, which are very good calibre logs. It's as good a porosity log as one can run.

Q You heard Mr. Williams testify as to the rates of production from the Rio No. 1, did you not?

A Yes, sir.

Q Assuming that the well was not damaged in completion, how would you account for the fact that it was not the best well in the pool?

A Well, I really can't because when something like that happens, generally in our company somebody says somebody goofed when they completed it.

Q And if they did not, would this be evidence of the Morrow being not as homogenous as maybe you'd thought.

A Well, certainly I can't deny that that's very possible. We can even have such minor things as-- For instance, if we had a core of each one of these through these pay sections, we might could answer a question like that better. We can have varying grain sizes and small amounts of clay materials. I believe there are probably two or three different types of clay materials which are often mixed up in the Morrow sands, and this will either, can either cut down on permeability or it can show up in the well completion by getting the wrong type of fluid on the formation and causing emulsion blocks or stem damage.

Q If you make a mistake when you're completing

a well, can this damage your bottom hole pressure?

A That, I believe I will defer to our engineering experts.

Q I believe you said if the proposed well was moved to an orthodox location on the north half of 29, that it would avoid the barrier; is that true?

A Twenty-nine, let's see.

Q Well, that's your testimony.

A Oh, yeah, okay. Okay, what I said was if there were a barrier between the Rio and the Penasco, for instance, which is sort of on the north-south line, if we had, just taking a line from the Yates AB 4 which is evidently a fairly producing, performing quite well over to the Penasco. So on a just a straight line basis, the orthodox location wouldn't be too much farther removed from that line laterally than the orthodox location would be. I'm just merely saying that if there was a barrier, actually there's no way of telling what the extent of it would be anyway.

Q So you don't know where the barrier would be?

A Oh, no, sir. I don't have any evidence for that for sure.

Q So then you don't know that moving to an orthodox location would, you could still draw and be avoiding it?

A No, that's true.

MR. CARR: No further questions.

MR. STAMETS: Any further questions of this witness?

He may be excused.

I wonder if some of this testimony which was in the previous record shouldn't be just simply incorporated in this case concerning the radius of drainage, the times and so on. Mr. Carr, do you have any objection to that.

MR. CARR: Mr. Examiner, we heard it all. If we're going to question, we'd like the Company to recess.

MR. STAMETS: Let's go off the record for a second.

(WHEREUPON, a discussion was held off the record.)

DIRECT EXAMINATION

BY MR. CROSS:

Q State your name, employer, position and location please.

A Charles F. Kalteyer, K-A-L-T-E-Y-E-R, employed by Gulf Oil Corporation, currently classified as Chief Proration Engineer for the Southwest District, Western Division, Midland, Texas.

Q Have you previously stated your qualifications?

A Yes, sir.

MR. STAMETS: They are acceptable.

Q (Mr. Cross) Mr. Kalteyer, do you have an exhibit showing the production history of the wells in the immediate area of Section 29, in Township 19 South, Range 25 East?

A Yes, sir, Exhibit No. 3 is the Table of Performance Data of the wells in the immediate area similar to the one that was presented earlier by Mesa. Gives a monthly production of Penasco, the Rio Cahn, the Bennett and Ryan Lonetree and the Gulf GK State No. 1 through March as we were able to get it from the records.

It gives accumulative production of the Penasco, it's 983,085 Mcf since it's been placed on production in September of '77. The Rio Cahn at 203,860, the Bennett Lonetree at 37,978, Gulf Oil's GK 1 139,789 accumulative.

Q Have you made a study regarding the radius of drainage of a well completed in the Morrow in this area and perhaps you suggest some way to incorporate by reference your testimony of Cases 6231 and 6232?

A Yes, sir, this is the same material as previously presented to establish the time it takes for a pressure

withdrawal or pressure sync caused by the production of well to extend out to various radii.

MR. STAMETS: Your testimony in conclusion would be the same in this case as in the two previous cases?

THE WITNESS: Yes, sir, on their average conditions for the reservoir.

Q (Mr. Cross) You specifically state one implication that has for a well located 660 feet from the north and 660 feet from the west of Section 29?

A But the significance, of course, was the same that it, only 9-1/2 days withdrawal, a well located at 660 feet from the lease line will be drawing reserves across that lease line on the assumption that is not reached the reservoir boundary or reached the regions of adjacent to where it's draining which would cause it to be other than a circular or a radial drainage pattern.

The other significance is that based on average data, a well can drain applicably with, a well in the Morrow in this area with the average permeability can drain adequately a 320 acre proration unit. And any well that's placed on a 660 feet from the property line will have a significant drainage advantage for reserves across the lease line, and

of course, in order to protect correlative rights ideally, it would be proper that our section would be so arranged, would be drilled in the center of a 320 acre circle. The next best approach would be the mid-corner of our 320 acre half sections, 2640 from the end and 1320 from the south, and we feel that the Commission has granted considerable flexibility already in placing of wells in 320 acre half sections by allowing them to be drilled 1980 from the lease end boundary and 660 feet from the side boundary.

Q Mr. Kalteyer, what are your recommendations regarding this application?

A My recommendations are that that this application for a second well in an unorthodox location in the north half of Section 29 be denied.

I believe that a well located 660 out of that northwest corner would infringe on the correlative rights of Gulf Oil and its Eddy GK State Cahn unit and Yates Petroleum's AB Federal unit. Secondly, if the permit for a new well on the north half of Section 29 is granted, I would recommend that it be at a regular location as there are three other regulations that are available in the north half of Section 29 without locating it in an unorthodox location.

If the second well on the unit is granted, we'd recommend that the number 1 well be shut-in and not allowed to be produced concurrently with the second well.

If the second well is permitted as an unorthodox location, we recommend it should take that .79 ratable take factor to do with the extra drainage encroachment at a well at an unorthodox location would have over one recommended, of one at a regular location.

And we further recommend that number 1 well be abandonded or closed in and not allowed to produce with well number 2.

Well Number 5 is similar to the other exhibits we presented in the other cases which showed the circles with a radius of 2106 feet from a regular location, orthodox location and an unorthodox location.

Exhivit No. 6 shows the calculations for obtaining that .79 factor.

The condition set up at the top of Exhibit 6 are that well number 1, Rio Cahn be shut-in and that number 2 Rio Cahn is drilled at an unorthodox location as a replacement well.

Thirdly, if the Commission does permit a second well on the unit allowed to produce concurrently with the

Rio Cahn 1, the second well should be at a regular location with a ratable take factor for the unit for both wells of .65. Exhibit No. 7 is applied to the area indicating the 320 acre drainage area around each, the present location and a location at an orthodox location.

Exhibit 8 shows a calculation of that ratable take factor based on 320 acres for one well and 320 less the overlap of 145.56 acres, and the calculations are ratable take to be obtained from equating the standard unit acres to combined drainage area times the ratable take factor and solving for a ratable take factor.

Exhibit No. 9 is similar treatment if the second well is placed at the requested unorthodox location.

And Exhibit 10 is the calculations that come up with the ratable take factor of .55.

Q Please correct me if I'm wrong. In summarizing your recommendations, number 1 the application should be denied, number 2 the application for the unorthodox, excuse me, but if the application is granted then the Rio No. 1 should be shut-in and a ratable take factor of .70 should be applied, third, if Rio No. 2 is permitted, it should be an orthodox location with a ratable take factor of .65 if they're allowed to produce concurrently, and if Rio No. 2

is allowed in an unorthodox location and the two wells are allowed to produce concurrently, a ratable take factor of .55.

A Yes, sir.

Q Do you believe there should be some method provided for monitoring an order which includes a ratable take factor?

A Yes, sir.

Q You have any suggestions regarding what monitoring procedure would be appropriate?

A As we set out in the earlier two hearings, we would recommend the consideration of semi-annual deliverability tests and normal operating conditions for the unorthodox well. The tests be witnessed by Oil Conservation division personnel. Ratable take factor applied against the deliverability and a system be adopted by the Oil Conservation division for monthly monitoring of the gas purchaser for ratable take.

Q Do you have anything to add?

A Just as we pointed out earlier in the other hearings, there are no unorthodox locations in the immediate area of this pool, in the Morrow. There are 6 wells completed, and two that have reached total depth and one that has been

present and non of them are unorthodox locations.

Q Were Exhibits 3 through 10 prepared by you or under your supervision?

A Yes, sir.

MR. CROSS: I offer Exhibits 3 through 10.

MR. STAMETS: These exhibits will be admitted.

Q (Mr. Cross) Just one more question. Mr. Kalteyer, will the granting of this application present waste in your opinion?

A No, an unorthodox well is not necessary to prevent waste, and because a well located at a regular location 1990 from the west line should be adequate to drain the reserves in this proration unit.

Q Would it protect correlative rights if this application were granted?

A On the contrary. I think it would not be in the interest of protecting correlative rights, but would rather infringe on the rights of the offsetting property owners.

MR. CROSS: No further questions.

MR. STAMETS: Other questions of this witness?

Mr. Carr.

CROSS-EXAMINATION

BY MR. CARR:

Q Mr. Kaltayer, based on Gulf data, shouldn't Rio No. 1 be the best well in this pool?

A By the measure of the net porosity it should've been a good well.

Q Did you make some sort of an error in completing the well? Can you damage the botton hole pressure just by the method of completing it?

A Damage the bottom hole pressure of the reservoir? Not if you have an adequate build-up of the reservoir, you would not by the completion method.

Q Now, when you looked at the build up on this well, did you consider, the Rio No. 1, did you consider it adequate?

A The build up?

Q Um-hum.

A It looked adequate, but it should be, the only other point that could possible influence the bottom hole pressure would be influence from other wells; and this wasn't within the scope of that investigation.

Q Now, referring to your Exhibit No. 4, and I'm not an expert at reading something like this, doesn't it

show that interference would occur relatively quickly whether or not the Rio No. 2 is drilled in an orthodox or an unorthodox location? In either event, wouldn't the interference with the other wells occur?

A Well, it'd be pulling reserves across continuously after 9-1/2 days if you're 660 off the line whereas if you were 1980 it would be at least 85 days before this pressure response would be noted, and then of course whatever drainage pattern has already been established then it'd have to compete with that other well whether it crossed that line or not.

Q In the life of a well, 85 days is still a relatively short time, is it not?

A Well, but to establish the drainage pattern, that's the rest of the life of the field is what it's set up.

Q A number of your exhibits here today are based on radial drainage?

A Yes.

Q Aren't there a number of factors which can affect this--

A Yes, sir, I pointed that out.

Q --porosity, boundary conditions, this sort of

thing?

A Yes, sir.

Q In your opinion, would the Rio No. 2 if drilled where proposed, would it recover gas that is now being recovered by the Rio No. 1?

A It's possible. I don't know where, if there is a barrier or if it's influenced over there. I don't know whether--

Q Is it possible that it would not?

A It's possible that it would not.

Q And then gas would be left in the ground?

A By--

Q --by shutting in the Rio No. 1.

A Yes, that could be the case unless there are other wells drilled in the area.

MR. CARR: I've no further questions of Mr. Kalteyer.

EXAMINATION

BY MR. STAMETS:

Q Mr. Kalteyer, if we would take this proration unit, build a wall around it so no gas could migrate in, would the two wells that the applicant has proposed in all likelihood produce more gas from the proration unit than

either one of the two wells individually?

A The two wells they proposed?

Q Well, the well that is on there and the one that they propose to drill.

A Now, proceed. That threw me off, when you said "two wells they proposed".

Q Okay. Hypothetically, we're going to go back and totally seal off this proration from any drainage from offsetting acreage. Will the Rio No. 1 plus the Rio No. 2 likely recover more gas from that proration unit than would be recovered if only the Rio No. 1 well was completed or the Rio No. 2 well were completed?

A Probably would.

Q Okay.

A But not necessarily in the unorthodox location to do it because a well could be drilled due north of the No. 1 and may tap the reservoir properly. It could be drilled at a regular location to the northwest or it could be at a regular location due west. There are three other locations than the one they chose which is crowding the other operators.

Q Your answer would be the same no matter which of those sites--

A Yes, sir.

Q Okay. Now, the ratable take factor which you have proposed here, all apply to the No. 2 well and do not apply to the No. 1 well; is that correct?

A Now, they would be applied to the unit.

Q To the unit.

A Yes, sir.

Q How would you propose to do this, take the deliverability test on both wells and apply the factor to both wells?

A Yes, sir. It would have to be applied in that manner.

Q Now, we may have to get the attorneys present to answer this next question.

Is there any division rule which prohibit the drilling of a second well on a standard proration unit at a standard location in this pool, and if the second well is drilled is there any prohibition against producing both wells?

A The way I read the rule right out of the Rule Book here, Rule 104A, no Rule 104C, 2A, after it goes through "unless otherwise providing the special rules which develop well. Each development well for defined gas pool in the

Wolfcamp formation," well it goes in the Wolfcamp, "or Pennsylvanian age or older which was created and defined by the Commission after June 1, 1964 shall be located on a designated drilling tract consisting of 320 surface continuous acres more or less comprising the unit to continuous quarter section of a single government section, being a legal subdivision of the U. S. Public Lands Survey. Any such well having more than 160 acres dedicated to it shall be located no closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest in boundary and no closer than 330 feet to any quarter section or subdivision interboundary. And it is xylant (sic) on the distance to a second well on a location" whereas in oil or oil wells there is a provision that says that no well can be located closer than 330 to another on this same unit. So, I would say it's clearly intended that there would be no additional wells drilled or they would've put a limitation in there as to how close. Otherwise, it's unlimited. You can drill a second well, a third well, a fourth well, whatever the economics would--

MR. CAMPBELL: Well, of course, if it's in an unprorated field, and this is, you begin to intrude seriously on the correlative rights section of the statutes because

you create a pressure differential that these wells pay out as fast as they're producing. They pay out in a year, you know. When you make a mockery out of all your spacing and all your correlative rights, there has to be some kind of control or there is no longer any Statewide pattern of development neither for the prevention of waste or the protection of correlative rights.

Most of these rules were developed on the assumption there's going to be a proration. That's the trouble with some of them.

MR. STAMETS: A lot of gas rules were written when gas was going for 15 cents, 30 cents.

MR. CROSS: I'll back up what Mr. Campbell said. It seems to be it's implicit in that, in saying that each well will have 320 acre tracts that there shall not be two wells on the same 320 acre tract. Each well can't have 320 if there are two wells there. That's my reading of it.

MR. CARR: I would like to reemphasize what Mr. Campbell said. It sounds like another matter the younger Mr. Campbell and I have been fighting, and that is that these were always going to be prorated, but I don't think we're here today to try and rewrite the rules. I think

we've got a particular problem, and you have a statutory charge in Rule 104 authorizing you to grant an unorthodox location and then directing you to take care of correlative rights, and they don't ask us to sit around hearing engineers and lawyers trying to advise the Examiner. That's your job.

MR. STAMETS: That takes care of that one.

Are there any other questions of this witness?

He may be excused.

MR. CARR: I have one question.

MR. STAMETS: I'm sorry, Mr. Carr.

FURTHER CROSS-EXAMINATION

BY MR. CARR:

Q Mr. Kalteyer, you want to recircuit production based on deliverability; is that what I understand?

A Yes, sir.

Q Does deliverability actually, does it related proportionately to gas in place under a tract? Does that actually show you what's there?

A No, sir.

MR. CARR: No further questions.

MR. STAMETS: The witness is excused.

ROYCE C. WILLIAMSON

the witness herein, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. DENT:

Q Will you state your name for the record please?

A Royce C. Williamson, Jr.

Q Mr. Williamson, what is your profession?

A I'm a Petroleum Engineer and President of the consulting company of Sipes, Williamson & Aycock with offices in Midland and Huston, Texas.

Q Have you previously testified in Case Nos. 6231 and 6232 in connection with application of Yates Petroleum?

A Yes, sir, I have.

Q In connection with that hearing, did you offer and was there admitted into evidence certain exhibits prepared by you or under your supervision or with your concurrence?

A Yes, they were.

Q Would you refer to your packet of information which I have handed to the Examiner in this Case No. 6213 and look at Exhibit No. 1?

A Okay.

Q Was that exhibit included in the previous cases?

A Yes, sir, it was.

Q Would your testimony today be identical to that as you offered in those prior two cases?

A Yes, sir.

Q Look at Exhibit No. 2, please.

Would the same apply to Exhibit No. 2 as to your previous testimony and conclusions and opinions in relation thereto?

A Yes, sir.

Q Exhibit No. 3, would your testimony be the same and your opinions and conclusions offered in this case as it was in Cases 6231 and 6232?

A Yes, sir.

Q Would the same be true for Exhibit No. 4?

A Yes, sir.

MR. DENT: Mr. Examiner, I'd like to at this time offer Exhibits 1, 2, 3 and 4 and incorporate by reference testimony of Mr. Williamson from cases 6231 and 6232 in this record.

MR. STAMETS: These exhibits are admitted and

the record is incorporated.

Q (Mr. Dent) I refer now, Mr. Williamson, to your Exhibit No. 5.

A Yes, sir.

Q I believe in the prior two cases you did refer to this and similar exhibit and in connection with those cases, but do you have additional testimony that you'd like to offer at this time in this case?

A Yes, sir, I do. And I recall your attention on Exhibit 5 to the Roman numerals III and III-A which are going to relate to drainage areas as I have defined in relation to unorthodox location in Section 29 that is requested to be 660 out of the north and west lines of the section. What I have done here, as I have described before, is that with the orange colored circle there's only a partially colored. I have shown what a 320 acre drainage in a circular pattern would look like around the unorthodox location, and I have shown for purposes of my exhibit that a standard location could be achieved by moving this well 1980 from the north and 660 from the west of Section 29. The same picture would occur if you move the unorthodox location 1980 from the west line and 660 from the north. The same drainage areas and calculations will apply to either

direction. The reason why I've shown it in this direction, in my opinion this well, the unorthodox location could be moved to an orthodox location 1980 from the north line of Section 29 and would indeed by Exhibit 7 show that the orthodox location would indeed recover 8,714 MMcf of gas as opposed to 7,166 MMcf of gas at the unorthodox location.

Now, these calculations are based upon the same factors that I testified to before, circular drainage and based upon the interpretation of the Isopach of the Morrow sand at this particular location.

I have some further comments that I'd like to make relative to the discussion on the observed poor performance of the Rio No. 1. I would like to say that in my opinion that the poor performance of the Rio No. 1 is not a function of a barrier between it and the Penasco because indeed if there were a barrier there, it would still have adequate reservoir to the south to drain reserves. It's obvious that something's wrong with the well. I don't know what it is. The damage ratio at the well board does not appear to be significant. It could be a damage condition out on the reservoir or it could be a trick of nature in that we have a limited reservoir right around this well that is a function of some permeability barrier.

It would be my recommendation that that well be fracked. If it were mine I would frack it before I'd spend the money to drill another well. If I didn't want to do that, then I would put the well at the posed orthodox location which would be 660 from the west and 1980 from the north of Section 29. It would give you you two standup locations. The Penasco well up in Section 20 is obviously going to drain across the lease line down into 29 and as good as that well obviously it should be draining available reserves there.

So in my opinion, an orthodox location as I have depicted on Exhibit 5 would prevent underground waste and would protect correlative rights. If the unorthodox location is allowed, it's my opinion again, obviously that that well is trying to be located such so that it can drain reserves both from the north and from the west.

Q Mr. Williamson, is it then your opinion that the drilling of the proposed location at the unorthodox location without further remedial work or simulation work on the Rio well will result in the drilling of an unnecessary well upon that designated proration unit?

A I think it's entirely possible. There are many reservoirs that we all are familiar with that will not

produce without a stimulation by fracturing. This is a peculiar well, and there are five others that have produced without fracturing, and the logs look identical as has been testified to before. Something has happened. It's either been damaged in drilling out on the reservoir or there's a freak of nature that says this well is not producing from an unlimited reservoir. But I don't think that it would be fair to allow correlative rights to be violated by putting the additional well where it could drain across lease lines just because one well has encountered a poor part of the reservoir because there are obviously two other ways that the gas can be produced in Section 29. That's from the Penasco well draining south across the lease line and from an orthodox location in the west half of Section 29.

Q Would it be prudent for an operator to then after frack treatment or other stimulation treatment to the Rio well conduct certain bottom hole pressure build up surveys and other pressure tests before drilling the proposed location?

A Well, I would think so. Frack job is certainly cheaper than drilling a well, and I think I'd try to find that problem because you might create the same problem

with the second well, and that would allow underground waste.

Q Mr. Williamson, did you look at Exhibit No. 6 now -- Have you covered Exhibit 5 adequately?

A I, yes, I think so.

Q And your Exhibit 6, is this exhibit not identical to that exhibit offered in the prior two cases?

A Yes, sir, that is a calculation of the ratable take factor if an unorthodox location were allowed.

Q Your opinions and conclusions in connection with this exhibit would be the same?

A That is correct.

Q Now, in reference to Exhibit No. 7, do you have anything additional you'd like to say as to this exhibit?

A No, sir.

MR. DENT: Mr. Examiner, we'd like to offer at this time Exhibits 5, 6 and 7.

MR. STAMETS: These exhibits will be admitted.

MR. DENT: Also, Mr. Examiner, I'd like to place into the record of this case a copy of the letter from Northern Natural which applied to all three cases.

MR. STAMETS: Okay.

MR. DENT: We have no further questions.

MR. STAMETS: Any further questions of this witness?

CROSS-EXAMINATION

BY MR. CARR:

Q Mr. Williamson, would you refer to Exhibit No. 7?

A Okay.

Q And you have a formula there at the bottom, orthodox locations.

A Right.

Q What locations are you talking about?

A Okay, the orthodox location as shown in Exhibit 7 or as referred to in Exhibit 7 is and is shown to in Exhibit 5 which is depicted by the green circle which is a location 1980 from the north and 660 from the west of Section 29.

Q Is that an orthodox location?

A I believe it is. We've been defining that as 660 and 1980.

Q For the north half?

A No, sir, it'd be a standup. It'd be a west standup.

Q How do you get the west half?

A If you don't know at all, you have to form the

units.

Q On the west half.

A Uh-huh.

Q What did you do with the acreage crossing the north half? It's already dedicated to No. 1.

A It'd have to be rededicated to another unit.

Q So you're talking about not only moving the well but completely changing the acreage dedication in the entire section.

A Well, if that's necessary. I'm not completely familiar with the total ownership of this section.

MR. CAMPBELL: Is that well not on the south-east quarter?

MR. CARR: Not all of it.

Q (Mr. Carr)Couldn't this create tremendous problems for the royalty owners?

A I wouldn't think it would if you were assuring that by doing this you would allow equitable drainage for the reserves under the sections.

Now, the other option, of course, is that an orthodox location could be drilled south of the Penasco well. In other words moving the well 1980 to the east and shutting in your No. 1 well.

Q Then your calculation in Exhibit No. 7 would be different.

A Yes, it would be different.

Q Did you state that the Penasco might bring the acreage that's now being produced by the Rio No. 1?

A No, I said that it would drain into Section 29.

Q You didn't say it would drain acreage that was dedicated to the Rio 1?

A It could. Again, depending on what is the draining radius of the No. 1 well. I noticed on the calculations that you have have not calculated a radius of investigation of the build up. I think this should be done to show indeed how far out do you think the Rio No. 1 is draining because as of now we don't really know. Obviously not very far because of your pressure depletion.

Q Couldn't this drainage from the Penasco No. 1 also affect the correlative rights adversely of royalty owners?

A Well, under the statutes there you're allowed to drill 660 from the lease line. So even though the Penasco may drain gas from Section 29, that's occurring in other standard locations.

Q Then to protect the interest in the north half

of that section, wouldn't it be wise to drill a second well?

A Right, I would suggest that you would drill at an orthodox location and stop producing the Rio No. 1. Then you would have a well south of the Penasco or actually I guess it would be south and west, but it would be in a standard location and if you want to play closology (sic) you're close to the best well in the field. So, that's what I'd do.

Q Didn't you indicate that there could be a reservoir problem here, that could be the causes of--

A I think it's obvious that something is occurring. Just what it is--

Q In your opinion, would a well drilled in an orthodox location drain the acreage that's now being produced by the Rio No. 1 if it were shut in?

A I would think it could because if the Rio No. 1 is bounded in some manner, then you've got some limited gas that it's going to get.

Now, as far as geologic time goes, probably the Rio No. 1 eventhough you've got some permeability barrier it could conceivably drain, you know, the 320 acres; but it may take 300 years to do it. So we're looking at economic time. So I think you'd have to decide whether

again from your building data whether the results of investigation of this well were sufficient to want to try to produce of the No. 1 or whether it was of such a small magnitude, give it up and go to your good location at the unorthodox location.

Q Do you use geologic time when you're trying to figure out whether or not you're going to recover some fair share of gas under the section---

A No, 'cause the other people aren't planning geologic time. But you asked me if it'd drain it. You didn't say what time frame, so I'm telling you it would.

Q I want you to look again at Exhibit No. 7 and explain to us the figures in the bracket at the orthodox and unorthodox locations. I don't understand your formula.

A Okay. I'm actually trying to do there is acre feet, and I'm saying that at this location that 80% of that circle is going to have 30 feet of pay and 20% of it is going to have 25. That is a poor man's perimeter, is what it is. So rather than trying to come to an actual acre feet perimeter, I just eyeball what the thickness is and what area it covers in the circle.

MR. CARR: I have no further questions.

MR. STAMETS: Any other questions of the witness?

He may be excused.

Any further testimony in this case?

Any closing statements?

MR. CARR: I recall Mr. Williams for a couple of very short questions.

MR. STAMETS: You may do that.

FURTHER REDIRECT EXAMINATION

BY MR. CARR:

Q Mr. Williams, you have seen the exhibits presented here today which rely on radial drainage as the basis of various calculations, have you not?

A Yes, I have.

Q Will you refer to these quickly summarize why you believe they are inadequate?

A This, well, it's easy to handle graphically and calculation wise both. These are the radial drainage patterns around these wells, and looks good on these little maps. We all know that this is not the case in these wells, and as Gulf testified in their presentation of the calculation of the time that it takes the well to interfere or affect a different radii, that the calculated radius of drainage expands as they have calculated, as they have shown until that radius contacts some interfering condition.

An interfering condition, as Mr. Kalteyer pointed out, could be a boundary of some sort, a porosity permeability boundary. While we don't have them here, in some cases a fault. It could be the radius of drainage, the drainage pattern of another well. So these drainage areas are quickly distorted into shapes and sizes much different than have been depicted on these plats that have been presented. And from Gulf's calculation, this happens rather rapidly. Two wells located a half mile apart which would be a normal spacing distance would actually interfere in about 33 days or about a month. We're looking at it seems these two radial drainage patterns colliding as they press or sinks as they expand in the reservoir, nonwithstanding, permeability and porosity differences, differences in thickness. And then they begin to distort, and one of the most significant factors in drainage area or the pattern of the drainage of a well has been found to be the rate of production of that well. The wells would be higher rates of production establish themselves larger areas or at least larger volumes of drainage. To get the area, you'd have to take the thickness and porosity into account there. So these drainage patterns are established by the interplay of many factors and we can't in reality reduce them to this simplified drawing

of circles on our maps. We know it isn't true, and while it's easy to handle graphically and mathematically, it's just not a good representation of what's taking place in the reservoir, and I don't think we should put undue reliance on any of those calculations or determinations.

MR. CARR: I've no further questions.

MR. STAMETS: Any questions of the witness?

RECROSS-EXAMINATION

BY MR. CAMPBELL:

Q Mr. Williams, you got a better way?

A One of the best ways is the production performance---

Q Drill wells and watch them?

A ---of the wells.

Q I agree with that.

A And of the---

The Penasco well has produced long enough now to have shown that it has an excellent pattern of drainage. Conversely our Rio well has produced long enough to show that it has a restricted area of drainage, and this is why we've sought to drill a second well on that proration unit and locate that well at where we consider to be the most favorable location on that proration unit. Most of

the other wells in the field have very limited production histories.

Q Do you think maybe we ought to have some field rules before we haul off and drill a bunch of unorthodox locations and start producing two wells in one unit? Do you think that might be a wise way to go?

A I think even with field rules in this situation where the one well obviously is not draining its proration unit, a second well on the proration unit is justified.

Q If you consider a field rule---

A Any field rules that were considered would have to provide for that. I think the same condition could happen to one of your wells. I hope not. But we fully expected our Rio well to be an excellent well when we completed it.

Q Everybody takes a risk in this business and everybody has bad wells--

A That's right.

Q --no question about that. Have you considered any interference test to test drainage pattern between the Rio and Penasco well?

A We feel that there,the limited amount of data that's available indicates that these wells are not interfering

with each other. They are basically not in the same reservoir. There is a separation of some type between the two wells.

Q Complete separation you're now saying?

A Well, in economic time maybe not in geologic time.

MR. CAMPBELL: That's all.

MR. STAMETS: Any other questions of the witness?

RECROSS-EXAMINATION

BY MR. DENT:

Q Mr. Williams, if the Commission should grant this unorthodox location and then with two wells on the 320 Mr. Antweil goes in and reworks and stimulates the Rio well, increases that productivity by 100%, what would you do then?

A I don't know by what you mean, what would I do.

Q Do you intend to continue producing both wells at full capacity if rework operations happen to be successful, in the event that you do rework them?

A Yeah, we would if there was in the absence of proration.

Q Do you have any plans to rework them?

A No, we do not. We've considered it, and argued

it and we do not think that the well can be stimulated. We do not think that the reservoir pressure of the limited reservoir that this well's draining can be improved by stimulation.

Q Are you telling the Commission that in the event it should grant this application, you do not intend to do any rework operations on that well to improve its productivity, that you have fairly considered it and you've ruled that out?

A Yeah.

MR. DENT: No further questions.

MR. STAMETS: If there are no further questions, the witness may be excused.

Are there any short closing statements?

MR. CAMPBELL: Mr. Examiner, we have a glimpse of of Exhibit No. 1, Gulf, makes it obvious why Gulf is here. There are already three wells 660 feet from the boundaries of Section 19 where Gulf has two reasonably good wells. These proposals constitute three more within 660 feet. Makes Gulf feel like you're bullseye on a big archery target. While Gulf is pleased these days to have people want to snuggle up to them and be friendly, this is carrying it too far, and we think that it's obvious the case that

could be presented that there's just people who want to get some other peoples' gas. And there's no evidence in this record of any of these cases that shows that these unorthodox locations would either prevent waste or protect correlative rights, and as a matter of fact, the evidence is in the contrary. We think these, all three of these should be denied.

MR. STAMETS: Mr. Dent?

MR. DENT: I contend wholeheartedly with Mr. Campbell's statement, and that the only evidence presented in support of this unorthodox location is that the witness said it's a more favorable location.

Mr. Examiner, if that is the basis in which an operator can come to this Commission and be granted an exemption to your standard spacing rules, I will assure you Mesa will be here often.

MR. STAMETS: Mr. Carr?

MR. CARR: Mr. Examiner, the evidence presented today shows that the Rio No. 1 drilled by Morris R. Antweil couldn't perform as anticipated, in fact will not drain the acreage dedicated to it. For that reason we've come to you because we need to drill a second well on the unit to protect our correlative rights.

The acreage is productive, and we are entitled under the rules of this Commission to have an opportunity so far as it is practicable for you to afford one to us to produce without waste our just and equitable share of gas under the north half of Section 29.

Now, we submit to you if we are not able to drill the second well on that unit, there will be gas there that simply will not be produced.

In the alternative, what we are required to do is plug the Rio No. 1. There will be gas left in place because another well drilled on the unit will in fact not be able to produce it because we are convinced that a barrier exists between the location of the Rio No. 1 and the proposed Rio No. 2.

We believe that a new well would be a necessary well, that it will not constitute waste, and the drilling of the well will protect our correlative rights. It will recover reserves that would not otherwise be recovered. It is being drilled at the location we are proposing because we do not know as does anyone else exactly where this barrier lies, and we are attempting to drill a well which will in fact enable us to recover our fair share of the hydrocarbons under the north half of that section.

[illegible] rul[illegible] desirable, that's a matter for another case; but we've come before you with an application that is legitimate. It is not just trying to cozy up to somebody in an effort to try and steal somebody's gas because I don't think anyone here really knows Morris R. Antweil would honestly say that about them. But we do have a difficult situation here, and we've come forward with a legitimate application and we pray that you grant the unorthodox location for the Rio No. 2.

MR. STAMETS: The case will be taken under advisement.

(WHEREUPON, this hearing was concluded.)

LANPHERE REPORTING SERVICE
P. O. BOX 449
58 SOUTH FEDERAL PLACE
SANTA FE, NEW MEXICO 87501

REPORTER'S CERTIFICATE

I, BETTY J. LANPHERE, a Court Reporter with offices in Santa Fe, New Mexico, do hereby certify that the foregoing transcript is a complete and accurate record of said proceedings as the same were recorded by me stenographically and reduced to typewritten transcript by me or under my supervision.

DATED at Santa Fe, New Mexico, this 15th day of October, 1978.

Betty J. Lanphere

Betty J. Lanphere, Court Reporter

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 6213 heard by me on May 8, 1978.

Richard L. Stamets, Examiner
Oil Conservation Division

LANPHERE REPORTING SERVICE
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I N D E X

E X H I B I T S

	Identified
1. (Applicant's Exhibits)	
Exhibit Number 1 - Map (Proposed Location)	6
Exhibit Number 2 - Tabulation of Offset Operators	6
Exhibit Number 3 - Plot of Wells	7
Exhibit Number 4 - Structural Map	8
Exhibit Number 5 - Isopach Map	8
Exhibit Number 6 - Correlation Section	9
Exhibit Number 7 - Production Comparison	9
Applicant's Exhibits 1 thru 7 admitted	15
2. (Gulf's Exhibits)	
Exhibit Number 1 - Structural Map	36
Exhibit Number 2 - Characteristics of Log	41
Gulf's Exhibits 1 and 2 admitted	42
3. (Gulf's Exhibits)	
Exhibit Number 3 - Table of Performance Data	49
Exhibit Number 4 - Radius Study	49
Exhibit Number 5 - Circles of Radius	52
Exhibit Number 6 - Calculation for .79 Factor	52
Exhibit Number 7 -	53
Exhibit Number 8 - Ratable Take Factor	53
Exhibit Number 9	53

(Continued..)

E X H I B I T S (Cont.)

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May 17, 1978

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Attention Mr. D. S. Nutter
Chief Engineer

Gentlemen:

Subject: Case No. 6231
Case No. 6232
Case No. 6213

This letter will serve to introduce the exhibits and present related testimony on the behalf of Mesa Petroleum Co.

Exhibit No. 1 is a combination structure and isopach map for the Morrow formation. A cross section trace is also shown on the map.

Exhibit No. 2 is a cross section of seven wells showing a correlation of the Morrow Conglomerate section between wells. The Mesa Lincoln State Comm. No. 1 has a fine grained sand section in the Morrow above the Conglomerate section. This section has not been included in the isopach or reserve calculations but should contribute to production.

Exhibit No. 3 shows available production from wells in the Cass Ranch area.

Exhibit No. 4 shows well locations, perforations, drill stem test information and test data for wells on the cross section (Exhibit No. 2).

Exhibit No. 5 shows 320-acre circular drainage areas for the requested unorthodox location and an orthodox location. Note the increase in the drainage encroachment on acreage outside the 320 unit assigned to the well.

Exhibit No. 6 calculates the ratable take factor that should be applied to a well's producing rate to account for the additional drainage encroachment acres that would result from drilling a well at an unorthodox location.

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. A
CASE NO. 6213
Submitted by MESA PET.
Hearing Date

Exhibit No. 7 calculates the expected ultimate recovery from orthodox and unorthodox locations utilizing the isopach map (Exhibit No. 1). Case 6232 and 6213 show an increase in reserves for a well drilled at the orthodox location. Case 6231 shows a slight reduction in reserves for the orthodox location over the unorthodox location.

Summary and Requests:

1. Orthodox locations will not result in inferior recovery as compared to the unorthodox locations requested in Cases 6231, 6232 and 6213.

2. The field has been developed to date on orthodox locations and there is no reason to change now.

3. Continued development of this field on orthodox locations will prevent underground waste and protect correlative rights.

4. Mesa will farm in all three standard locations that are counterparts to the unorthodox locations requested in Cases 6231, 6232 and 6213.

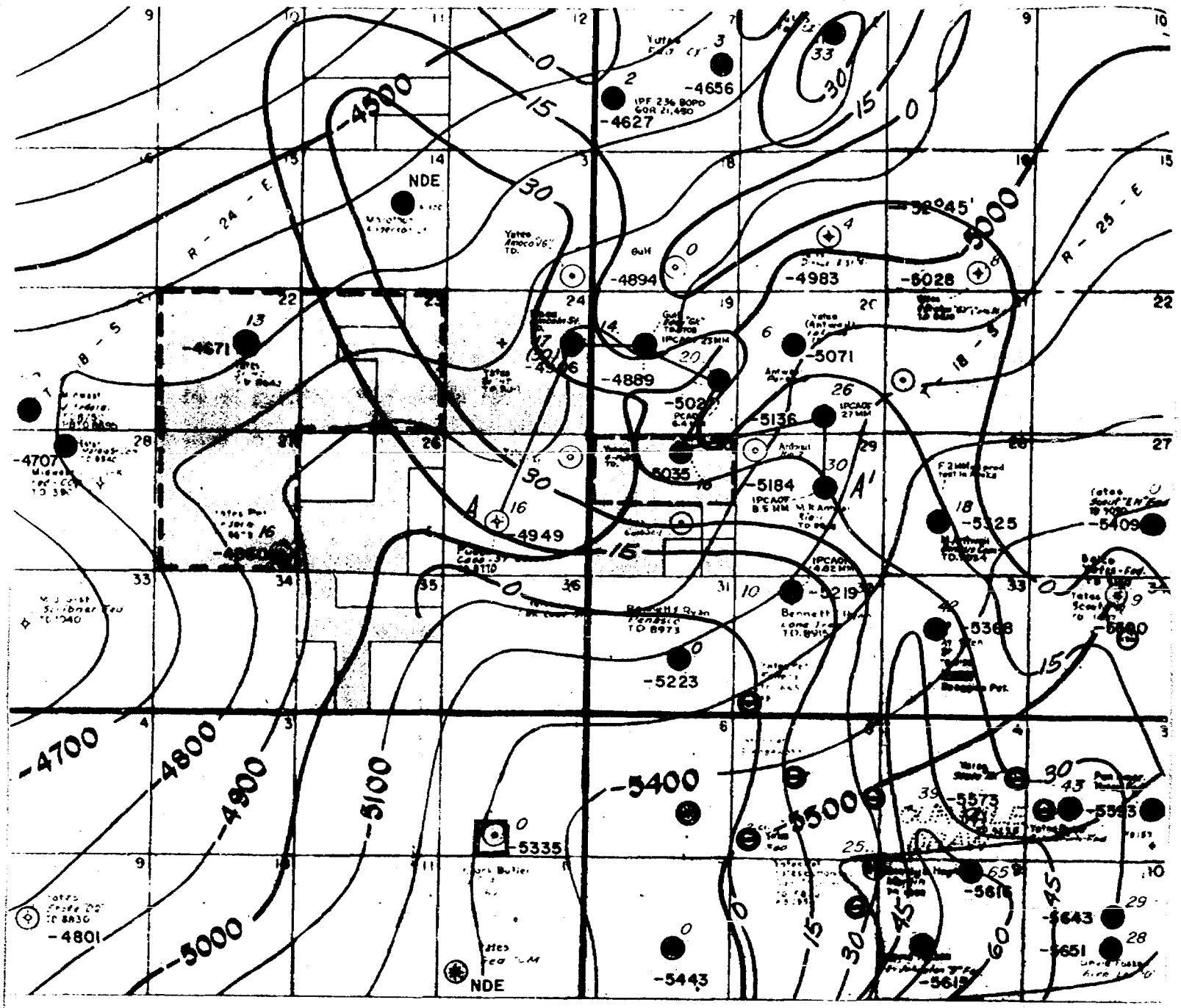
Respectfully submitted,

SIPES, WILLIAMSON & AYCOCK, INC.

Roy C. Williamson, Jr., P.E.
Consultant for Mesa Petroleum Co.

/pw

attachments



BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 1
CASE NO. 6213
Submitted by MESA PET.
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 1

PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco - Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT
Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J	DRAWN BY T.D.N.
DATE 4-10-78	SCALE 1" = 5000'

PRODUCTION DATA
UNDESIGNATED MORROW POOL - CASS RANCH AREA
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWEIL, MORRIS R.				BENNETT & RYAN		GULF OIL CORPORATION			
	Penasco		Rio Com.		Lonetree		Eddy GK State Com.			
	1 O 20 18S 25E		1 G 29 18S 25E		1 C 32 18S 25E		1 I 19 18S 25E		2 F 19 18S 25E	
	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL	GAS MCF	COND BBL
1977										
September	69,733	224	27,226	131	---	---	---	---	---	---
October	183,897	557	47,260	93	---	---	---	---	---	---
November	159,355	464	33,089	52	13,419	---	---	---	---	---
December	151,703	428	29,460	45	11,055	---	---	---	---	---
1978										
January	150,037	428	25,653	37	6,225	---	29,835	105	---	---
February	126,387	346	19,708	31	4,397	---	62,867	170	---	---
March	141,973	350	21,467	31	2,882	---	47,087	99	---	---
TOTALS	983,085	2,797	203,863	420	37,978		139,789	374		

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 3

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

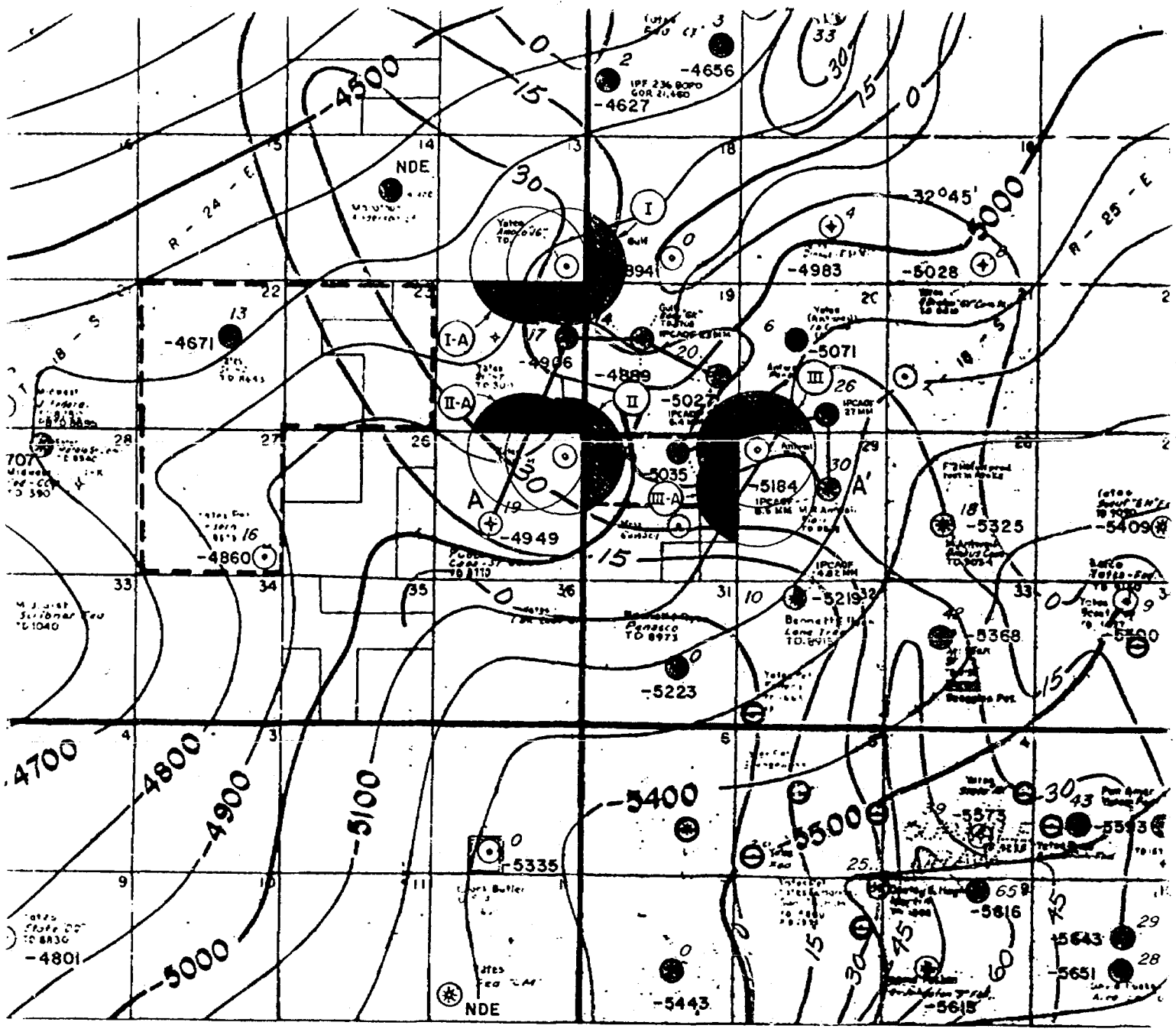
X-SECTION WELL INFORMATION

OPERATOR LEASE WELL NO.	WELL LOCATION	PERFORATIONS	DST INFO.	TEST DATA	CAOF
Morris R. Antweil Rio No. 1	Sec. 29-18S-25E 1980' FN & E	8685'-93'; 8694'-98'; 8700'-13' (Morrow)	8640'-8738' (Morrow) Rec. 500' O&GCM FSIP 3252#	F/919 MCFGPD, 1/8" ch., 60 min., TP2412# F/2007 MCFGPD, 3/16" ch., 60 min., TP2260# F/3268 MCFGPD, ¼" ch., 60 min., TP2025# F/5073 MCFGPD, 5/16" ch., 60 min., TP1989#	6,516 MCFGPD Dry; Gas Grav. .626 SIBHP 2447#
Morris R. Antweil Penasco No. 1	Sec. 20-18S-25E 660' FS & 1980' FE	8634'-62' (Morrow)	8610'-8705' (Morrow) Rec. 180' cond. & 120' DM FSIP 3356#	F/1049 MCFGPD, Orifice, 60 min., TP2639# F/1500 MCFGPD, Orifice, 60 min., TP2609# F/2295 MCFGPD, Orifice, 60 min., TP2558# F/3143 MCFGPD, Orifice, 60 min., TP2489#	27,143 MCFGPD GOR 382,000/1 Gas Grav. .614 SIWHP 2703#
Yates Petr. Corp. Federal "AB" No. 4	Sec. 30-18S-25E 660' FN & 1980' FE	8570'-90' (Morrow)	8545'-8642' (Morrow) Rec. 60' oil, 90' O&GCM FSIP 3269# (Also DST in Wlfcp.)	F/13,300 MCFGPD, 3/4" ch., 24 hr., TP918#	-
Gulf Oil Corp. Eddy "GK" St. Com. No. 1	Sec. 19-18S-25E 1980' FS & 660' FE	8603'-07'; 8618'-27'; 8634'-41' (Morrow)	NO DST	F/1062 MCFGPD, 1.5" Orif., 60 min., TP2320# F/1528 MCFGPD, 1.5" Orif., 60 min., TP2240# F/2099 MCFGPD, 1.5" Orif., 60 min., TP2130# F/2992 MCFGPD, 1.5" Orif., 60 min., TP1902#	6,424 MCFGPD Dry SIWHP 2425#
Gulf Oil Corp. Eddy "GK" St. Com. No. 2	Sec. 19-18S-25E 2310' FN & 1980' FW	8478'-80'; 8486'-98' (Morrow)	NO DST	F/3310 MCFGPD, 15/64" ch., 60 min., TP2450# F/4642 MCFGPD, 19/64" ch., 60 min., TP2330# F/6626 MCFGPD, 25/64" ch., 60 min., TP2095# F/9022 MCFGPD, 28/64" ch., 60 min., TP1645#	22,869 MCFGPD
Mesa Petr. Co. Lincoln St. Com. No. 1	Sec. 24-18S-24E 2030' FN & 660' FE	8497'-8513' (Morrow)	8402'-8552' (Morrow) Rec. 350' GCDM FSIP 3282#		P&A
Pubco Petr. Corp. Cass St. Com. No. 1	Sec. 25-18S-24E 1980' FS & W	None Reported	8245'-8475' Rec. 420' GCM FSIP 3111# (Also DST in Wlfcp.)		

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 4
CASE NO. 6213
Submitted by MESA PET.
Hearing Date

CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 4

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.



PRODUCTION CODE

- San Andres
- Yeso
- Wolfcamp
- Cisco - Canyon
- Atoka
- Morrow A-I
- Morrow B-II
- Morrow B-III

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 6213
Submitted by MESA PET.
Hearing Date

MAY 17, 1978
CASE NO. 6231
CASE NO. 6232
CASE NO. 6213
EXHIBIT 5

MESA PETROLEUM CO.
PERMIAN BASIN DIVISION

CASS RANCH PROSPECT
Eddy County, New Mexico

STRUCTURE
Top/Mississippian
C.I. = 100'

ISOPACH
Morrow A-I
C.I. = 15'

BY J.W.J
DATE 4-10-78
DRAWN BY T.D.N.
SCALE 1" = 3000'

CASS RANCH AREA

EDDY COUNTY, NEW MEXICO

RATABLE TAKE FACTOR

AREA III & III-A

Orthodox Location - Drainage Encroachment Outside of 320 Unit = 86.78 ac.

Unorthodox Location - Drainage Encroachment Outside of 320 Unit = 151.86 ac.

Additional Drainage Encroachment of Well at Unorthodox Location = 65.08 ac.

$$\text{Ratable Take Factor} = \frac{\text{(STD Unit, ac.) - (Additional Drainage Encroachment, ac.)}}{\text{STD Unit, ac.}}$$

$$= \frac{\text{(320 ac.) - (65.08 ac.)}}{\text{(320 ac.)}}$$

$$= .7966^{*}$$

* To Be Applied to Well Allowable for Standard 320 Acre Unit.

ROY C. WILLIAMSON, JR., P.E./cn MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6213
EXHIBIT 6

CASS RANCH AREA
EDDY COUNTY, NEW MEXICO

RESERVE CALCULATIONS FOR
ORTHODOX AND UNORTHODOX LOCATIONS

AREA III & III-A

Section 29

Porosity, percent	14
Bottom-hole Pressure, psig	3290
Water Saturation, percent	15
Gas Gravity	.63
Drainage Area, acres	320

Gas Formation Volume Factor, $B_g = \frac{(35.35)(3305 \text{ psia})}{(0.86)(600^\circ R)} = 226.4 \frac{SCF}{RCF}$

$(43{,}560 \frac{Ft^3}{AF})(\text{Porosity } 0.14)(\text{Gas Saturation } 1\text{-}.15) = 5{,}183.6 \frac{RCF}{AF}$ $(226.4 \frac{SCF}{RCF})$

$= 1{,}174 \frac{MCF}{AF}$ (0.80 Rec.) $= 939 \frac{MCF}{AF}$

Orthodox Location:

$(320 \text{ Ac}) \left[(0.8)(30)+(0.2)(25)\right] (939 \frac{MCF}{AF}) =$ 8,714 MMCF

Unorthodox Location:

$(320 \text{ Ac}) \left[(0.35)(30)+(0.5)(22.5)+(0.15)(14)\right] (939 \frac{MCF}{AF}) =$ 7,166 MMCF

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 6213
Submitted by MESA PET.
Hearing Date

ROY C. WILLIAMSON, JR., P.E./pw MAY 17, 1978
1100 GIHLS TOWER WEST MIDLAND, TEXAS 79701
SIPES, WILLIAMSON & AYCOCK, INC.
for MESA PETROLEUM CO.

CASE NO. 6213
EXHIBIT 7

403 Wall Towers West
Midland, Texas 79701
Telephone 915-682-3711

Northern Natural Gas Company
Exploration & Production Division

C. F. Keller, Manager
Midland District

May 15, 1978

Oil Conservation Division
State of New Mexico
P. O. Box 2088
Santa Fe, New Mexico 87501

Attn: Mr. D. S. Nutter, Chief Engineer

Gentlemen:

We wish to refer you to the following requests for approval of unorthodox locations:

Case #6231 - Application of Yates Petroleum for their #1 State JM Well to be located 660' FN&EL of Section 25, 18S, 24E, on a proration unit covering the N/2 of Section 25, 18S, 24E.

Case #6232 - Application of Yates Petroleum for their Cities JG #1 Well to be located 660' FS&EL of Section 13, 18S, 24E, on a proration unit covering the E/2 of Section 13, 18S, 24E.

Case #6213 - Application of Morris R. Antweil for their #2 Rio Well to be located 660' FN&WL of Section 29, 18S, 25E, on a proration unit covering the N/2 of Section 29, 18S, 25E.

Northern Natural Gas Company is the owner of a 1/2 interest in leases covering part of Section 30, 18S, 25E and part of Section 24, 18S, 24E, and we wish to advise that we are opposed to the above applications for approval of unorthodox locations.

Very truly yours,

NORTHERN NATURAL GAS COMPANY

C. F. Keller
Exploration and Production Manager

CFK/sc

CASE 6214: (Continued from May 3, 1978, Examiner Hearing)

Application of Morris R. Antweil for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled at a point 660 feet from the North line and 1980 feet from the East line of Section 8, Township 12 South, Range 32 East, Lea County, New Mexico, the E/2 of said Section 8 to be dedicated to the well.

CASE 6213: (Continued & Readvertised)

Application of Morris R. Antweil for an unorthodox location and simultaneous dedication, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of his Rio Well No. 2, a Morrow test to be drilled at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be simultaneously dedicated to the aforesaid well and to applicant's Rio Well No. 1 located in Unit G of Section 29.

Dockets Nos. 19-78 and 20-78 are tentatively set for hearing on June 7 and 21, 1978. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 17, 1978

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

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

CASE 6225: Application of Petroleum Development Corporation for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its Sun McKay Federal Well No. 2 located in Unit G of Section 10, Township 19 South, Range 32 East, Lea County, New Mexico, in such a manner as to produce oil from the Wolfcamp formation thru tubing and gas from the Morrow formation thru the casing tubing annulus by means of a cross-over assembly.

CASE 6226: Application of Barber Oil, Inc. for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project on its Saladar Unit, by the injection of water into the Yates formation through five wells located in Units K, L, N and O of Section 33, Township 20 South, Range 28 East, Saladar-Yates Pool, Eddy County, New Mexico.

CASE 6227: Application of Union Texas Petroleum for a non-standard proration unit, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 209.5-acre non-standard gas proration unit comprising the W/2 of Section 7, Township 31 North, Range 9 West, Blanco Pictured Cliffs Pool, San Juan County, New Mexico, to be dedicated to a well drilled at a standard location thereon.

CASE 6228: Application of Depco, Inc., for an unorthodox location, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its R&S Federal Com Well No. 1 to be located 1980 feet from the South line and 990 feet from the West line of Section 17, Township 15 South, Range 28 East, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, the S/2 of said Section 17 to be dedicated to the well.

CASE 6229: Application of Texas Oil & Gas Corporation for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for its South Wilson State Unit Area comprising 3,200 acres, more or less, of State land in Township 21 South, Range 34 East, Lea County, New Mexico.

CASE 6230: Application of Texas Oil & Gas Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of an unorthodox location for its Duffield Fed. Com Well No. 1, a Wolfcamp-Pennsylvanian test to be located 1980 feet from the South line and 660 feet from the West line of Section 28, Township 16 South, Range 27 East, Eddy County, New Mexico, the S/2 of said Section 28 to be dedicated to the well.

CASE 6215: (Continued from May 3, 1978, Examiner Hearing)

Application of Texas Oil & Gas Corporation for a non-standard unit and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard proration unit comprising the N/2 of Section 29, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, Lea County, New Mexico, to be dedicated to a well to be located at an unorthodox location 660 feet from the North and West lines of said Section 29.

CASE 6231: Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State "JM" Well No. 1, a Morrow test to be located 660 feet from the North and East lines of Section 25, Township 18 South, Range 24 East, Eddy County, New Mexico, the N/2 of said Section 25 to be dedicated to the well.

CASE 6232: Application of Yates Petroleum Corporation for an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Cities "JC" Well No. 1 to be located 660 feet from the South and East lines of Section 13, Township 18 South, Range 24 East, Fordinkus Field, Eddy County, New Mexico, the E/2 of said Section 13 to be dedicated to the well.

CASE 6233: Application of Amoco Production Company for salt water disposal, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Ojo Alamo formation through the perforated interval from 1175 feet to 1230 feet in its Cahn Gas Com Well No. 3 located in Unit F of Section 33, and from 1104 feet to 1122 feet in its Keys Gas Com "F" Well No. 1, located in Unit K of Section 27, all in Township 32 North, Range 10 West, Mt. Nebo-Fruitland Pool, San Juan County, New Mexico.

CAMPBELL, BINGAMAN AND BLACK, P. A.
LAWYERS

JACK M. CAMPBELL
JEFF BINGAMAN
BRUCE D. BLACK
MICHAEL B. CAMPBELL

POST OFFICE BOX 2208
JEFFERSON PLACE
SANTA FE, NEW MEXICO 87501
TELEPHONE (505) 988-4421

May 1, 1978

Case 6213

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation
Division
Department of Energy and Mineral
Resources
Post Office Box 2088
Santa Fe, New Mexico 87501

Re: Application for Approval of an Unorthodox Gas Well Location; Sec. 29, T18S, R25E, Eddy County, New Mexico, Morris R. Antweil, Applicant

Dear Mr. Ramey:

This is to advise you that Jack M. Campbell of Campbell, Bingaman & Black, Santa Fe, New Mexico, will be appearing in the captioned matter on behalf of The Gulf Companies. Mr. Campbell will also present to the examiner at the time of the hearing, Terry I. Cross, of The Gulf Companies, Midland Texas, Law Department, who will also be participating in presenting Gulf's position.

Very truly yours,

Jack M. Campbell

JMC:dnc

April 28, 1978

MESA PETROLEUM CO.

- 1 1978

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Application for Administrative Approval 6213
of Unorthodox Gas Well Location (Case No. ~~6123~~)
Location Section 29-18S-25E
Eddy County, New Mexico

Gentlemen:

In regard to the request for an unorthodox well location captioned above, Mesa Petroleum Co., after thorough review, strongly opposes this request. We do not see any geological justification for an unorthodox location in the N½ of Section 29. Further there is sufficient acreage to make a standard location in the NW¼ of Section 29 to offset the producing well in the NE¼ of Section 29. The wells located in the NE¼s of Sections 29 and 30 indicate that the gas pool may extend throughout the W½ of Section 29. An unorthodox location in this section would only serve to encroach on the correlative rights of offset operators while possibly causing unavoidable waste to the rest of Section 29.

Mesa Petroleum Co. requests that this objection be read into the record of the hearing.

Very truly yours,

Robert R. Donnelly

Robert ~~R.~~ Donnelly

RRD:wp

CATRON, CATRON & SAWTELL
ATTORNEYS AND COUNSELORS AT LAW
THE PLAZA
SANTA FE, NEW MEXICO 87501

THOMAS B. CATRON, 1840-1921
FLETCHER A. CATRON, 1890-1964
THOMAS B. CATRON, III
JOHN S. CATRON
WILLIAM A. SAWTELL, JR.
FLETCHER R. CATRON
WILLIAM F. CARR
W. ANTHONY SAWTELL

POST OFFICE BOX 788
TELEPHONE 982-1947
AREA CODE 505

April 28, 1978

Mr. Joe D. Ramey, Division Director
Oil Conservation Division
New Mexico Energy and Minerals Department
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Oil Conservation Commission Case No. 6213

Dear Mr. Ramey:

Enclosed herewith, in triplicate, is the Amended Application of Morris R. Antweil for approval of an unorthodox gas well location and simultaneous dedication in Eddy County, New Mexico.

This Amended Application is a result of our failure to request the simultaneous dedication when we previously applied for the unorthodox gas well location.

The applicant requests that the above-referenced case be continued from the May 3, 1978 Examiner Hearing, that the case be readvertised, and that it be set down for hearing at the Examiner's Hearing to be held on May 17, 1978.

Your attention to this matter is appreciated.

Very truly yours,

William F. Carr

WFC/ss
enclosures

cc: Mr. R. M. Williams
c/o Morris R. Antweil
814 West Marland
Hobbs, New Mexico 88240

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, EDDY COUNTY, NEW MEXICO.

CASE 6213

AMENDED APPLICATION

Comes now Morris R. Antweil, by its undersigned attorneys, and hereby makes application to the Oil Conservation Division for an unorthodox gas well location and simultaneous dedication and in support thereof, respectfully states:

1. Applicant is the operator of the Pennsylvanian Formation underlying the north half of Section 29, Township 18 South, Range 25 East, N.M.P.M., Eddy County, New Mexico, and proposes to drill its Rio Well No. 2 at a point located 660 feet from the north and west lines of said Section 29.

2. Applicant seeks an exception to the well location requirements of Oil Conservation Division Rule 104 B, II, (a) to permit the drilling of a well at the above-mentioned unorthodox location to test the Morrow Formation in the Pennsylvanian System.

3. That a standard 320-acre gas proration unit comprising the north half of said Section 29 should be dedicated to such well.

4. That applicant's Rio Well No. 1, located 1,980 feet from the north line and 1,980 feet from the east line of said Section 29, is presently producing from said 320-acre gas proration unit.

5. That said unit should be simultaneously dedicated to applicant's Rio Wells No. 1 and No. 2.

6. That approval of this Application will afford applicant the opportunity to produce its just and equitable share of gas from the Morrow Formation and will protect correlative rights.

WHEREFORE, Morris R. Antweil requests that this Application be set for hearing before a duly appointed examiner of the Oil Conservation Division, that notice be given as required by law and the Rules of the Division, that the Division enter its order granting the applicant permission to drill its Rio Well No. 2 at a point 660 feet from the north and west lines of said Section 29, in the Morrow Formation, and that the north half of said Section 29 be simultaneously dedicated to its Rio Wells No. 1 and No. 2.

Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By William F. Carr
William F. Carr

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, EDDY COUNTY, NEW MEXICO.

CASE 6213

AMENDED APPLICATION

Comes now Morris R. Antweil, by its undersigned attorneys, and hereby makes application to the Oil Conservation Division for an unorthodox gas well location and simultaneous dedication and in support thereof, respectfully states:

1. Applicant is the operator of the Pennsylvanian Formation underlying the north half of Section 29, Township 18 South, Range 25 East, N.M.P.M., Eddy County, New Mexico, and proposes to drill its Rio Well No. 2 at a point located 660 feet from the north and west lines of said Section 29.

2. Applicant seeks an exception to the well location requirements of Oil Conservation Division Rule 104 B, II, (a) to permit the drilling of a well at the above-mentioned unorthodox location to test the Morrow Formation in the Pennsylvanian System.

3. That a standard 320-acre gas proration unit comprising the north half of said Section 29 should be dedicated to such well.

4. That applicant's Rio Well No. 1, located 1,980 feet from the north line and 1,980 feet from the east line of said Section 29, is presently producing from said 320-acre gas proration unit.

5. That said unit should be simultaneously dedicated to applicant's Rio Wells No. 1 and No. 2.

6. That approval of this Application will afford applicant the opportunity to produce its just and equitable share of gas from the Morrow Formation and will protect correlative rights.

WHEREFORE, Morris R. Antweil requests that this Application be set for hearing before a duly appointed examiner of the Oil Conservation Division, that notice be given as required by law and the Rules of the Division, that the Division enter its order granting the applicant permission to drill its Rio Well No. 2 at a point 660 feet from the north and west lines of said Section 29, in the Morrow Formation, and that the north half of said Section 29 be simultaneously dedicated to its Rio Wells No. 1 and No. 2.

Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By s/William F. Carr
William F. Carr

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION AND SIMULTANEOUS DEDICATION, EDDY COUNTY, NEW MEXICO.

CASE 6213

AMENDED APPLICATION

Comes now Morris R. Antweil, by its undersigned attorneys, and hereby makes application to the Oil Conservation Division for an unorthodox gas well location and simultaneous dedication and in support thereof, respectfully states:

1. Applicant is the operator of the Pennsylvanian Formation underlying the north half of Section 29, Township 18 South, Range 25 East, N.M.P.M., Eddy County, New Mexico, and proposes to drill its Rio Well No. 2 at a point located 660 feet from the north and west lines of said Section 29.

2. Applicant seeks an exception to the well location requirements of Oil Conservation Division Rule 104 B, II, (a) to permit the drilling of a well at the above-mentioned unorthodox location to test the Morrow Formation in the Pennsylvanian System.

3. That a standard 320-acre gas proration unit comprising the north half of said Section 29 should be dedicated to such well.

4. That applicant's Rio Well No. 1, located 1,980 feet from the north line and 1,980 feet from the east line of said Section 29, is presently producing from said 320-acre gas proration unit.

5. That said unit should be simultaneously dedicated to applicant's Rio Wells No. 1 and No. 2.

6. That approval of this Application will afford applicant the opportunity to produce its just and equitable share of gas from the Morrow Formation and will protect correlative rights.

WHEREFORE, Morris R. Antweil requests that this Application be set for hearing before a duly appointed examiner of the Oil Conservation Division, that notice be given as required by law and the Rules of the Division, that the Division enter its order granting the applicant permission to drill its Rio Well No. 2 at a point 660 feet from the north and west lines of said Section 29, in the Morrow Formation, and that the north half of said Section 29 be simultaneously dedicated to its Rio Wells No. 1 and No. 2.

Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By s/William F. Carr
William F. Carr

Morris R. Antweil
OIL OPERATOR
P. O. Box 2010
HOBBS, NEW MEXICO 88240

April 24, 1978

Gulf Energy & Minerals Company
Box 670
Hobbs, New Mexico 88240

Mesa Petroleum Co.
1000 Vaughn Building
Midland, Texas 79701

Yates Petroleum Corp.
207 South 4th
Artesia, New Mexico 88210

REFERENCE: Application for Unorthodox Gas Well
Location Section 29-T18S-R25E
Eddy County, New Mexico

Case 6213

Gentlemen:

Enclosed is a copy of New Mexico Oil Conservation Division Docket No. 16-78 of cases to be heard 3 May, 1978. Your attention is directed to Case No. 6213, our application for an unorthodox gas well location in Section 29-T18S-R25E, Eddy County, New Mexico, for the drilling of the No. 2 RIO as a Morrow well.

Yours very truly,

MORRIS R. ANTWEIL

R. M. Williams

RMW:crm
Enclosure
cc: New Mexico Oil Conservation Division
Box 2088
Santa Fe, New Mexico 87501

CERTIFIED MAIL

Case 6213

Advised Molba to call Bob Williams this does not qualify under 104F Rhs

Morris R. Antweil
OIL OPERATOR
P. O. Box 2010
Hobbs, New Mexico 88240

April 10, 1978

APR 11 1978

Mr. Joe D. Ramey, Division Director
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

REFERENCE: Application for Administrative Approval
of an Unorthodox Gas Well Location
Section 29-T18S-R25E, Eddy County, New Mexico

Dear Mr. Ramey:

Morris R. Antweil respectfully requests administrative approval of an unorthodox gas well location under the provisions of Rule 104-F. Approval of the proposed location 660 FNL and 660 FWL of Section 29-T18S-R25E, Eddy County, New Mexico, is requested for the drilling of a 9000-foot Morrow gas well to develop the gas spacing and proration unit being the N/2 of said Section 29. The proposed location is for a second well on the 320-acre proration unit. The present well, No. 1 Rio, does not appear to be adequately recovering the gas underlying the proration unit. The requested unorthodox location is in violation of Rule 104-6-II-(a) in respect to being closer than 1980 feet to the end boundary of the proration unit.

The following items are attached in support of the application for administrative approval:

a. Map showing the ownership of the leases offsetting the proposed proration and spacing unit and the wells thereon,

b. A tabulation of the offsetting operations which have been furnished a copy of this application by certified mail of this date as notice thereof, and

c. A copy of the waiver requested from the offsetting operators.

Favorable consideration of this application for administrative approval of the requested unorthodox location will be appreciated. We are requesting that a hearing be docketed before the New Mexico Oil Conservation Division on 3 May, 1978 to consider this matter

Case 6213

Mr. Joe D. Ramey
RE: Application - Unorthodox
Gas Well Location

April 10, 1978
-2

in the event that waivers and administrative approval cannot be obtained. Please contact us if any further information is necessary to your consideration.

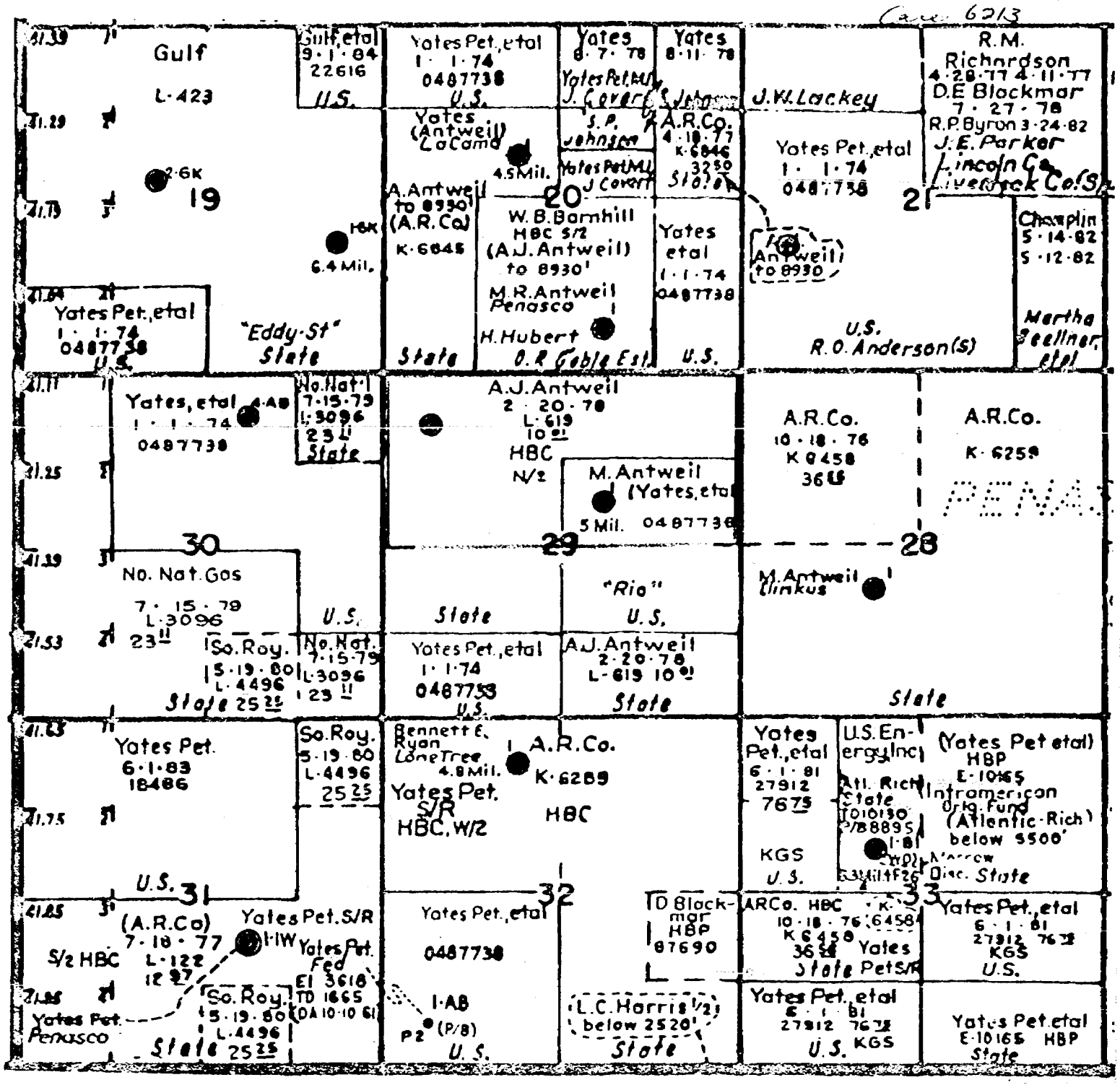
Respectfully,

MORRIS R. ANTWEIL

R. M. Williams

RMW:cm
Attachments

Case 6213



MORRIS R. ANTWEIL
APPLICATION FOR ADMINISTRATIVE APPROVAL
OF AN UNORTHODOX GAS WELL LOCATION

- ● Proposed location - 660 FNL & 660 FWL Sec. 29
- ◉ Morrow Gas Completion
- ⊘ Dry Morrow Test
- ▭ Gas Spacing and Proration Unit

Case 6013

TABULATION OF OFFSET OPERATORS NOTIFIED

Section 19	-	Gulf Energy & Minerals Company P. O. Box 670 Hobbs, New Mexico 88240
Section 30	-	Mesa Petroleum Co. 1000 Vaughn Building Midland, Texas 79701
Sections 20, 21, 29 & 30		Yates Petroleum Corp. 207 South 4th Artesia, New Mexico 88210

Note: The acreage in Sections 20, 28 & 29 shown to be leased to Atlantic Richfield, Huber, and Hanlad is operated by Morris R. Antweil.

Case 6213

Morris R. Antweil
OIL OPERATOR
P. O. Box 2010
Hobbs, New Mexico 88240

April 10, 1978

OFFSET OPERATORS

REFERENCE: Application for Administrative Approval
of an Unorthodox Gas Well Location
Section 29-T18S-R25E, Eddy County, New Mexico

Gentlemen:

Enclosed is a copy of our application to the New Mexico Oil Conservation Division for administrative approval of an unorthodox location for a Morrow gas well in the N/2 of Section 29-T18S-R25E, Eddy County, New Mexico.

Your waiver of objection, as an offsetting operator, is requested so this matter will not have to come to hearing 3 May, 1978. We would appreciate your signing the attached waiver and mailing the original to New Mexico Oil Conservation Division, Box 2088, Santa Fe, New Mexico 87501.

Yours very truly,

MORRIS R. ANTWEIL

R. M. Williams

RMW:crm

We have no objection to the application of Morris R. Antweil for the captioned unorthodox location.

Company _____

by _____

Title _____

Date _____

Docket No. 16-78

Dockets Nos. 18-78 and 19-78 are tentatively set for hearing on May 17 and June 7, 1978. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - WEDNESDAY - MAY 3, 1978

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

The following cases will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

CASE 6211: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Eureka Oil Company and all other interested parties to appear and show cause why the Cora B. Moore Well No. 1 located in Unit L of Section 10, Township 29 North, Range 24 East, Colfax County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6212: In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Clay-Neill and all other interested parties to appear and show cause why the State Well No. 1 located in Unit C of Section 9, Township 19 North, Range 30 East, Harding County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6200: (Continued & Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Astro-Tex Oil Corp., American Employers' Insurance Co., and all other interested parties to appear and show cause why the Cain Well No. 2 located in Unit J of Section 22, Township 15 North, Range 33 East, Harding County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6201: (Continued & Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Paul Haskins and all other interested parties to appear and show cause why the Federal "17" Well No. 1 located in Unit P of Section 17, Township 15 North, Range 33 East, Harding County, New Mexico, should not be plugged and abandoned in accordance with a Division approved plugging program.

CASE 6199: (Continued & Readvertised)

In the matter of the hearing called by the Oil Conservation Division on its own motion to permit Marion B. Edmonds and O. A. Peters and all other interested parties to appear and show cause why the Edmonds & Peters Federal Well No. 1 located in Unit M of Section 3, Township 15 North, Range 33 East, Harding County, New Mexico, should not be plugged and abandoned in accordance with a Division-approved plugging program.

CASE 6213: Application of Morris R. Antweil for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Rio Well No. 2 at a point 660 feet from the North and West lines of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, the N/2 of said Section 29 to be dedicated to the well.

CASE 6214: Application of Morris R. Antweil for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of a Morrow test well to be drilled at a point 660 feet from the North line and 1980 feet from the East line of Section 8, Township 12 South, Range 32 East, Lea County, New Mexico, the E/2 of said Section 8 to be dedicated to the well.

CASE 6215: Application of Texas Oil & Gas Corporation for a non-standard unit and an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 320-acre non-standard proration unit comprising the N/2 of Section 29, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, Lea County, New Mexico, to be dedicated to a well to be located at an unorthodox location 660 feet from the North and West lines of said Section 29.

CASE 6216: Application of Yates Petroleum Corporation for compulsory pooling and an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface down to and including the Wolfcamp and Pennsylvanian formations underlying the S/2 of Section 10, Township 21 South, Range 22 East, Eddy County, New Mexico, to be dedicated to applicant's Stinking Draw Unit Well No. 1 to be located at an unorthodox location 1383 feet from the South line and 695 feet from the East line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6217: Application of Holly Energy, Inc., for an unorthodox oil well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its McIntyre B Well No. 4 to be located 1300 feet from the South line and 330 feet from the West line of Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico.

CASE 6218: Application of Inexco Oil Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for its Tequilla Unit Area comprising 4,826 acres, more or less, of State, Federal, and fee lands in Townships 23 and 24 South, Ranges 22 and 23 East, Eddy County, New Mexico.

CASE 6219: Application of H & G Oil Co., for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 9, Township 24 South, Range 28 East, West Malaga-Morrow Gas Pool, Eddy County, New Mexico, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.

CASE 6221: Application of Sun Oil Company for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Teas Federal Well No. 1 to be located 1980 feet from the North and West lines of Section 24, Township 20 South, Range 33 East, Teas Pennsylvanian Gas Pool, Lea County, New Mexico, the N/2 of said Section 24 to be dedicated to the well.

CASE 6220: In the matter of the hearing called by the Oil Conservation Division on its own motion for an order creating, extending, and redesignating certain pools in Chaves, Lea, and Eddy Counties, New Mexico:

(a) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Strawn production and designated as the North Eidson-Strawn Pool. The discovery well is the Sabine Production Company North Eidson Fee Well No. 1 located in Unit M of Section 34, Township 15 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 15 SOUTH, RANGE 34 EAST, NMPM
Section 34: W/2

(b) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Devonian production and designated as the Hume-Devonian Pool. The discovery well is the W. A. Moncrief, Jr. State "8" Well No. 1 located in Unit G of Section 8, Township 16 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 8: NE/4

(c) CREATE a new pool in Lea County, New Mexico, classified as a gas pool for Morrow production and designated as the Hume-Morrow Gas Pool, The discovery well is the Mewbourne Oil Company State "E" Com Well No. 1 located in Unit L of Section 6, Township 16 South, Range 34 East, NMPM. Said pool would comprise:

TOWNSHIP 16 SOUTH, RANGE 34 EAST, NMPM
Section 6: S/2

(d) CREATE a new pool in Lea County, New Mexico, classified as an oil pool for Wolfcamp production and designated as the North Lusk-Wolfcamp Pool. The discovery well is the Petroleum Development Corporation Pedco Gulf Federal Com Well No. 1 located in Unit I of Section 33, Township 18 South, Range 32 East, NMPM. Said pool would comprise:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 33: SE/4

(e) CREATE a new pool in Chaves County, New Mexico, classified as a gas pool for Mississippian production and designated as the Mescalero Sands-Mississippian Gas Pool. The discovery well is the Petroleum Development Corporation Hudson Federal Well No. 1 located in Unit M of Section 27, Township 12 South, Range 30 East, NMPM. Said pool would comprise:

TOWNSHIP 12 SOUTH, RANGE 30 EAST, NMPM
Section 27: W/2

(f) EXTEND the Antelope Ridge-Atoka Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 34 EAST, NMPM
Section 26: All
Section 35: All

(g) EXTEND the Artesia Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 2: S/2 SW/4 and SW/4 SE/4

(h) EXTEND the Atoka-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 28: E/2 NW/4
Section 33: NE/4
Section 34: W/2 NW/4

(i) EXTEND the Box Canyon Upper Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 21 EAST, NMPM
Section 23: N/2

(j) EXTEND the Crooked Creek-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 24 EAST, NMPM
Section 4: All

(k) EXTEND the Fren-Seven Rivers Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 31 EAST, NMPM
Section 14: S/2, S/2 N/2, N/2 NE/4 & NE/4 NW/4
Section 15: S/2 & S/2 N/2
Section 23: All
Section 26: N/2
Section 27: N/2
Section 28: N/2 & N/2 S/2

(l) EXTEND the Grama Ridge-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 34 EAST, NMPM
Section 2: All

(m) EXTEND the Herradura Bend-Delaware Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 28 EAST, NMPM
Section 29: W/2 SE/4, E/2 SW/4 & SW/4 SW/4
Section 30: SE/4 SE/4
Section 31: E/2 E/2
Section 32: N/2 NW/4 & NW/4 NE/4

(n) EXTEND the West Kemnitz-Lower Wolfcamp Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 16 SOUTH, RANGE 33 EAST, NMPM
Section 32: NE/4

(o) EXTEND the Langlie Mattix Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
Section 31: NW/4

(p) EXTEND the Little Box Canyon-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 21 EAST, NMPM
Section 12: S/2

(q) EXTEND the South Loco Hills-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 30 EAST, NMPM
Section 20: W/2

(r) EXTEND the Lusk-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 10: All

(s) EXTEND the North Lusk-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
Section 3: E/2

(t) EXTEND the West Malaga-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 24 SOUTH, RANGE 28 EAST, NMPM
Section 9: S/2

(u) EXTEND the South Millman-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 19: N/2
Section 20: N/2

(v) EXTEND the Penasco Draw San Andres-Yeso Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 26 EAST, NMPM
Section 29: SE/4 SE/4
Section 32: NE/4 NE/4

(w) EXTEND the Revelation-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 25 EAST, NMPM
Section 10: W/2

(x) EXTEND the West Sawyer-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
Section 22: NE/4

(y) REDESIGNATE the West Scarborough Yates Pool in Lea County, New Mexico as the Comanche Stateline-Yates Pool and EXTEND the Comanche Stateline-Yates Pool to include therein:

TOWNSHIP 26 SOUTH, RANGE 36 EAST, NMPM
Section 28: S/2

(z) EXTEND the North Shugart-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 31 EAST, NMPM
Section 19: E/2
Section 20: W/2

(aa) EXTEND the Tubb Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
Section 36: SE/4

(bb) EXTEND the North Vacuum-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM
Section 16: N/2
Section 17: N/2

(cc) EXTEND the White City Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 25 SOUTH, RANGE 26 EAST, NMPM
Section 11: All

(dd) EXTEND the Winchester-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 28: S/2

(ee) EXTEND the Winchester-Upper Pennsylvanian Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 28 EAST, NMPM
Section 36: N/2

RECEIVED
APR 10 1978
Oil Conservation Commission

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE 6213

APPLICATION

Comes now Morris R. Antweil, by its undersigned attorneys, and hereby makes application to the Oil Conservation Division for an unorthodox gas well location and in support thereof, respectfully states:

1. Applicant is the operator of the Pennsylvanian Formation underlying the north half of Section 29, Township 18 South, Range 25 East, N.M.P.M., Eddy County, New Mexico, and proposes to drill its Rio Well No. 2 at a point located 660 feet from the north and west lines of said Section 29.

2. Applicant seeks an exception to the well location requirements of Oil Conservation Division Rule 104 B, II, (a) to permit the drilling of a well at the above-mentioned unorthodox location to test the Morrow Formation in the Pennsylvanian System.

3. That a standard 320-acre gas proration unit comprising the north half of said Section 29 should be dedicated to such well.

4. That approval of this Application will afford applicant the opportunity to produce its just and equitable share of gas in the Morrow Formation and will protect correlative rights.

WHEREFORE, Morris R. Antweil requests that this Application be set for hearing before a duly appointed examiner of the Oil Conservation Division on May 3, 1978, that notice be given as required by law and the Rules of the

Case 6713

Division, that the Division enter its order granting the applicant permission to drill its Rio Well No. 2 at a point 660 feet from the north and west lines of said Section 29, in the Morrow Formation, and that the north half of said Section 29 be dedicated to this well.

Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By William F. Carr
William F. Carr

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE 6213

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Case 6213

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Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By s/ William F. Carr
William F. Carr

1

BEFORE THE

OIL CONSERVATION DIVISION

NEW MEXICO ENERGY AND MINERALS DEPARTMENT

IN THE MATTER OF THE APPLICATION OF MORRIS R. ANTWEIL FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO

CASE 6213

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2. Applicant seeks an exception to the well location requirements of Oil Conservation Division Rule 104 B, II, (a) to permit the drilling of a well at the above-mentioned unorthodox location to test the Morrow Formation in the Pennsylvanian System.

3. That a standard 320-acre gas proration unit comprising the north half of said Section 29 should be dedicated to such well.

4. That approval of this Application will afford applicant the opportunity to produce its just and equitable share of gas in the Morrow Formation and will protect correlative rights.

WHEREFORE, Morris R. Antweil requests that this Application be set for hearing before a duly appointed examiner of the Oil Conservation Division on May 3, 1978, that notice be given as required by law and the Rules of the

Case 6213

Division, that the Division enter its order granting the applicant permission to drill its Rio Well No. 2 at a point 660 feet from the north and west lines of said Section 29, in the Morrow Formation, and that the north half of said Section 29 be dedicated to this well.

Respectfully submitted,

CATRON, CATRON & SAWTELL
Attorneys for Applicant
P.O. Box 788
Santa Fe, New Mexico 87501

By s/ William F. Carr
William F. Carr

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. ~~6231~~ 6213
Order No. R-~~5831~~ 5856

APPLICATION OF ~~YATES PETROLEUM CORPORATION~~ Morris R. Antweil FOR AN UNORTHODOX GAS WELL LOCATION, EDDY COUNTY, NEW MEXICO.
and simultaneous dedication

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 17, 1978, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this ~~22nd~~ day of October ~~September~~, 1978, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Morris R. Antweil ~~Yates Petroleum Corporation~~, seeks approval of an unorthodox gas well location for ~~its~~ his Rio Well No. 2 to be located 660 feet from the North line and 660 feet from the ~~West~~ line of Section 29, Township 18 South, Range 25 East, NMPM, to test the Morrow formation, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(3) That the N/2 of said Section 29 is to be dedicated to the well.

(4) That said Rio Well No 2 would be the second well drilled on the N½ of said Section 29, applicant's Rio Well No. 1, located in Unit G of Section 29, having been completed for a Morrow formation gas production on August 23, 1977.

(5) That said Rio Well No. 1 encountered the Morrow productive interval

(5) That the Morrow interval encountered in said Rio Well No. 1 is less productive than said interval in offset wells.

(6) That the applicant seeks to drill a second well on the proration unit [redacted] (Rio Wall No. 2) to permit better drainage of said unit and to protect ~~its~~ his correlative rights

(7)(8) That a well at said unorthodox location will enable applicant to produce the gas underlying the proration unit.

(8) (7) That the offset operators have objected to the proposed location.

(9) (6) That a well at the proposed location is at a standard location relative to the North and South lines of said Section 29.

(10) (9) That a well at the proposed location is 67 percent closer to the West line of said Section 29 than permitted by Division Rules and Regulations.

(11) (10) That a well at the proposed location will have an area of drainage in the Morrow formation which extends 67.2 net acres outside Section 29, an amount of acreage equivalent to 21 percent of a standard proration unit in said pool.

(12) That if both said Rio Well No 1 and Rio Well No. 2 are permitted to produce, it will result in the proration unit having an additional 192.8 drainage acres' advantage ~~advantage~~ over offsetting proration units, an amount of acres equivalent to 60 percent of a standard proration unit

(13) That to offset the advantage gained over the protesting offset operators resulting from the drilling of ~~the proposed~~ a well at the proposed unorthodox location, and the production of two wells on the proration unit, production from the N/2 of said Section 29 should be limited ~~from~~ the Morrow formation.

~~(14)~~ (12) That such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in Finding No. (10) above, if only the Rio Well No. 2 is produced, and the 192.8 additional net drainage acres described in Finding No (12) above, and may best be accomplished by assigning the proration unit (N/2 of said Section 29) an allowable limitation factor of 0.71 or 0.63 respectively (100 percent North/South factor plus 33 percent East/West factor plus 29 percent net-acre factor divided by 3 in the first case and plus 40 percent net additional drainage acres divided by 4 in the second case).

(14) That in the case ~~that~~ Where only said Rio Well No. 2 is produced, such limitation should be based upon the variation of the location from a standard location and the 67.2 net-acre encroachment described in finding No. (10) above, and may best be accomplished by assigning the proration unit an allowable limitation factor of 0.71 (100 percent North/South factor plus 33 percent ~~East~~/West factor plus 79 percent net-acre factor, divided by 3)

(15) That in the case where both said Rio Well No. 1 and Rio Well No. 2 are ~~to be~~ produced, such limitation should be based upon all the factors set out in Finding No. (14) above plus ~~the 192.8 additional net-acre encroachment~~

The 192.8 net additional drainage acres described in Finding No (12) above, and may best be accomplished by assigning the proration unit an allowable limitation factor of 0.63 (100 percent North/South factor plus 33 percent East/West factor plus 79 percent net-acre factor plus 40 percent net additional drainage factor, divided by 4).

16 ~~(11)~~ That in the absence of any special rules and regulations for the prorationing of production from said ~~U~~ndesignated Morrow Gas Pool, the aforesaid production limitation factor or well's should be applied against said well's ability to produce into the pipeline as determined by periodic well tests.

(17) ~~(12)~~ That the minimum calculated allowable for the subject proration unit ~~well~~ should be reasonable, and 1,000,000 cubic feet of gas per day is a reasonable figure for such minimum allowable.

(18) ~~(13)~~ That approval of the subject application subject to the above provisions and limitations will afford the applicant the opportunity to produce its just and equitable share of the gas in the subject pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells, and will otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That an unorthodox gas well location for the Morrow formation is hereby approved for the Morris Rio Antwell Rio Well No. 2 to be located at a point 660 feet from the North line and 660 feet from the West line of Section 29, Township 18 South, Range 26 East, NMPM, Undesignated Morrow Gas Pool, Eddy County, New Mexico.

(2) That a 320-acre proration unit consisting of the simultaneously ~~the~~ N/2 of said Section ~~5~~ shall be dedicated to the above-described well and the Rio Well No. 1 located in Unit G of said Section 29.

(3) That said proration unit is hereby assigned a Production Limitation Factor ~~of~~ in the Morrow Formation of 0.71 if only said Rio Well No 2 is produced, and ~~or~~ 0.63 if both said Rio Well No. 2 and applicant's Rio Well No 1 located in unit G of said Section 29 are produced.

Under/

(4) That in the absence of any Special Rules and Regulations prorating gas production in said undesignated Morrow Gas Pool, the Special rules hereinafter promulgated shall apply.

(5) That the following Special Rules and Regulations for a non-prorated gas well at an unorthodox location shall apply to the subject well~~s~~ or wells:

SPECIAL RULES AND REGULATIONS
FOR THE
APPLICATION OF A "PRODUCTION LIMITATION FACTOR"
TO A NON-PRORATED GAS WELL OR WELLS

APPLICATION OF RULES

Rule 1.(A) These rules shall apply to the proration unit consisting of the N/2 of Section 29, Township 18 South, Range 25 East, Eddy County, New Mexico, upon completion and connection as a Morrow formation producing well of the Morris R. Antweil Rio Well No. 2 located 660 feet from the North line and 660 feet from the West line of said Section 29, ~~which Production Limitation Factor of 0.71 or 0.63 shall be applied~~

Production Limitation Factor of 0.63 shall be applied to Proration Unit

Rule 1.(B) A Production Limitation Factor of 0.71 ~~or 0.63 respectively~~ shall be applied to the proration unit's deliverability (as determined by the hereinafter set forth procedure) to determine its maximum allowable rate of production if only said Rio Well No. 2 is to be produced, ~~or~~ if both the Rio Well No. 2 and the Rio Well No 1 located in unit G of ~~Said~~ said Section 29 are to be produced.

Rule 1(C) Any ~~reference to~~ deliverability determined by any of the hereinafter described procedures shall be the total deliverability of any Morrow Producing wells on such proration unit as determined by adding such deliverabilities.

ALLOWABLE PERIOD

RULE 2. The allowable period for the subject ~~well~~ unit shall be six months.

RULE 3. The year shall be divided into two allowable periods commencing at 7:00 o'clock a.m. on January 1 and July 1.

DETERMINATION OF DELIVERY CAPACITY

RULE 4. Immediately upon connection of the ~~well~~ Rio Well No 2 the operator shall determine the open flow capacity of Producing well in the proration unit in accordance with the Division "Manual for Back-Pressure Testing of Natural Gas Wells" then current, and the well's initial deliverability shall be calculated against average pipeline pressure.

RULE 5. The well's "subsequent deliverability" shall be determined twice a year, and shall be equal to its highest single day's production during the months of April and May or October and November, whichever is applicable. Said subsequent deliverability, certified by the pipeline, shall be submitted to the appropriate District Office of the Division not later than June 15 and December 15 of each year.

RULE 6. The Division Director may authorize special deliverability tests to be conducted upon a showing that the well ~~has~~ been worked over or that the subsequent deliverability determined under Rule 5 above is erroneous. Any such special test shall be conducted in accordance with Rule 4 above.

RULE 7. The operator shall notify the appropriate district office of the Division and all offset operators of the date and time of initial or special deliverability tests in order that the Division or any such operator may at their option witness such tests.

CALCULATION AND ASSIGNMENT OF ALLOWABLES

RULE 8. The ~~well's~~ unit's allowable as determined by these rules shall commence upon the date of connection to a pipeline of said Rio Well No 2 and when the operator has complied with all appropriate filing requirements of the Rules and Regulations and any special rules and regulations.

RULE 9. The ~~well's~~ unit's allowable during its first allowable period shall be determined by multiplying its initial deliverability by its production limitation factor.

RULE 10. The ~~well's~~ unit's allowable during all ensuing allowable periods shall be determined by multiplying its latest subsequent deliverability, as determined under provisions of Rule 5, by its production limitation factor. If the ~~well~~ unit shall not have been producing for at least 60 days prior to the end of its first allowable period, the allowable for the second allowable period shall be determined in accordance with Rule 9. under these rules

RULE 11. Revision of allowable based upon special well tests shall become effective upon the date of such test provided the results of such test are filed with the Division's district office within 30 days after the date of the test; otherwise the date shall be the date the test report is received in said office.

RULE 12. Revised allowables based on special well tests shall remain effective until the beginning of the next allowable period.

RULE 13. In no event shall the ~~well~~ unit receive an allowable of less than one million cubic feet of gas per day.

BALANCING OF PRODUCTION

RULE 14. January 1 and July 1 of each year shall be known as the balancing dates.

RULE 15. If the ~~well~~ unit has an underproduced status at the end of a six-month allowable period, it shall be allowed to carry such underproduction forward into the next period and may produce such underproduction in addition to its regularly assigned allowable. Any underproduction carried forward into any allowable period which remains unproduced at the end of the period shall be cancelled.

RULE 16. Production during any one month of an allowable period in excess of the monthly allowable assigned to the ~~well~~ unit shall be applied against the underproduction carried into the period in determining the amount of allowable, if any, to be cancelled.

RULE 17. If the ~~well~~ unit has an overproduced status at the end of a six-month allowable period, it shall be shut in until such overproduction is made up.

RULE 18. If, during any month, it is discovered that the ~~well~~ unit is overproduced in an amount exceeding three times its average monthly allowable, it shall be shut in during that month and during each succeeding month until it is overproduced in an amount three times or less its monthly allowable, as determined hereinabove.

RULE 19. The Director of the Division shall have authority to permit the unit, if it is subject to shut-in pursuant to Rules 17 and 18 above, to produce up to 500 MCF of gas per month upon proper showing to the Director that complete shut-in would cause undue hardship, provided however, such permission shall be rescinded for the unit if it has produced in excess of the monthly rate authorized by the Director.

RULE 20. The Division may allow overproduction to be made up at a lesser rate than permitted under Rules 17, 18, or 19 above upon a showing at public hearing that the same is necessary to avoid material damage to the well or wells.

GENERAL

RULE 21. Failure to comply with the provisions of this order or the rules contained herein or the Rules and Regulations of the Division shall result in the cancellation of allowable assigned to the ~~well~~ unit. No further allowable shall be assigned to the ~~well~~ unit until all rules and regulations are complied with. The Division shall notify the operator of the ~~well~~ unit and the purchaser, in writing, of the date of allowable cancellation and the reason therefor.

(6) That jurisdiction of this cause is 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

JOE D. RAMEY
Director

S E A L

fd/

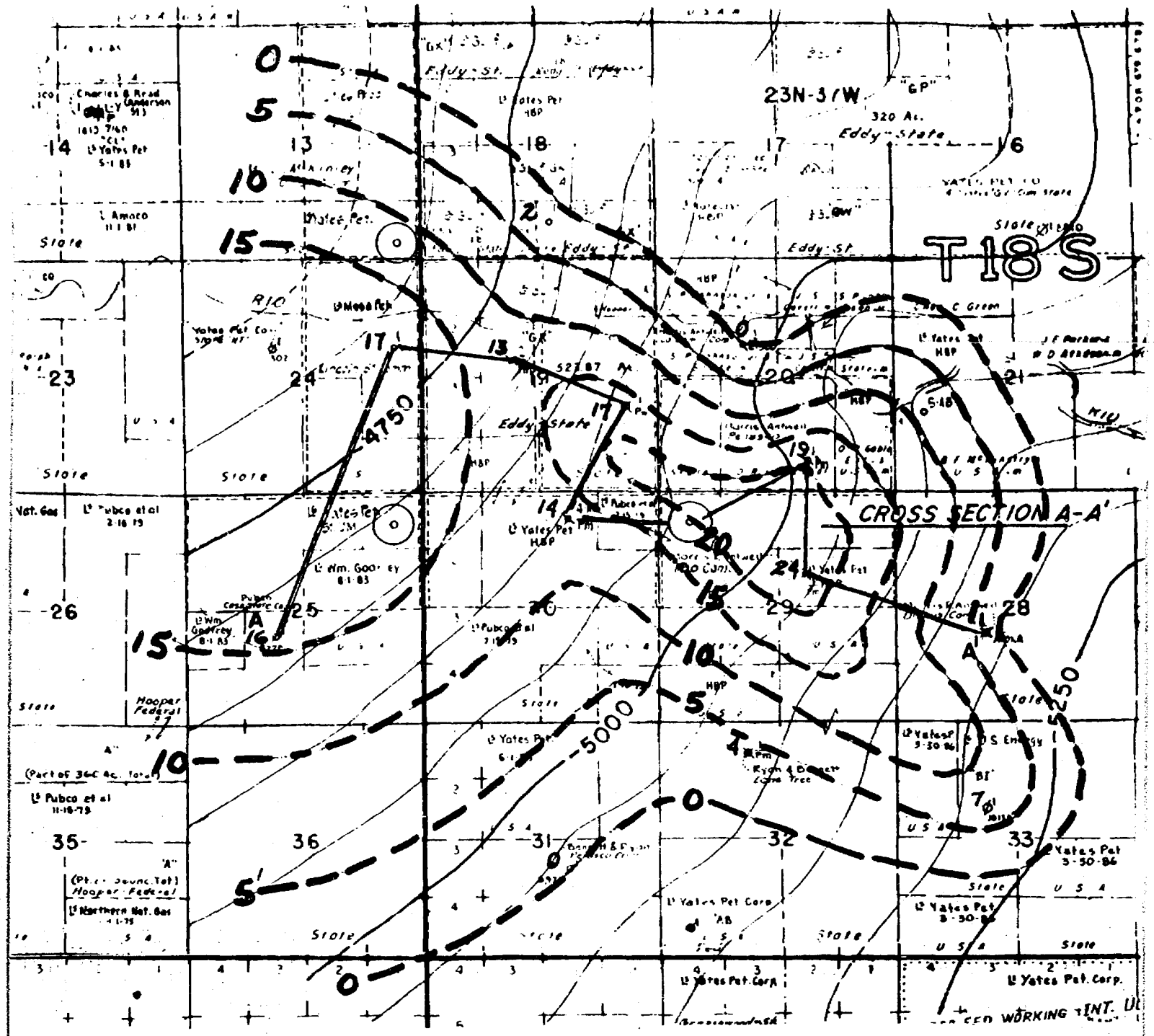


EXHIBIT NO. 1
CASE 6213
DATE 5-17-78

UNDESIGNATED MORROW
EDDY CO., NEW MEXICO

ISOPACH OF MORROW SAND ≥ 5% POROSITY
CONTOUR INTERVAL 5'

⊙ PROPOSED LOCATION
STRUCTURE-TOP MORROW MARKER
CONTOUR INTERVAL 50'
SCALE: 1"=3000'

GULF OIL CORPORATION

SOUTHWEST DISTRICT
MIDLAND, TEXAS

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 1
CASE NO. 6213
Submitted by GULF
Hearing Date 5-17-78

EXHIBIT 5
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

PRODUCTION DATA
UNDESIGNATED MORROW POOL
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWEIL, MORRIS R. Penasco 1 O 20 18S 25E		ANTWEIL, MORRIS R. Rio Com. 1 G 29 18S 25E		BENNETT & RYAN Lonetree 1 C 32 18S 25E		GULF OIL CORPORATION GK State Com. 1 I 19 18S 25 E		GULF OIL CORPORATION GK State Com. 2 19 18S 25E	
	GAS	COND	GAS	COND	GAS	COND	CAS	COND	GAS	COND
1977										
September	69,733	224	27,226	131	---	---	---	---	---	---
October	183,897	557	47,260	93	---	---	---	---	---	---
November	159,355	464	33,089	52	13,419	---	---	---	---	---
December	151,703	428	29,460	45	11,055	---	---	---	---	---
1978										
January	150,037	428	25,653	37	6,225	---	29,835	105	---	---
February	126,387	346	19,708	31	4,397	---	62,867	170	---	---
March	141,973	350	21,467	31	2,882	---	47,087	99	---	---
TOTALS	983,085	2,797	203,863	420	37,978		139,789	374		

RADIUS OF DRAINAGE

Pseudosteady-State Flow of Circular Gas System
SPE Monograph Volume V

$$r_d = 0.029 \left[\frac{kt}{\phi \mu c_t} \right]^{.5}$$

$$t = \frac{r_d^2 \quad (\phi \mu c_t)}{8.41 \times 10^{-4} \quad k}$$

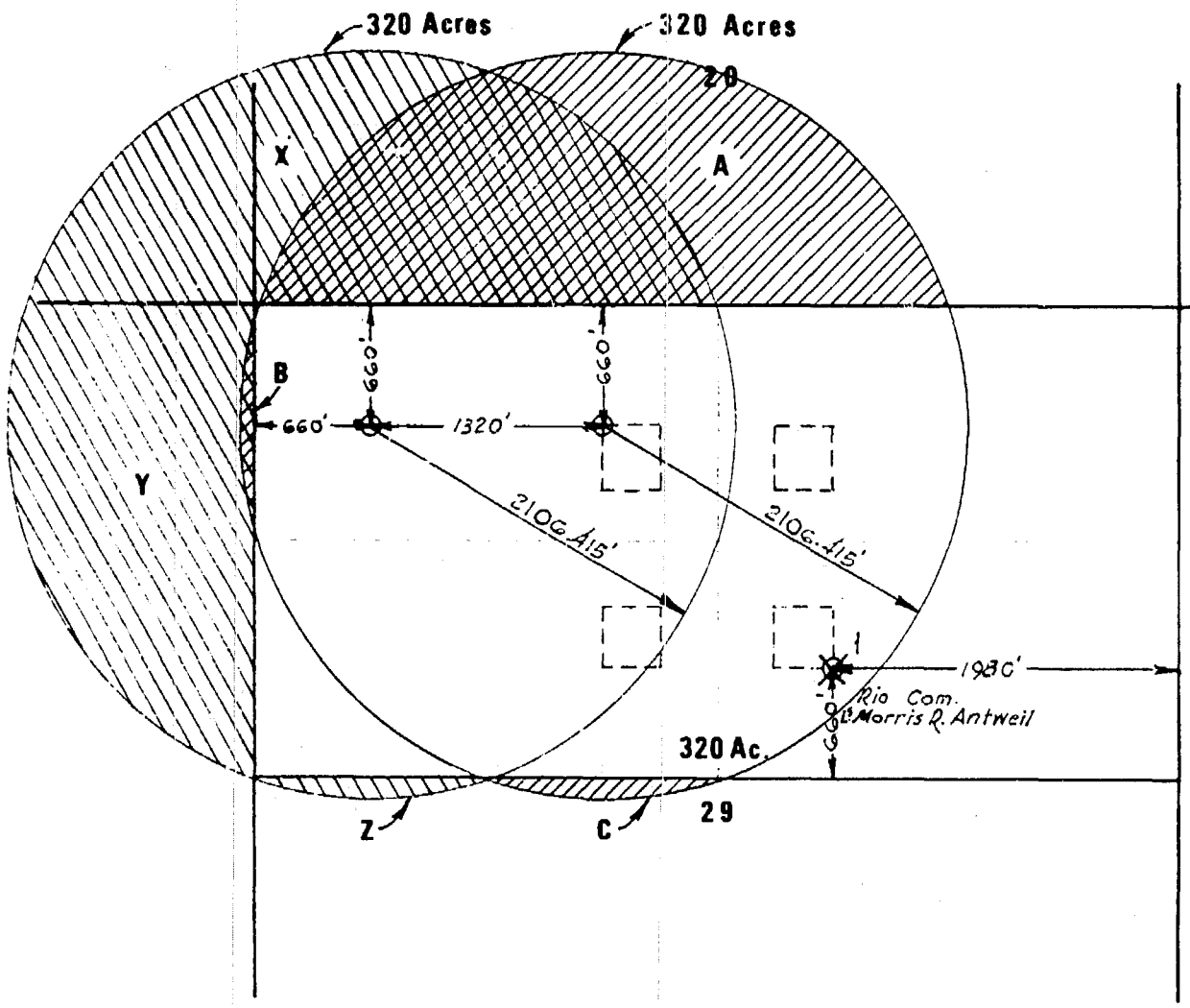
t = Time in hours
r = Radius of drainage
ϕ = Porosity
μ = Viscosity
C = Compressibility
k = Permeability

$$t = \frac{r^2 \quad (.10)(.019975)(.2204 \times 10^{-3})}{(8.41 \times 10^{-4}) \quad (1)}$$

RADIUS (FEET)	TIME (HOURS)	TIME (DAYS)
660	228	9.5
1320	912	38.0
1980	2052	85.5
2106	2322	96.8

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 4
CASE NO. 6213
Submitted by GULF
Hearing Date 5-17-78

EXHIBIT 4
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit # 5
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 6
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE I

Conditions: a) Shut In Well No. 1 Rio Com.
b) Drill Well No. 2 Rio Com at Unorthodox Location as a Replacement Well.

1) Drainage Encroachment Outside of 320 Acre Unit By Well at Orthodox Location

A.	97.22 Acres
B.	2.79 Acres
C.	2.80 Acres
	102.81 Acres

2) Drainage Encroachment Outside of 320 Acre Unit By Well at Unorthodox Location

X.	97.22 Acres
Y.	70.00 Acres
Z.	2.79 Acres
	170.01 Acres

3) Extra Drainage Encroachment of Well at Unorthodox Location

Unorthodox Well	170.01 Acres
Orthodox Well	-102.81 Acres
	67.20 Acres

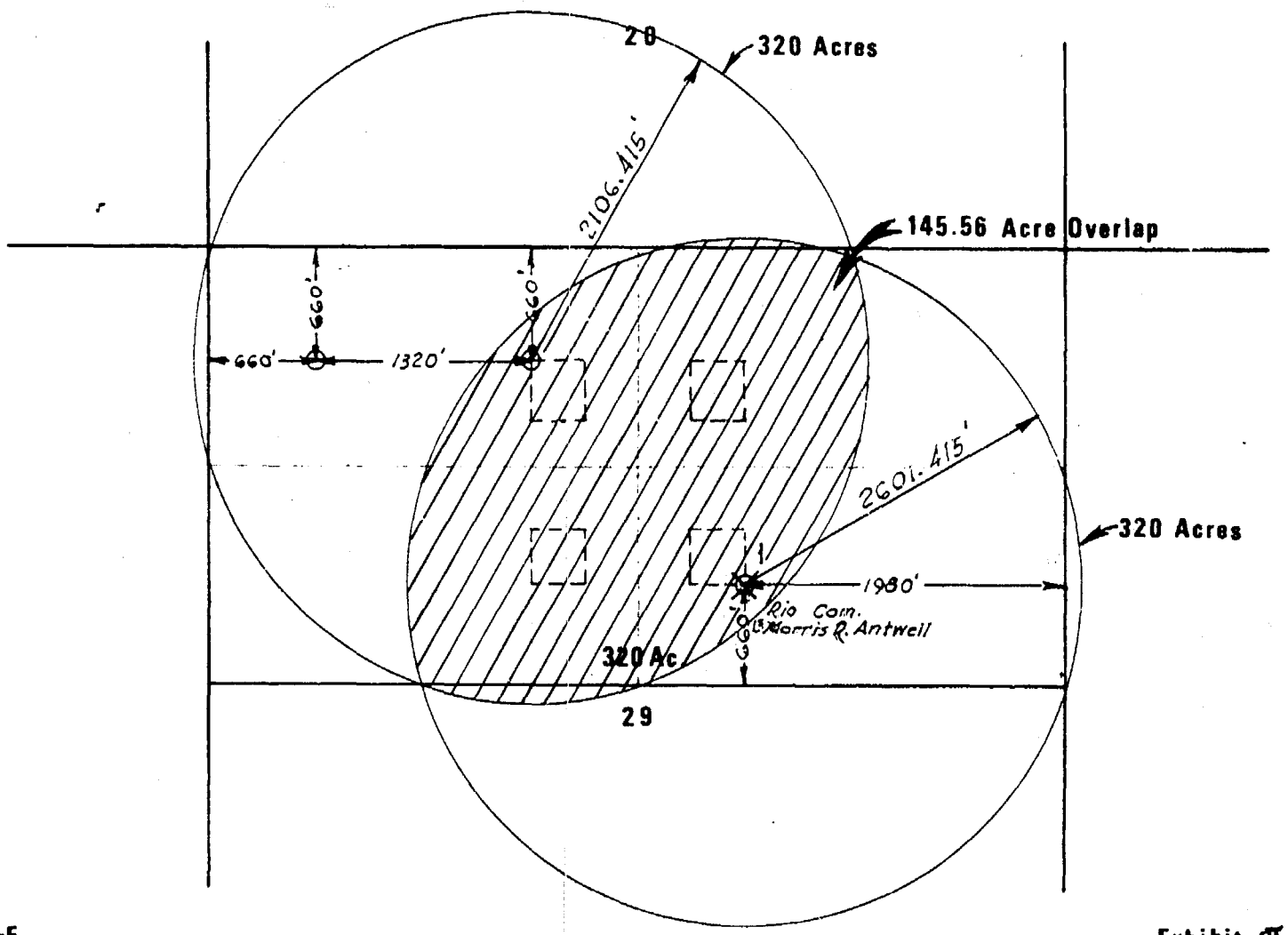
4) Rateable Take Factor

$$RTF = \frac{\text{(Standard Unit Acres) - (Extra Drainage Encroachment Acres)}}{\text{Standard Unit Acres}}$$

$$= \frac{320.00 - 67.20}{320.00}$$

$$= \frac{252.80}{320}$$

$$= .79$$



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit # 7
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 8
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE II

Conditions: a) Leave Well No. 1 Rio Com On Production
b) Drill Well No. 2 Rio Com at Orthodox Location

1) Drainage Area

a) Well No. 1	320.00 Acres	
b) Well No. 2	320.00 Acres	
	-145.56 Acres	Drainage Overlap
	174.44 Acres	

2) Combined Drainage Area

Well No. 1	320.00 Acres
Well No. 2	174.44 Acres
	494.44 Acres

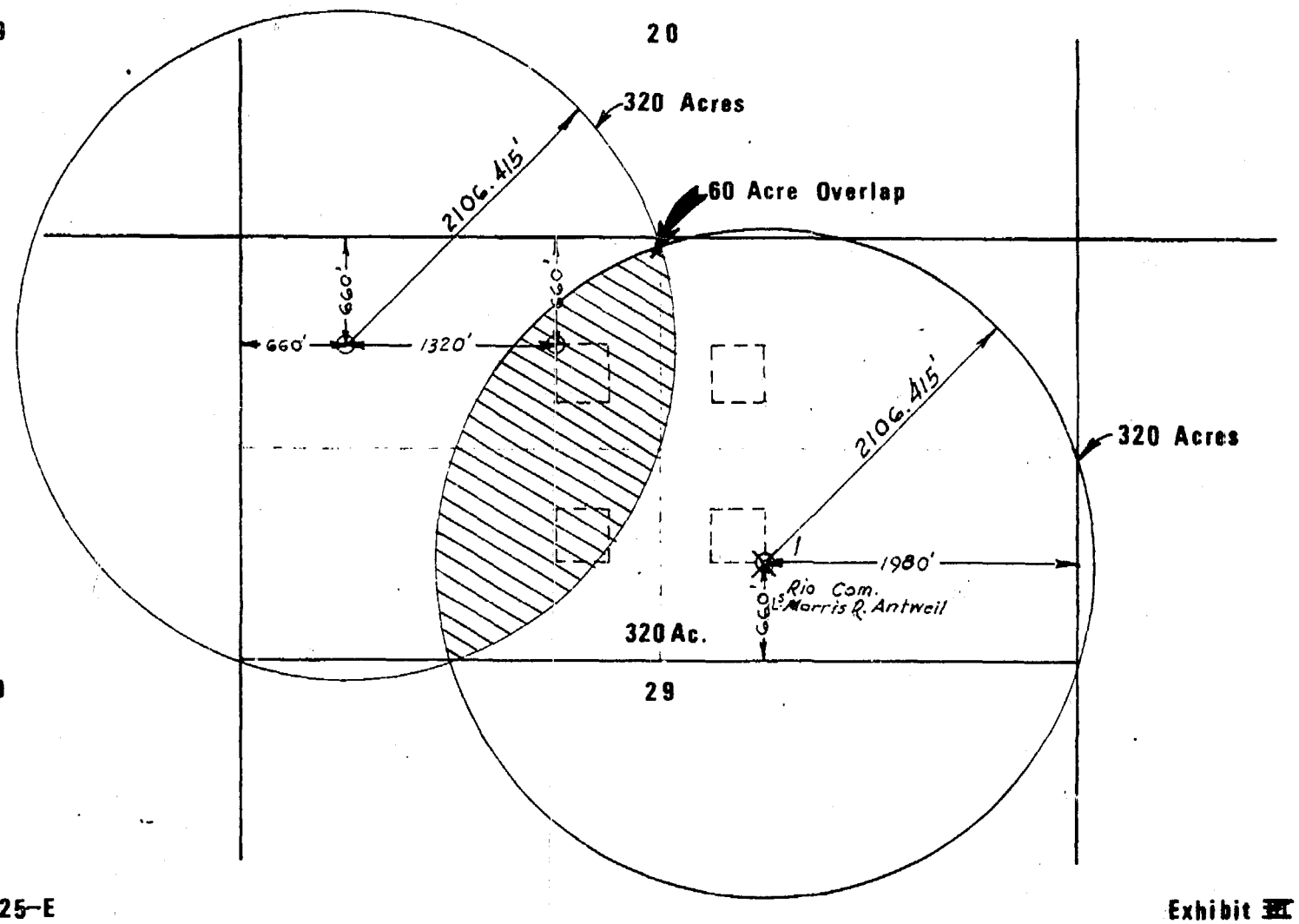
3) Rateable Take Factor for Unit

Standard Unit Acres = (Combined Drainage Area Acres) X (RTF)

$$RTF = \frac{\text{Standard Unit Acres}}{\text{Combined Drainage Area Acres}}$$

$$= \frac{320.00}{494.44}$$

$$= .65$$



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit 9
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 10
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE III

Conditions: a) Leave Well No. 1 Rio Com. on Production
b) Drill Well No. 2 Rio Com at Unorthodox Location

1) Drainage Area

a)	Well No. 1	320.00 Acres	
b)	Well No. 2	320.00 Acres	
		-60.00 Acres	Drainage Overlap
		260.00 Acres	

2) Combined Drainage Area

Well No. 1	320.00 Acres
Well No. 2	260.00 Acres
	580.00 Acres

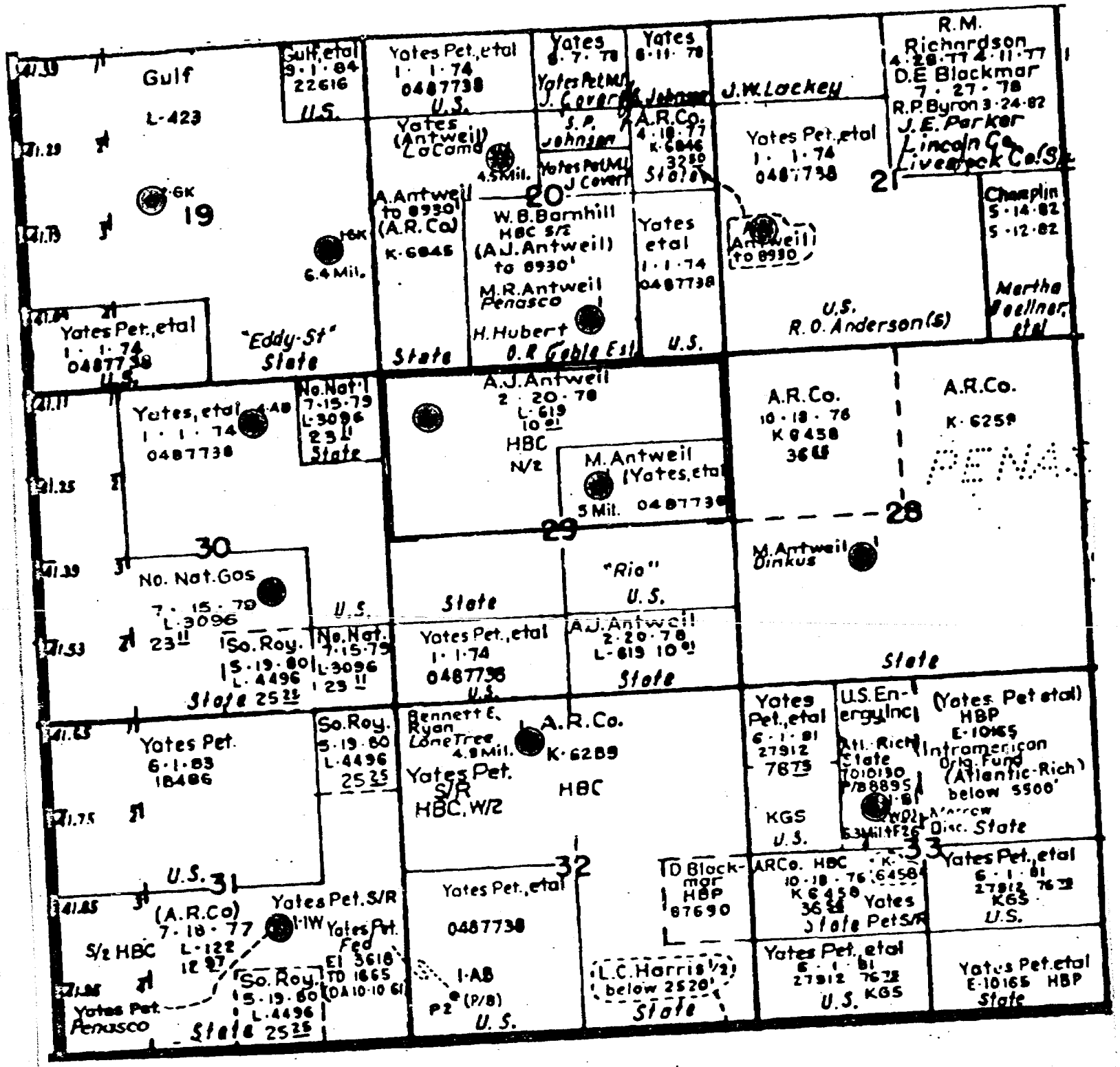
3) Rateable Take Factor for Unit

Standard Unit Acres = (Combined Drainage Area Acres) X (RTF)

$$RTF = \frac{\text{Standard Unit Acres}}{\text{Combined Drainage Area Acres}}$$

$$= \frac{320.00}{580.00}$$

$$= .55$$



MORRIS R. ANTWEIL
CASE NO. 6213

OIL CONSERVATION DIVISION

Case No. 6213 Exhibit 1

Submitted by: Applicant

Hearing Date 24 Jan 79

Proposed Location - 660 FNL & 660 FWL Sec.29

Location

Morrow Gas Completion

Dry or Non-commercial Morrow Test

Gas Spacing & Proration Unit

See nomenclature
Case No. 6421
Pool created - Penasco Draw-Morrow

TABULATION OF OFFSET OPERATORS

Section 19	-	Gulf Energy & Minerals Company P. O. Box 670 Hobbs, New Mexico 88240
Section 30	-	Mesa Petroleum Co. 1000 Vaughn Building Midland, Texas 79701
Sections 20, 21, 29 & 30		Yates Petroleum Corp. 207 South 4th Artesia, New Mexico 88210

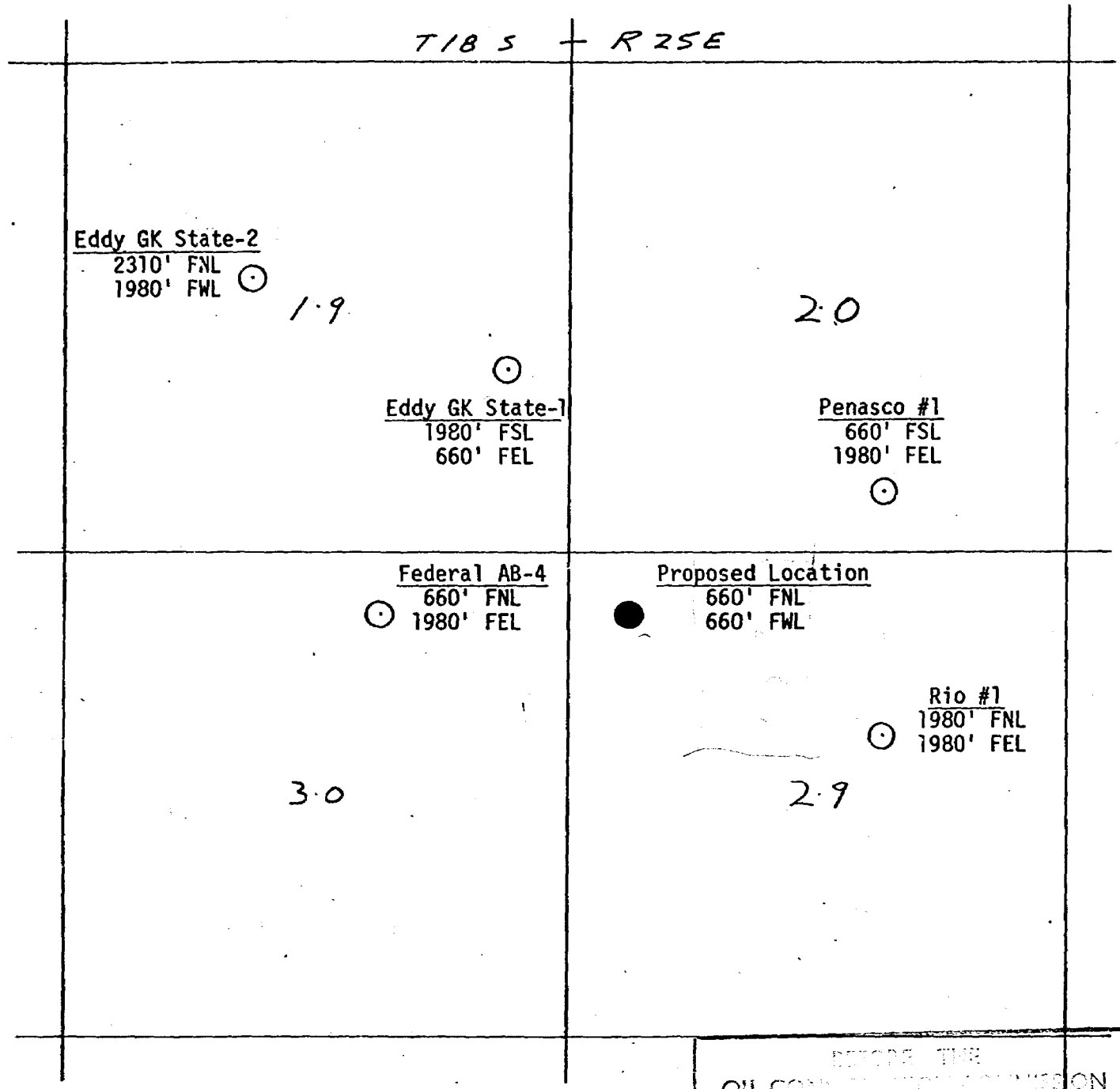
Note: The acreage in Sections 20, 28 & 29 shown to be leased to Atlantic Richfield, Huber, and Hanlad is operated by Morris R. Antweil.

MORRIS R. ANTWEIL
CASE NO. 6213
Exhibit No. 2

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6213 Exhibit No. 2
Submitted by MRA
Hearing Date

MORRIS R. ANTWEIL

CASE NO. 6213

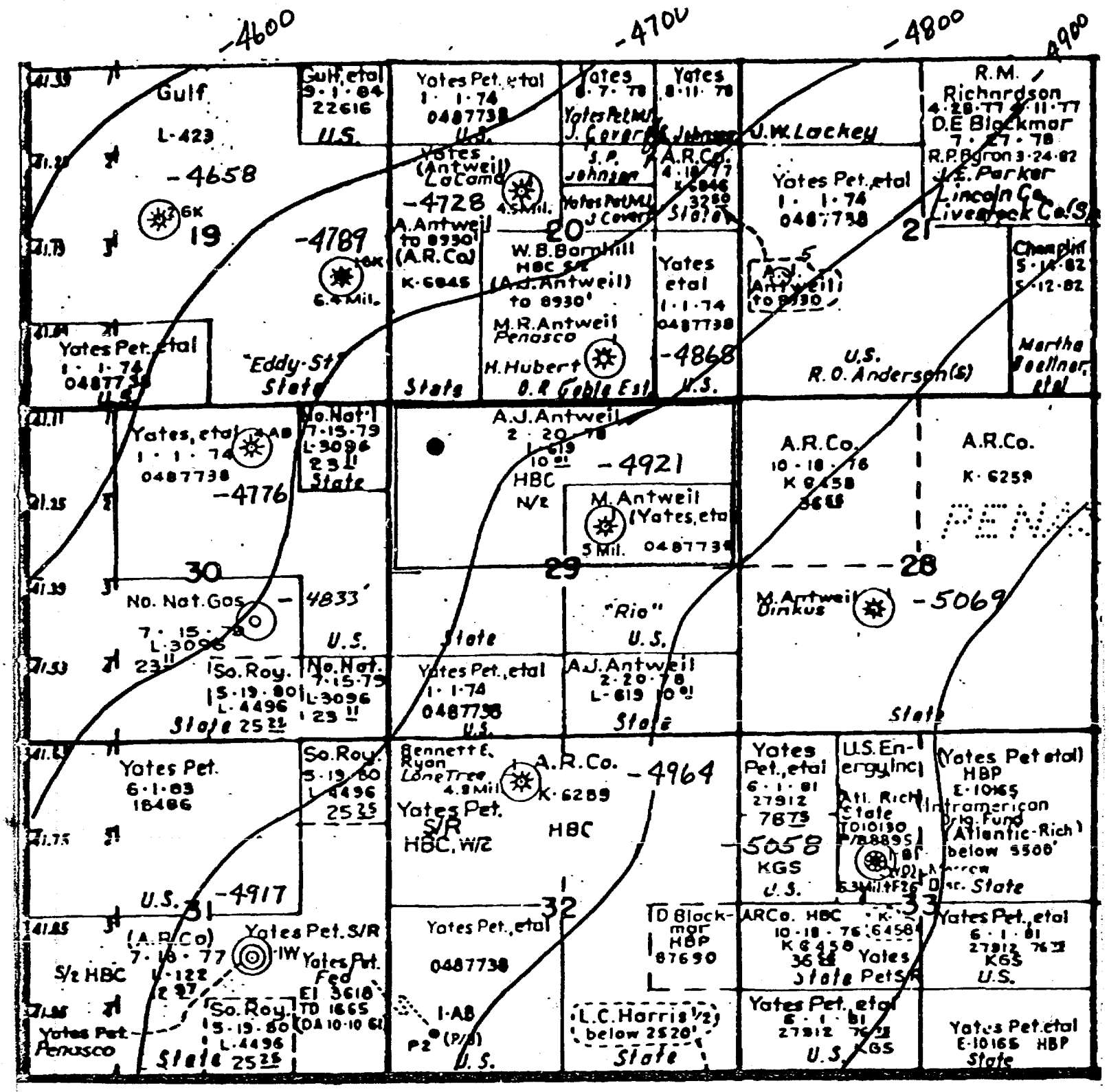


Distance from Proposed Location to:

Morris R. Antweil No. 1 Rio	-	2952'
Morris R. Antweil No. 1 Penasco	-	2952'
Yates Petroleum No. 4 Federal AB	-	2640'
Gulf Oil No. 1 Eddy GK State	-	2952'

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6213 Exhibit No. 3
Submitted by Applicant
Hearing Date 24 Jan 79

Exhibit No. 3



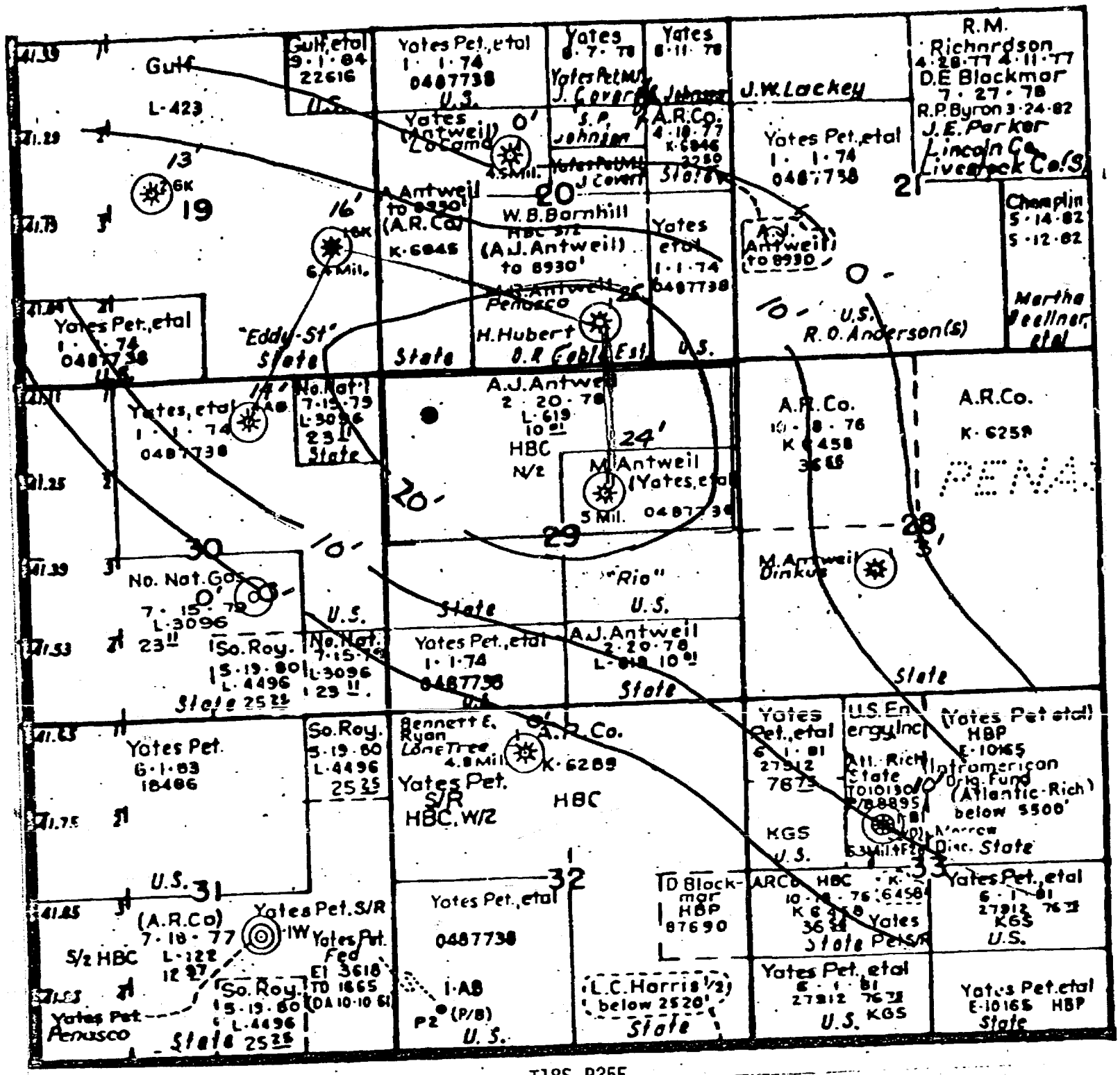
T18S-R25E

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
Case No. 6213 Exhibit No. 4
Submitted by Atl
Hearing Date

MORRIS R. ANTWEIL
CASE NO. 6213

STRUCTURE MAP
100-foot Contours - Morrow Marker

Exhibit No. 4



I18S-R25E

OIL CONSERVATION DIVISION
Case No. 6213 Exhibit No. 5
Submitted by: Applicant
Hearing Date: 24 Jan 79

MORRIS R. ANTWEIL
CASE NO. 6213

NET PAY ISOPAC MAP
MORROW PAY

Exhibit No. 5

COMPARATIVE PRODUCTION PERFORMANCE

ANTWEIL NO. 1 PENASCO AND NO. 1 RIO

PRODUCTION

	PENASCO		RIO	
	MCF	FTP	MCF	FTP
September '77	69,733	2000 psi	27,226	1500 psi
October '77	183,897	2000	47,260	1200
November '77	159,355	2050	33,089	1100
December '77	151,703	2100	29,460	1000
January '78	150,037	2050	25,653	900
February '78	126,387	2025	19,708	850
March '78	141,973	2000	21,467	800
April '78	134,493	1975	18,483	700
May '78	130,446	1925	14,511	650 *
June '78	129,501	1900	13,117	700 *
July '78	131,463	1850	14,614	700 *
August '78	137,173	1800	12,076	675 *
September '78	124,696	1750	11,203	650 *
October '78	132,613	1750	20,643	250 **
November '78	131,019	1700	18,623	150 **
December '78	133,816	1600	16,047	150 **
	2,168,305		343,180	

Set compressor in Oct 78

* well riding line
** compressor

PENASCO

Original BHP - 3356 psi (DST)
CAOF - 27,143 MCFPD
BHP - 14 May 1977 - 3408 psi SITP - 2751 psi
First Delivery - 15 September 1977
SITP - 23 January 1979 - 1850 psi

RIO

Original BHP - 3316-3252 psi (DST)
Original STIP - 2447 psi (4-pt test)
CAOF - 6516 MCFPD
BHP - 9 August 1977 - 2975 psi SITP - 2377 psi
First Delivery - 16 September 1977
BHP - 17 October 1977 - 2119 psi SITP - 1681 psi
SITP - 23 January 1979 - 625 psi

MORRIS R. ANTWEIL
CASE NO. 6213

Exhibit No. 7

ESTIMATED RADIUS OF DRAINAGE

ANTWEIL NO. 1 RIO

G-29-18S-25E

Conditions:

$\emptyset$ = porosity = 13%
t = thickness = 24'
Sw = water saturation = 25%
P = initial BHP = 2975 psi
Bg = gas volume factor = 220 SCF/ft^3
R = recovery factor = 80%

Estimated Recovery per Acre:

$$Q = 43560 \times t \times \emptyset \times (1-Sw) \times Bg \times R$$

$$Q = 43560 \times 24 \times 0.13 \times 0.75 \times 220 \times 0.80$$

$$Q = 17940 \text{ MCF/acre}$$

Consider and Ultimate Recovery of 400,000 MCF;

Apparent Drainage Area:

$$A = 400{,}000/17940 = 22.3 \text{ acres}$$

Apparent Drainage Radius:

$$r = \sqrt{A/\pi} = \sqrt{\frac{22.3 \times 43560}{3.1416}} = \sqrt{309202}$$

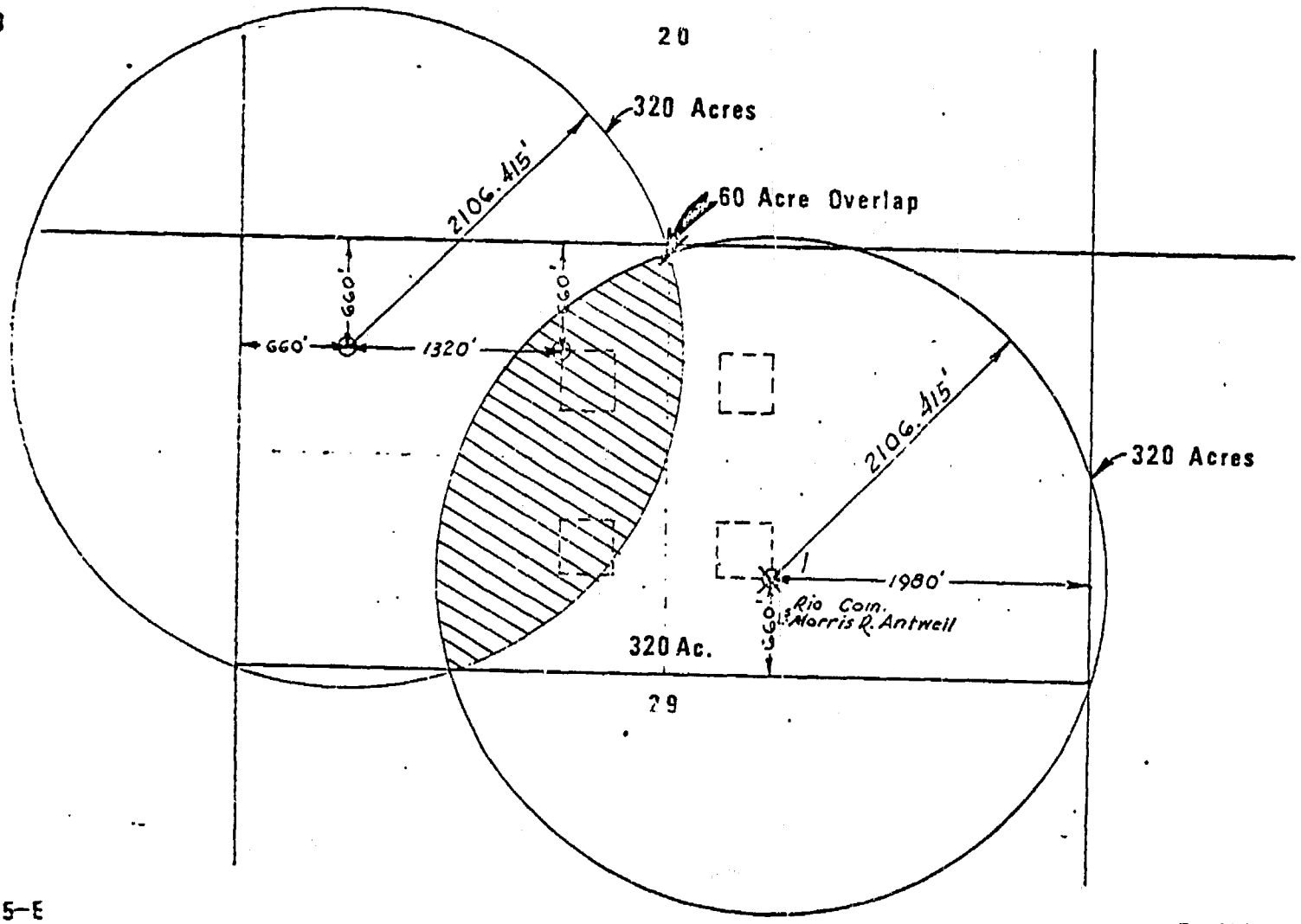
$$r = 556 \text{ ft.}$$

MORRIS R. ANTWEIL
CASE NO. 6213
EXHIBIT NO. 8

19

20

21



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29

28

T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

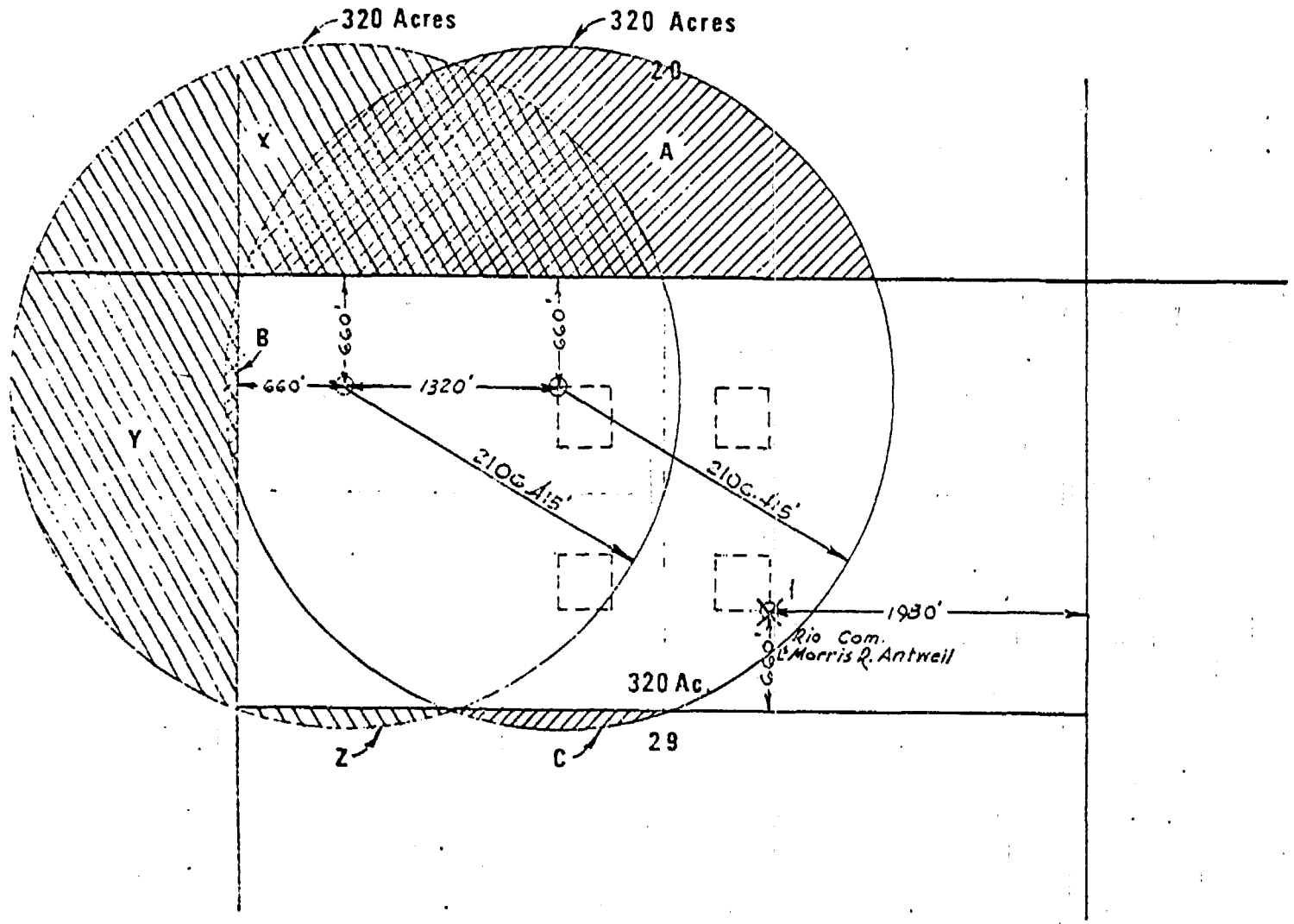
Exhibit # 9
Case 6213
Date 5-17-78
Gulf Oil Corporation

#9

6213
9
APP-Antwell
1-24-79

19

21



30

28

T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit # 5
Case 6213
Date 5-17-78
Gulf Oil Corporation

6213 10
Gulf-Antwell
1-24-79

#10

EXHIBIT 6
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE I

Conditions: a) Shut In Well No. 1 Rio Com.
b) Drill Well No. 2 Rio Com at Unorthodox Location as a Replacement Well.

#11

1) Drainage Encroachment Outside of 320 Acre Unit By Well at Orthodox Location

A.	97.22 Acres
B.	2.79 Acres
C.	2.80 Acres
	102.81 Acres

2) Drainage Encroachment Outside of 320 Acre Unit By Well at Unorthodox Location

X.	97.22 Acres
Y.	70.00 Acres
Z.	2.79 Acres
	170.01 Acres

3) Extra Drainage Encroachment of Well at Unorthodox Location

Unorthodox Well	170.01 Acres
Orthodox Well	-102.81 Acres
	67.20 Acres

4) Rateable Take Factor.

$$RTF = \frac{\text{(Standard Unit Acres) - (Extra Drainage Encroachment Acres)}}{\text{Standard Unit Acres}}$$

$$= \frac{320.00 - 67.20}{320.00}$$

$$= \frac{252.80}{320}$$

$$= .79$$

6213
#11 - Antweil
1-24-79

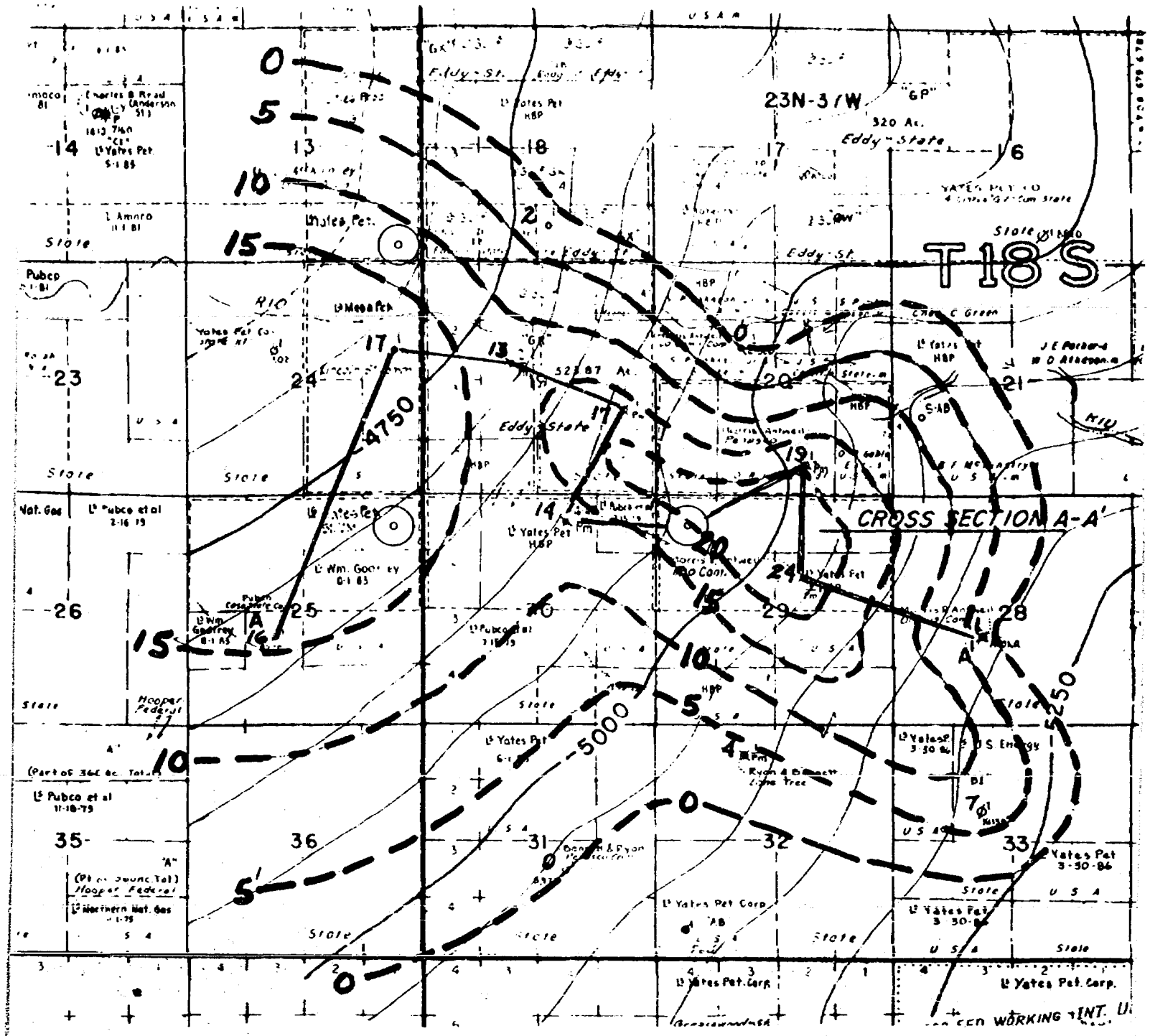


EXHIBIT NO. 1
CASE 6213
DATE 5-17-78

UNDESIGNATED MORROW
EDDY CO., NEW MEXICO

ISOPACH OF MORROW SAND ≥ 5% POROSITY
CONTOUR INTERVAL 5'

PROPOSED LOCATION
STRUCTURE-TOP MORROW MARKER
CONTOUR INTERVAL 50'
SCALE: 1"=3000'

GULF OIL CORPORATION

SOUTHWEST DISTRICT
MIDLAND, TEXAS

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 1
CASE NO. 6213
Submitted by GULF
Hearing Date 5-17-78

EXHIBIT 3
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

PRODUCTION DATA
UNDESIGNATED MORROW POOL
T-18-S, R-25-E
EDDY COUNTY, NEW MEXICO

	ANTWELL, MORRIS R.				BENNETT & RYAN		GULF OIL CORPORATION			
	Penasco		Rio Com.		Lonetree		GK State Com.			
	1 O 20 18S 25E		1 G 29 18S 25E		1 C 32 18S 25E		1 I 19 18S 25 E		2 19 18S 25E	
	GAS	COND	GAS	COND	GAS	COND	GAS	COND	GAS	COND
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BEFORE EXAMINER STAMETS
OIL CONSERVATION DIVISION
GULF'S EXHIBIT NO. 3
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Submitted by GULF
Hearing Date 5-17-78

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Pseudosteady-State Flow of Circular Gas System
SPE Monograph Volume V

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$$t = \frac{r_d^2 \quad (\phi \ \mu \ C_t)}{8.41 \times 10^{-4} \ k}$$

t = Time in hours
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k = Permeability

$$t = \frac{r^2 \quad (.10)(.019975)(.2204 \times 10^{-3})}{(8.41 \times 10^{-4}) \quad (1)}$$

RADIUS (FEET)	TIME (HOURS)	TIME (DAYS)
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2106	2322	96.8

BEFORE EXAMINER STAMETS
OIL CONSERVATION COMMISSION
GULF EXHIBIT NO. 4
CASE NO. 6213
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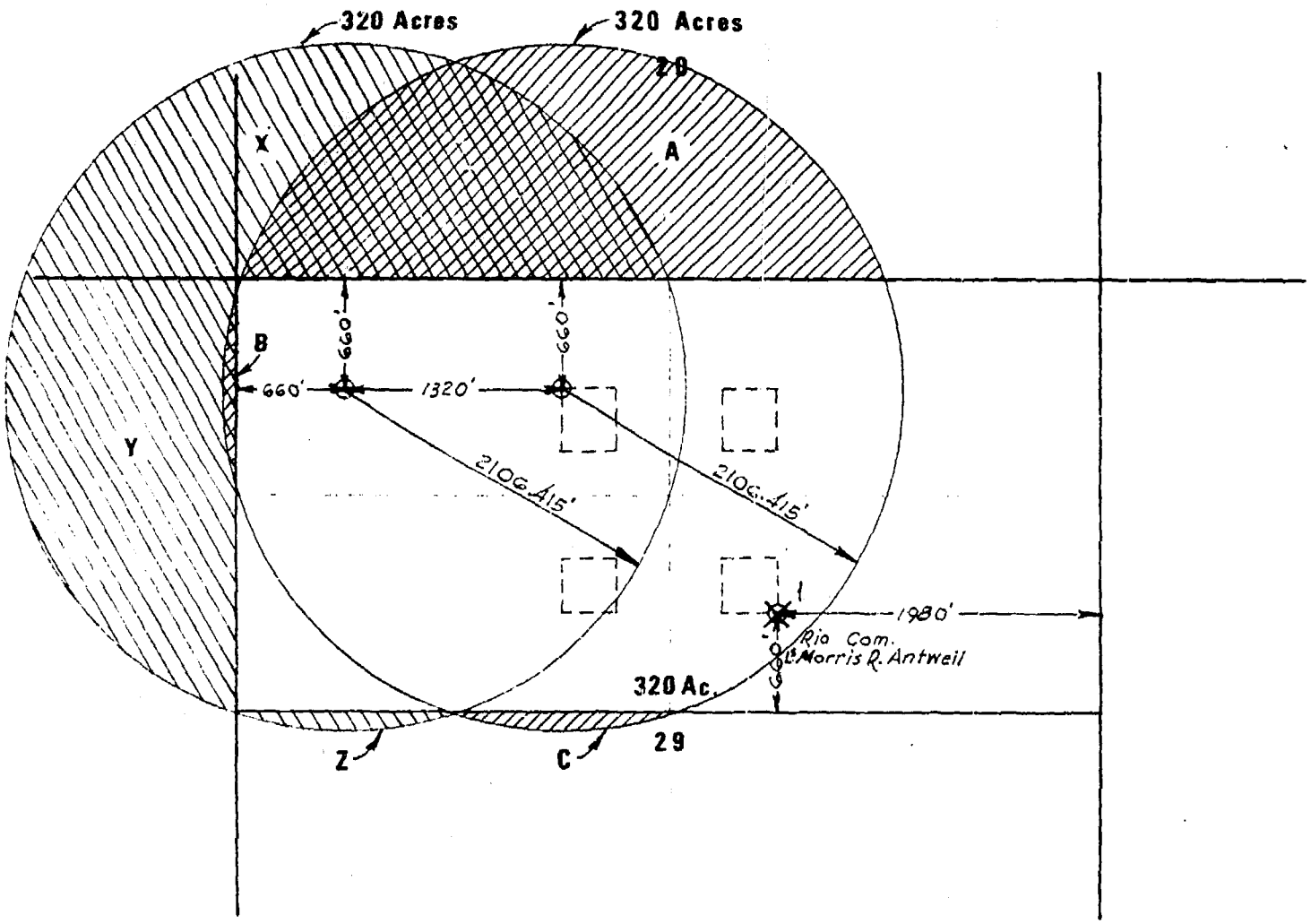
EXHIBIT 4
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION



T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit ~~A~~ 5
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 6
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE I

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b) Drill Well No. 2 Rio Com at Unorthodox Location as a Replacement Well.

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	170.01 Acres

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Orthodox Well	-102.81 Acres
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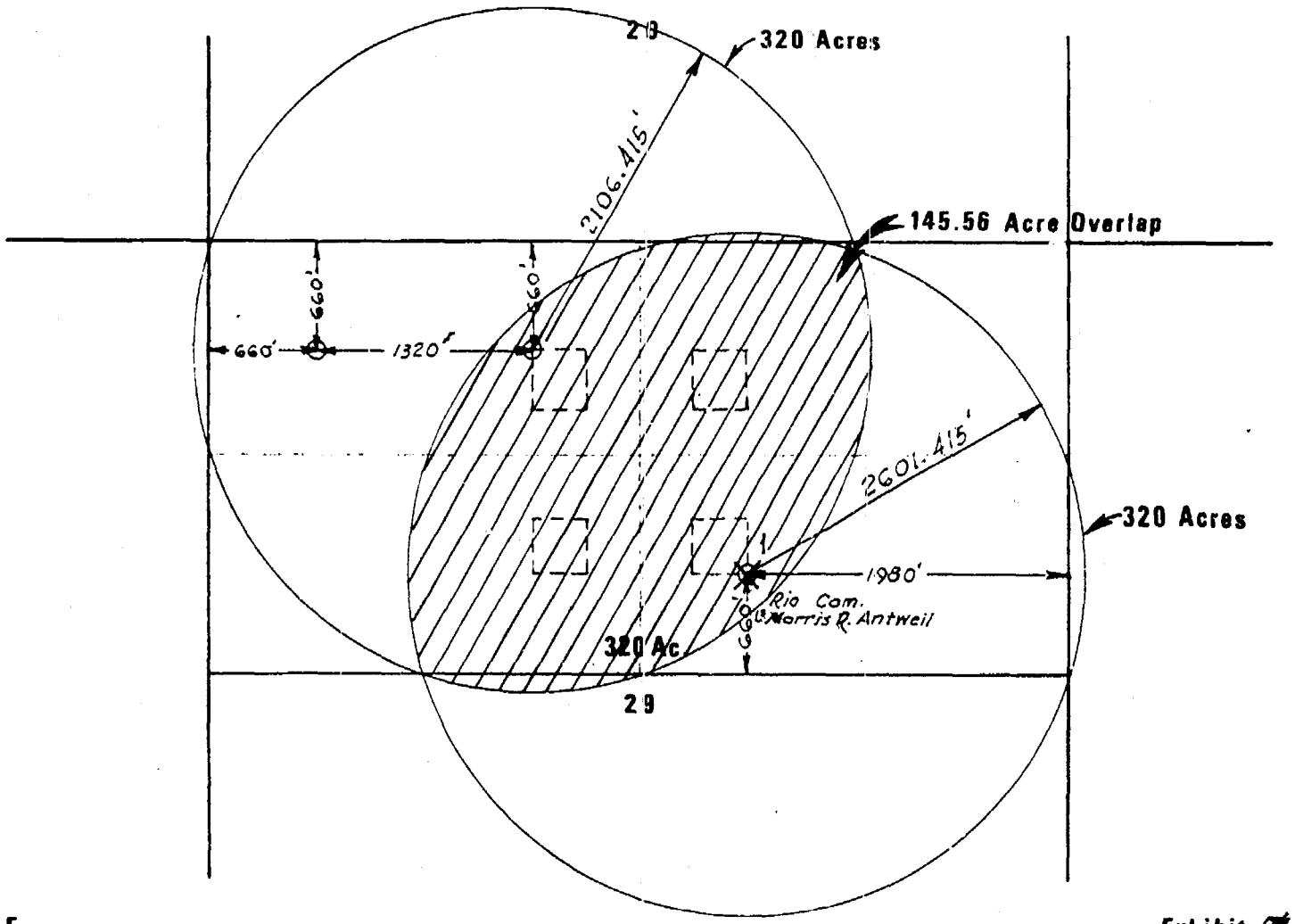
$$= \frac{252.80}{320}$$

$$= .79$$

19 | 20 | 21



30 | 29 | 28

T-18-S, R-25-E
Lea County, New Mexico
Scale - 1" = 1000'

Exhibit 7
Case 6213
Date 5-17-78
Gulf Oil Corporation

EXHIBIT 7
CASE NO. 6213
DATE: May 17, 1978
GULF OIL CORPORATION

CASE II

Conditions: a) Leave Well No. 1 Rio Com On Production
b) Drill Well No. 2 Rio Com at Orthodox Location

1) Drainage Area

a) Well No. 1 — 320.00 Acres

b) Well No. 2 — 320.00 Acres
-145.56 Acres Drainage Overlap
174.44 Acres

2) Combined Drainage Area

Well No. 1 — 320.00 Acres
Well No. 2 — 174.44 Acres
494.44 Acres

3) Rateable Take Factor for Unit

Standard Unit Acres = (Combined Drainage Area Acres) X (RTF)

$$RTF = \frac{\text{Standard Unit Acres}}{\text{Combined Drainage Area Acres}}$$

$$= \frac{320.00}{494.44}$$

$$= .65$$