

DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II

811 South First St., Artesia, NM 88210-2835

DISTRICT III

1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 87505-6429Form C-107-A
New 3-12-96

APPROVAL PROCESS :

☒ Administrative ☐ Hearing

APPLICATION FOR DOWNHOLE COMMINGLING

EXISTING WELLBORE

☒ YES ☐ NO

Burlington Resources Oil & Gas Company

PO Box 4289, Farmington, NM 87499

Operator

Address

SAN JUAN 27-5 UNIT

35

M-33-27N-05W

Rio Arriba

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 14538 Property Code 7454 API NO. 30-0-678600 Federal ☒ State (and/or) Fee

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	Blanco Pictured Cliffs - 72359		Blanco Mesaverde - 72319
2. Top and Bottom of Pay Section (Perforations)	3180-3244'		3719-5474'
3. Type of production (Oil or Gas)	Gas		Gas
4. Method of Production (Flowing or Artificial Lift)	Flowing		Flowing
5. Bottomhole Pressure Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing: Measured Current All Gas Zones: Estimated or Measured	(Current) a. 469 psi (Original) b. 1099 psi	a. b.	a. 653 psi b. 1265 psi
6. Oil Gravity (°API) or Gas BTU Content	BTU 1169		BTU 1245
7. Producing or Shut-in?	Producing		Producing
Production Marginal? (yes or no)	Yes		yes
* If Shut-in and oil/gas/water rates of last production Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data	Date: Rates:	Date: Rates:	Date: Rates:
* If Producing, give data and oil/gas/water of recent test (within 60 days)	Date: 10/98 Rates: 15 MCFD	Date: Rates:	Date: 10/98 Rates: 47 MCFD
8. Fixed Percentage Allocation Formula -% for each zone (total of %'s to equal 100%)	Oil: % Gas: % To Be Supplied Upon Completion	Oil: % Gas: %	Oil: % Gas: % To Be Supplied Upon Completion

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones? ☐ Yes ☒ No
If not, have all working, overriding, and royalty interests been notified by certified mail? ☐ Yes ☒ No
Have all offset operators been given written notice of the proposed downhole commingling? ☒ Yes ☐ No11. Will cross-flow occur? ☒ Yes ☐ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. ☒ Yes ☐ No (If No, attach explanation)12. Are all produced fluids from all commingled zones compatible with each other? ☒ Yes ☐ No13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)14. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ☒ Yes ☐ No

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). R-10694

16. ATTACHMENTS:

- * C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
- * Production curve for each zone for at least one year. (If not available, attach explanation.)
- * For zones with no production history, estimated production rates and supporting data.
- * Data to support allocation method or formula.
- * Notification list of all offset operators.
- * Notification list of working, overriding, and royalty interests for uncommon interest cases.
- * Any additional statements, data, or documents required to support commingling.

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Jennifer L. Dobson TITLE Production Engineer DATE 01-18-99TYPE OR PRINT NAME Jennifer L. Dobson TELEPHONE NO. (505) 599-4026

NEW MEXICO OIL CONSERVATION COMMISSION

Well Location and Average Deviation Plate

Section A.

Date **APRIL 29, 1958**

Operator **EL PASO NATURAL GAS COMPANY** Lease **SAN JUAN 27-5 UNIT** SF **079394**
 Well No. **35 (PM)** Unit Letter **M** Section **33** Township **27-N** Range **5-W** NMPM
 Located **1120** Feet From **SOUTH** Line **990** From From **WEST** Line
 County **RIO ARRIBA** G. L. Elevation **6493** Dominant Acreage **320 & 160** Acres
 Name of Producing Formation **MESA VERDE & PICTURED CLIFF** From **BLANCO MV, WILDCAT PC**

1. Is the Operator the only owner in the dedicated average outline land in the plat below?

Yes ☒ No

2. If the answer to question one is "no", have the interests of all the owners been consolidated by commutation or agreement or otherwise? Yes No If answer is "yes", Type of Consolidation:

3. If the answer to question two is "no", list all the owners and their respective interest in the

Owner

Land Description

RECEIVED
JAN 1 3 1959

RECEIVED
MAY 13 1958
U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

Section B.

This is to certify that the information in Section A above is true and complete to the best of my knowledge and belief.

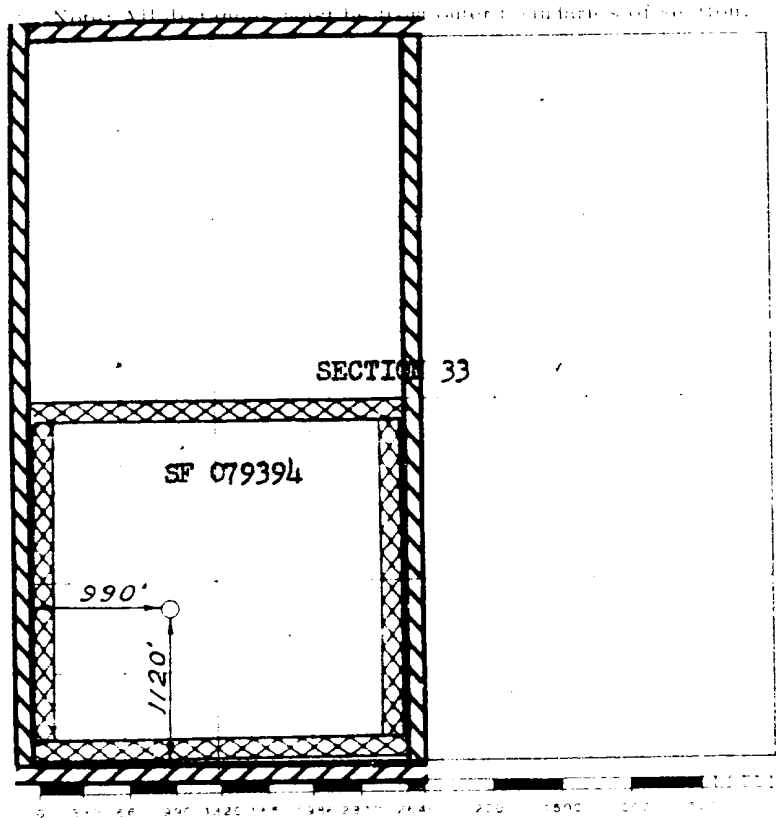
El Paso Natural Gas Company
(Operator)

ORIGINAL SIGNED B.H. MEANS
(Representative)

Box 997

(Address)

Farmington, New Mexico



Scale 1 inch = 1 mile

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

(Seal)

Farmington, New Mexico

Surveyed **APRIL 18, 1958**

David O. Kilven
Registered Professional Engineer and/or Land Surveyor

* OIL
 1000
 100
 10
 1
 * WATER/GAS
 1000
 100
 10
 1
 * GAS
 1000
 100
 10
 1
 * WATER

SAN JUAN 27-5 UNIT : 35 : 53366A-1 Pictured Cliffs

— DAILY RATE
 — TBG PRESSURE

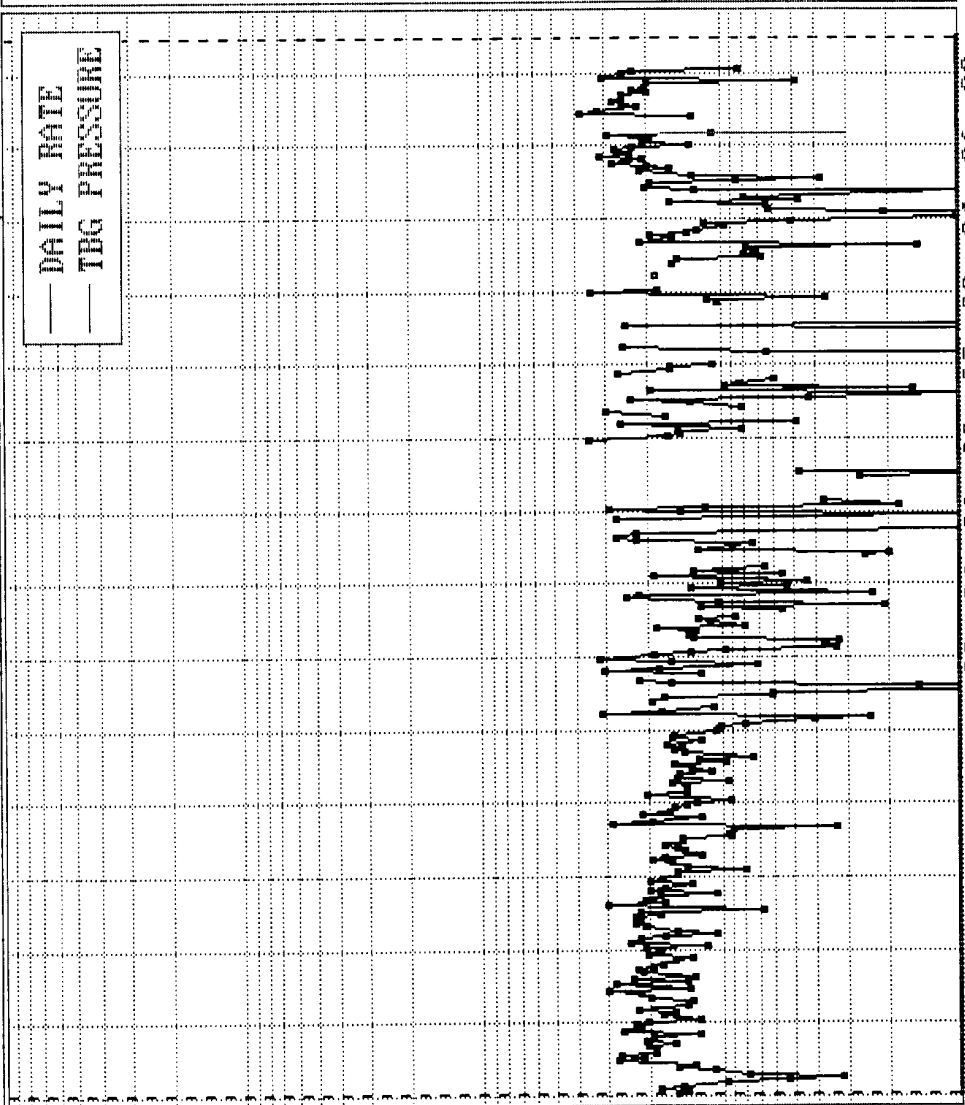
Prop 3554 *
 * WATER Bbls/d
 * GAS Mcf/d
 * WATER/GAS
 * OIL Bbl/d
 RateTime
 Semi Log



0.1
 1
 10
 100
 1000

72 74 76 78 80 82 84 86 88 90 92 94 96 98



Major = GAS



• OIL
• WATER/GAS
• GAS
• WATER

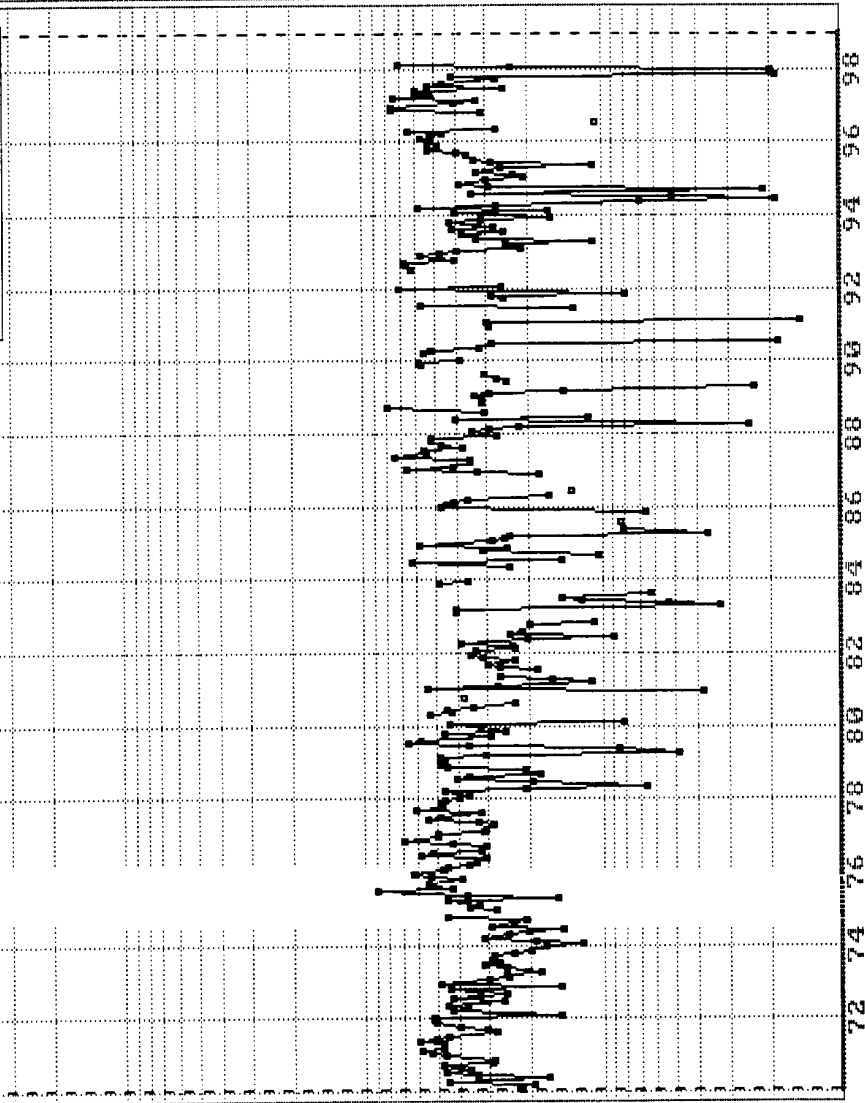
SAN JUAN 27-5 UNIT : 35 : 53366B-1 Mesavieja

Prop 1440 *

- • WATER Bbls/d
 - • GAS Mcf/d
 - • WATER/GAS
 - • OIL Bbl/d
- 


RateTime
Semi Log

— DAILY RATE
— TBG PRESSURE



Major = GAS

PHS030M

35

PICTURED CLIFFS ZONE

PRS 12/05/98

FARMINGTON

1998 MONTHLY PRODUCTION FOR 53366B

PHS0301

SAN JUAN 27-5 UNIT

35

BLANCO MESAVERDE (PRORATED GAS FIELD)

MESAVERDE ZONE

DAYS =====			OIL =====		=====		GAS =====						
MO	T	S	ON	PC	PROD	GRV	PC	PROD	ON	BTU	PRESS	WATER	PROD
1	2	F					01	731	31	1240	15.025		
2	2	F					01	2164	28	1240	15.025		
3	2	F					01	1616	31	1240	15.025		
4	2	F					01	1387	27	1240	15.025		
5	2	F					01	1158	29	1240	15.025		
6	2	F					01	1722	30	1240	15.025		
7	2	F					01	898	31	1245	15.025		
8	2	F					01	1394	31	1245	15.025		
9	2	F					01	995	30	1245	15.025		
10	2	F					01	2046	31	1245	15.025		
11													
12													

PF6 - RETURNS TO ANNUAL DISPLAY

PF3 - TRANSFER TO UPDATE

PF10 - HELP INFORMATION

PF9 - DISPLAY MONTHLY INJECTI

00/00/00 00:00:00:0

PRS 12/05/98

San Juan 27-5 Unit #35
Bottom Hole Pressures
Flowing and Static BHP
Cullender and Smith Method

Version 1.0 3/13/94

Pictured Cliffs		Mesaverde	
<u>PC - Current</u>		<u>MV-Current</u>	
GAS GRAVITY	0.676	GAS GRAVITY	0.731
COND. OR MISC. (C/M)	C	COND. OR MISC. (C/M)	C
%N2	0.46	%N2	0.27
%CO2	0.19	%CO2	0.66
%H2S	0	%H2S	0
DIAMETER (IN)	1.995	DIAMETER (IN)	1.995
DEPTH (FT)	3212	DEPTH (FT)	4597
SURFACE TEMPERATURE (DEG F)	60	SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	100	BOTTOMHOLE TEMPERATURE (DEG F)	140
FLOWRATE (MCFPD)	0	FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	432	SURFACE PRESSURE (PSIA)	576
BOTTOMHOLE PRESSURE (PSIA)	468.8	BOTTOMHOLE PRESSURE (PSIA)	653.3
<u>PC - Original</u>		<u>MV-Original</u>	
GAS GRAVITY	0.676	GAS GRAVITY	0.731
COND. OR MISC. (C/M)	C	COND. OR MISC. (C/M)	C
%N2	0.46	%N2	0.27
%CO2	0.19	%CO2	0.66
%H2S	0	%H2S	0
DIAMETER (IN)	1.995	DIAMETER (IN)	1.995
DEPTH (FT)	3212	DEPTH (FT)	4597
SURFACE TEMPERATURE (DEG F)	60	SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	100	BOTTOMHOLE TEMPERATURE (DEG F)	140
FLOWRATE (MCFPD)	0	FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	1003	SURFACE PRESSURE (PSIA)	1100
BOTTOMHOLE PRESSURE (PSIA)	1099.0	BOTTOMHOLE PRESSURE (PSIA)	1264.6

Page No.: 1

Print Time: Tue Dec 22 07:39:09 1998

Property ID: 3554

Property Name: SAN JUAN 27-5 UNIT | 35 | 53366A-1 Pictured Cliffs

Table Name: Q:\PUBLIC\GENTITY\GDPNOS\TEST.DBF

--DATE-- ---CUM GAS-- M SIWHP

■■■■■■■■■■ ■■■■■■Mcf■■■■■■ ■■■■Psi■■■■

06/02/58	0	1003.0	initial Pressure
10/21/58	0	1002.0	
09/22/59	18000	733.0	
05/29/60	32000	611.0	
09/13/61	51000	606.0	
03/07/62	56000	623.0	
03/19/63	69000	598.0	
04/06/64	79000	605.0	
09/24/65	92000	573.0	
04/12/66	96000	604.0	
05/16/67	105000	567.0	
09/23/68	114000	545.0	
08/28/70	123668	529.0	
04/08/71	128372	509.0	
07/25/72	136911	499.0	
12/06/83	198313	0.0	
06/21/84	200120	384.0	
11/06/85	204245	426.0	
06/29/90	217593	387.0	
07/02/92	221389	432.0	Current Pressure

Page No.: 2

Print Time: Tue Dec 22 07:39:10 1998

Property ID: 1440

Property Name: SAN JUAN 27-5 UNIT | 35 | 53366B-1 Mesaverde

Table Name: Q:\PUBLIC\GENTITY\GDPNOS\TEST.DBF

--DATE-- --CUM GAS-- M SIWHP
Mcf Psi

06/02/58	0	1110.0	Initial Pressure
10/07/58	0	1109.0	
09/22/59	30000	827.0	
05/29/60	55000	727.0	
05/28/61	81000	718.0	
03/07/62	99000	697.0	
03/19/63	119000	670.0	
04/06/64	139000	669.0	
09/24/65	167000	614.0	
04/12/66	175000	641.0	
05/16/67	189000	576.0	
05/02/68	197000	612.0	
08/28/70	223045	574.0	
04/08/71	233904	541.0	
07/25/72	252818	499.0	
09/30/81	364714	560.0	
04/07/86	396629	579.0	
11/27/89	432695	597.0	
07/28/91	444943	614.0	
07/30/91	444943	602.0	
06/01/93	465346	576.0	Current Pressure

DATE: January 13,1999
NAME: SAN JUAN 27-5 UNIT #35
FORM: PICTURED CLIFFS

LOCATION
UNIT: M
SEC: 33
TWN: 27N
RNG: 5W

<div>[29]</div> <div>INA 7/69 • S.J. 27-5 Unit #4 0/188 (00)</div>	<div>[28]</div> <div>9/82 • S.J. 27-5 Unit #71 8/185 (00)</div>	<div>[27]</div> <div>8/73 • S.J. 27-5 Unit #81 10/78 (00)</div> <div>P&A 10/73 • S.J. 27-5 Unit #102 0/74 (00)</div>
<div>[32]</div>	<div>[32]</div>	<div>[34] 3/81 • S.J. 27-5 Unit #5A 14/80 (00)</div> <div>6/74 • S.J. 27-5 Unit #172 18/114 (00)</div>
<div>[5]</div>	<div>[4]</div>	<div>[3]</div>

T
27
N

T
26
N

LEGEND
COMPLETION DATE •
WELL NAME
MCF/D-CUM(MMF)
BOP/D-CUM(MBO)

R.5.W

BURLINGTON RESOURCES OIL AND GAS COMPANY

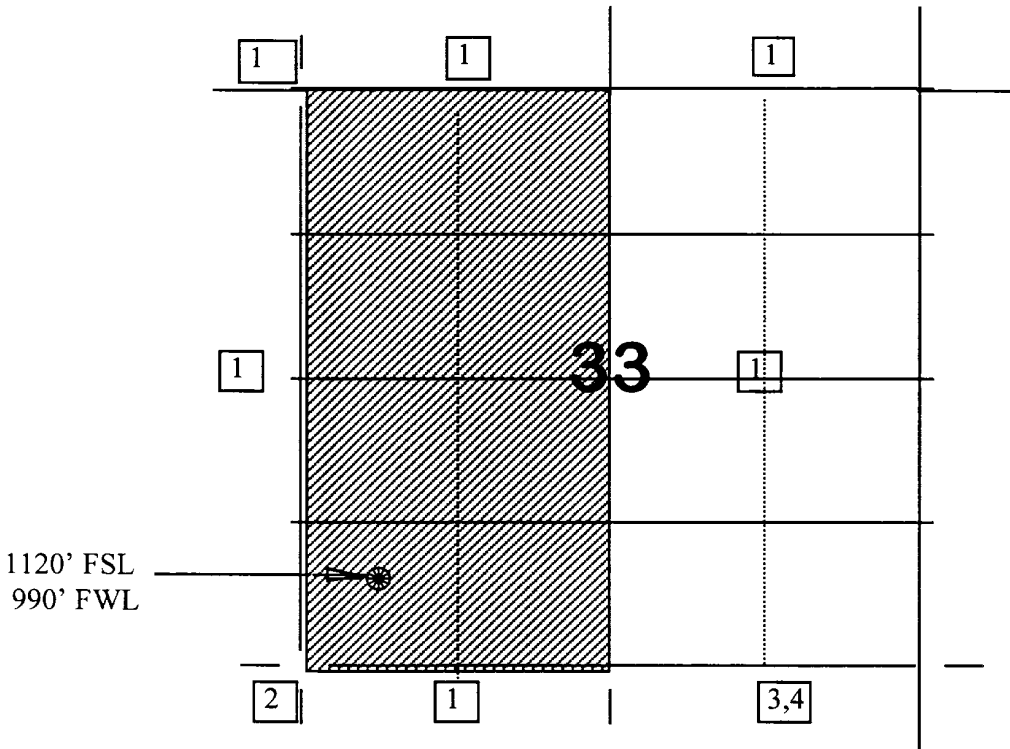
San Juan 27-5 Unit #35

OFFSET OPERATOR/OWNER PLAT

Pictured Cliffs (SW/4) & Mesaverde (W/2) Formations

Commingle well

Township 27 North, Range 5 West



1) Burlington Resources

**3) Conoco Inc.
10 Desta Drive, Suite 100W
Midland, Texas**

**2) Taurus Exploration USA, Inc
Attn: Ms. Kathy Clayton
2101 Sixth Ave. North
Birmingham, Alabama 35203**

**4) Amoco Production Company
Attention: Steve Trefz
PO Box 800
Denver, CO 80201**

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 11626
ORDER NO. R-10694

APPLICATION OF BURLINGTON RESOURCES
OIL & GAS COMPANY FOR THE ESTABLISHMENT
OF A DOWNHOLE COMMINGLING "REFERENCE
CASE" FOR ITS SAN JUAN 27-5 UNIT PURSUANT
TO DIVISION RULE 303.E AND THE ADOPTION
OF SPECIAL ADMINISTRATIVE RULES THEREFOR.
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on October 17 and November 7, 1996 at Santa Fe, New Mexico, before Examiners David R. Catanach and Michael E. Stogner respectively.

NOW, on this 12th day of November, 1996, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises.

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Burlington Resources Oil & Gas Company (Burlington) pursuant to the provisions of Division Rule 303.E., seeks to establish a downhole commingling "reference case" to provide exceptions for (a) marginal economic criteria, (b) pressure criteria, (c) allocation formulas and (d) modification of notification rules on a unit-wide basis for downhole commingling of Dakota, Mesaverde, Fruitland Coal and Pictured Cliffs gas production within existing or future drilled wells within the San Juan 27-5 Unit, San Juan County, New Mexico.

(3) Division Rule No. 303.E., amended by Order No. R-10470-A, currently states:

"If sufficient data exists on a lease, pool, formation, geographic area, etc., so as to render it unnecessary to repeatedly provide such data on Form C-107-A, an operator may except any of the various criteria required under Paragraph 303.D. of this rule by establishing a "reference case". The Division, upon its own motion, or by application from an operator, may establish "reference cases" either administratively or by hearing. Upon Division approval of such "reference cases" for specific criteria, subsequent applications to downhole commingle (Form C-107-A) will be required only to cite the Division order number which established such exceptions and shall not be required to submit data for those criteria."

(4) The applicant is the current operator of the San Juan 27-5 Unit which encompasses some 23,043 acres in Township 27 North, Range 5 West, NMPM, San Juan County, New Mexico.

(5) Within the San Juan 27-5 Unit, the applicant currently operates one hundred and one (101) Basin-Dakota Gas Pool wells, one hundred and five (105) Blanco-Mesaverde Gas Pool wells, eighty-seven (87) South Blanco-Pictured Cliffs and Tapacito-Pictured Cliffs Gas Pool wells, and four (4) Basin-Fruitland Coal Gas Pool wells.

(6) According to its evidence and testimony, Burlington seeks to:

- a) establish a "reference case" for marginal economic criteria in the Dakota and Pictured Cliffs formations whereby these formations and/or pools may be identified as "marginal" on Form C-107-A's subsequently filed for wells within the San Juan 27-5 Unit. The applicant further proposes that the data provided in the immediate case serve as supplemental data or confirmation that these formations and/or pools should be classified as "marginal";
- b) establish a "reference case" for pressure criteria in the Dakota and Pictured Cliffs formations whereby the Division may utilize data provided in the immediate case to verify the pressure data provided on Form C-107-A's subsequently filed for wells within the San Juan 27-5 Unit;

- c) establish a "reference case" whereby the Division utilizes the data presented in the immediate case to endorse or approve certain methods of allocating production whereby the applicant need not submit additional data or justification when proposing a certain method of allocating production on Form C-107-A's subsequently filed for wells within the San Juan 27-5 Unit; and.
- d) establish a "reference case" or an administrative procedure for authorizing the downhole commingling of existing or future drilled wells within the San Juan 27-5 Unit without additional notice to each affected interest owner as required by Division Rule No. 303.D.

(7) In support of its request to except marginal economic criteria, the applicant presented geologic and engineering evidence and testimony which indicates that within the San Juan 27-5 Unit:

- a) the structure and thickness of the Dakota and Pictured Cliffs formations are very consistent;
- b) the average recoverable Dakota and Pictured Cliffs gas reserves underlying an undeveloped drill block are approximately 583 MMCFG and 426 MMCFG, respectively;
- c) the average initial producing rate for a newly drilled or recompleted Dakota and Pictured Cliffs gas well is approximately 393 MCFGD and 63 MCFGD, respectively; and,
- d) the estimated ultimate gas recoveries and initial producing rates from the Dakota and Pictured Cliffs formations are insufficient to justify drilling stand alone wells and/or dually completed wells to recover such gas reserves.

(8) The evidence and testimony presented by the applicant indicates that : Dakota and Pictured Cliffs formations within the San Juan 27-5 Unit should be properly classified as "marginal".

(9) In support of its request to except pressure criteria within the Dakota : Pictured Cliffs formations within the San Juan 27-5 Unit, the applicant presented engineering evidence and testimony which indicates that:

- a) the average shut-in bottomhole pressure within the Dakota and Pictured Cliffs formations at the time of initial development were approximately 3.141 psi and 1.118 psi, respectively; and.
- b) the average current shut-in bottomhole pressure within the Dakota and Pictured Cliffs formations are approximately 1.032 psi and 441 psi, respectively.

(10) There is sufficient pressure data available within the San Juan 27-5 Unit as to except pressure criteria as proposed by the applicant.

(11) The applicant testified that various allocation methods will be utilized for downhole commingled wells within the San Juan 27-5 Unit depending on the circumstances. Some of the methods and circumstances are described as follows:

- a) the subtraction method will likely be utilized in those instances involving the Basin-Fruitland Coal Gas Pool and in those instances where a zone with a well established decline rate is commingled with a newly completed zone;
- b) a fixed allocation formula will be utilized in those instances where production history for both zones is available, or in those instances where newly completed zones are tested and stabilized flow rates obtained.

(12) The allocation methods proposed by the applicant are routinely utilized in the industry and approved by the Division and therefore the proposal to except allocation formulas should be approved.

(13) In support of its request to establish a "reference case" or administrative procedure for providing notice within the San Juan 27-5 Unit the applicant presented evidence and testimony which indicates that:

- a) the interest ownership between two zones within a given wellbore in the San Juan 27-5 Unit is generally not common;
- b) pursuant to Division Rule No. 303.D., applicant is currently required to notify all interest owners within the San Juan 27-5 Unit every time a Form C-107-A is submitted to the Division. There is a considerable number of such interest owners within the unit;

- c) providing notice to each interest owner within the San Juan 27-5 Unit of subsequent downhole comminglings is unnecessary and is an excessive burden on the applicant;
- d) the downhole commingling of wells within the San Juan 27-5 Unit Area will benefit working, royalty, and overriding royalty interest owners. In addition, the downhole commingling of wells within the San Juan 27-5 Unit should not violate the correlative rights of any interest owner;
- e) no interest owner appeared at the hearing in opposition to the establishment of a "reference case" or administrative procedure for notice.

(14) An administrative procedure should be established within the San Juan 27-5 Unit for obtaining approval for subsequent downhole commingled wells without notice to Unit interest owners, provided however that, all other provisions contained within Division Rule No. 303.C. are complied with.

(15) Approval of the proposed "reference cases" for marginal economic criteria, pressure criteria, allocation formulas and notice will lessen the burden on the applicant insofar as providing the data required pursuant to Division Rule No. 303.D. and Form 107-A. will provide the applicant a streamlined method for obtaining downhole commingling approvals within the San Juan 27-5 Unit, and will not violate correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The application of Burlington Resources Oil & Gas Company to establish a "reference case" for (a) marginal economic criteria, (b) pressure criteria, (c) allocation formulas and (d) modification of notification rules on a unit-wide basis for downhole commingling of Dakota, Mesaverde, Fruitland Coal and Pictured Cliffs gas production within existing or future drilled wells within the San Juan 27-5 Unit, San Juan County, New Mexico, is hereby approved.

(2) Upon filing of Division Form No. C-107-A's for wells subsequently downhole commingled within the San Juan 27-5 Unit Area, the applicant shall not be required to submit supporting data to justify the classification of the Picured Cliffs and Dakota formations as "marginal", supporting data to verify the Picured Cliffs and Dakota pressure information provided, and support or justification for utilizing a given method or formula for allocation of production, provided however, in the event any of the data described above appearing on Form C-107-A appears to be beyond the data range provided in this case, the Division may require the submittal of additional supporting data.

(3) In order to obtain Division authorization to downhole commingle well within the San Juan 27-5 Unit, the applicant shall file a Form C-107-A with the Santa Fe and Aztec Offices of the Division. Such application shall contain all the information required under Rule No. 303.C. of the Division Rules and Regulations, provided however that the applicant shall not be required to provide notice to all interest owners within the San Juan 27-5 Unit of such proposed commingling.

(4) Jurisdiction of this cause is retained for the entry of such further orders the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM H. LeMAY
Director

S E A L