

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 and Gas

PO Box 4289, Farmington, NM 87499

Operator

San Juan 28-5 Unit

#57-M

Address

F-19-28N-05W

Rio Arriba

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 14583 Property Code 7460

API NO. 30-039-22613

Federal ☒ , State ☐ , Fee ☒

The following facts are submitted in support of downhole commingling:	Upper Zone	Intermediate Zone	Lower Zone
1. Pool Name and Pool Code	Blanco Mesaverde - 72319		Basin Dakota - 71599
2. Top and Bottom of Pay Section (Perforations)	5018'-5888'		7580'-7786'
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 Original	(Current) a. 351 psi (see attachment)		a. 347 psi (see attachment)
	(Original) b. 1048 psi (see attachment)		b. 1802 psi (see attachment)
6. Oil Gravity (°API) or Gas BTU Content	BTU 1211		BTU 1045
7. Producing or Shut-In?	Producing		Producing
Production Marginal? (yes or no)	No		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: N/A Rates:		Date: N/A Rates:
* If Producing, give data and oil/gas/water of recent test (within 60 days)	Date: 6/5/98 Rates: 203 mcf/d 2.0 bopd		Date: 6/5/98 Rates: 53 mcf/d 0.0 bopd
8. Fixed Percentage Allocation Formula - % for each zone (total of %'s to equal 100%)	Will be supplied upon completion.		Will 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 ☐ No
11. 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 ☐ No
13. 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-10695
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

TITLE Production Engineer

DATE 6/22/98

TYPE OR PRINT NAME

L. Tom Loveland

TELEPHONE NO. (505)

326-9700

All distances must be from the outer boundaries of the Section.

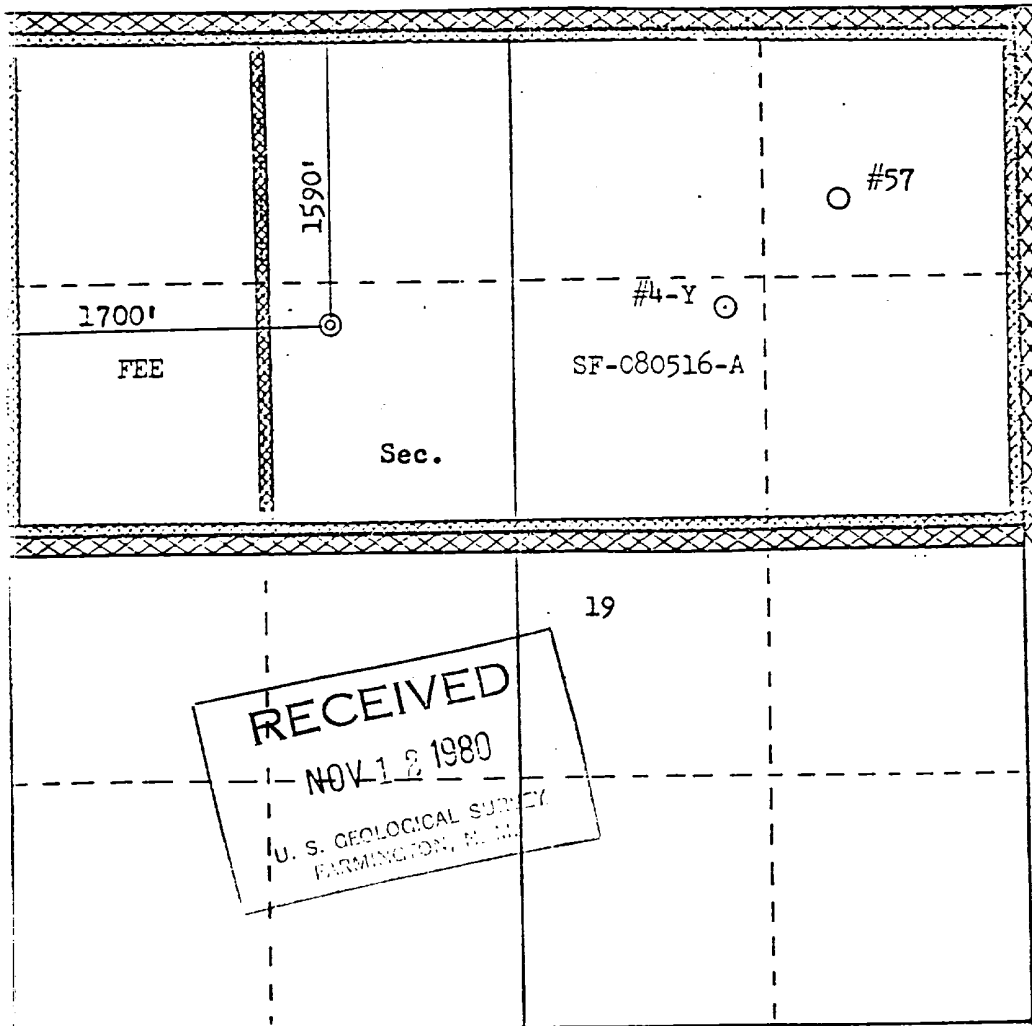
Operator EL PASO NATURAL GAS COMPANY			Lease SAN JUAN 28-5 UNIT (SF-C80516-A)		Well No. 57M
Unit Letter F	Section 19	Township 28N	Range 5W	County Rio Arriba	
Actual Footage Location of Well:					
1590 feet from the North line and		1700 feet from the West line			
Ground Level Elev: 6518	Producing Formation Mesa Verde-Dakota	Pool BLANCO MESA VERDE BASIN DAKOTA	Dedicated Acreage: 320.00 & 320.00		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☒ Yes ☐ No If answer is "yes," type of consolidation Unitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



Scale: 1"=1000'

CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Name	<i>D. G. Brice</i>
Position	Drilling Clerk
Company	El Paso Natural Gas Co.
Date	November 12, 1980
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.	
Date Surveyed	September 22, 1980
Registered Professional Engineer and Land Surveyor <i>Fred B. Kern Jr.</i>	
Certificate No.	3950

SAN JUAN 28-5 UNIT : 57M : MESAVERDE

Prop 171 *

* OIL
+ WATER/GAS
- GAS
* WATER

- ☐ * WATER Bbls/d
- ☒ * GAS Mcf/d
- ☐ * WATER/GAS
- ☐ * OIL Bbl/d

RateTime
Semi Log

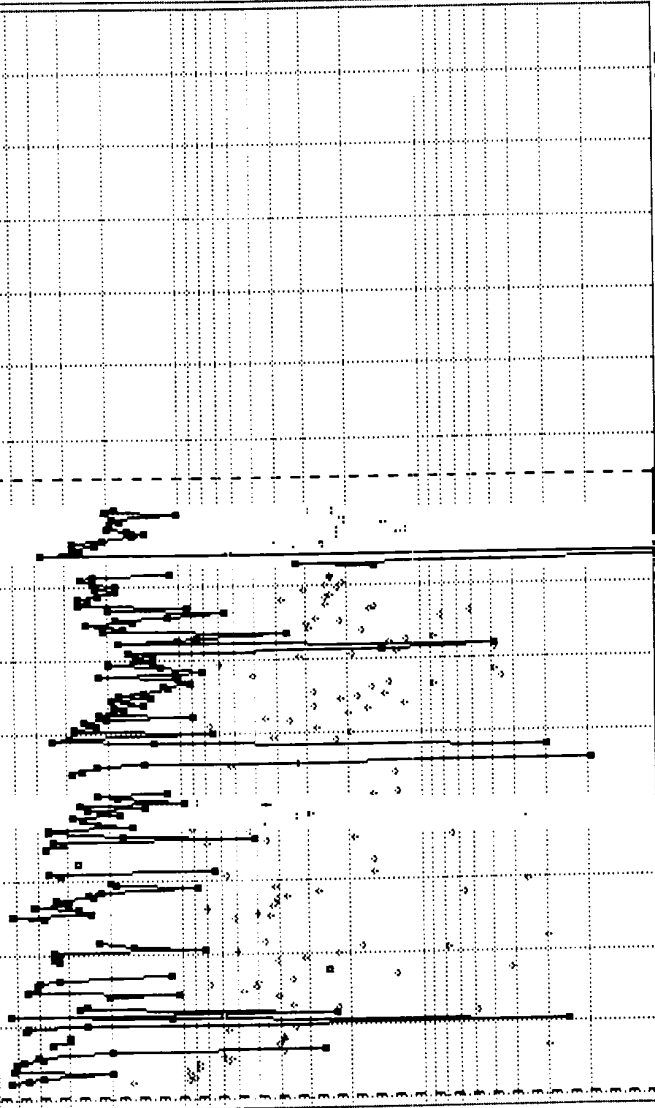
— DAILY RATE
— TBG PRESSURE

100
1000
1000

10
100
100

1
10
10

1
10
100



Major = GAS

SAN JUAN 28-5 UNIT : 57M : DAKOTA

Prop 172 *

• OIL
• WATER/GAS
• GAS
• WATER

— DAILY RATE
— TBG PRESSURE

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

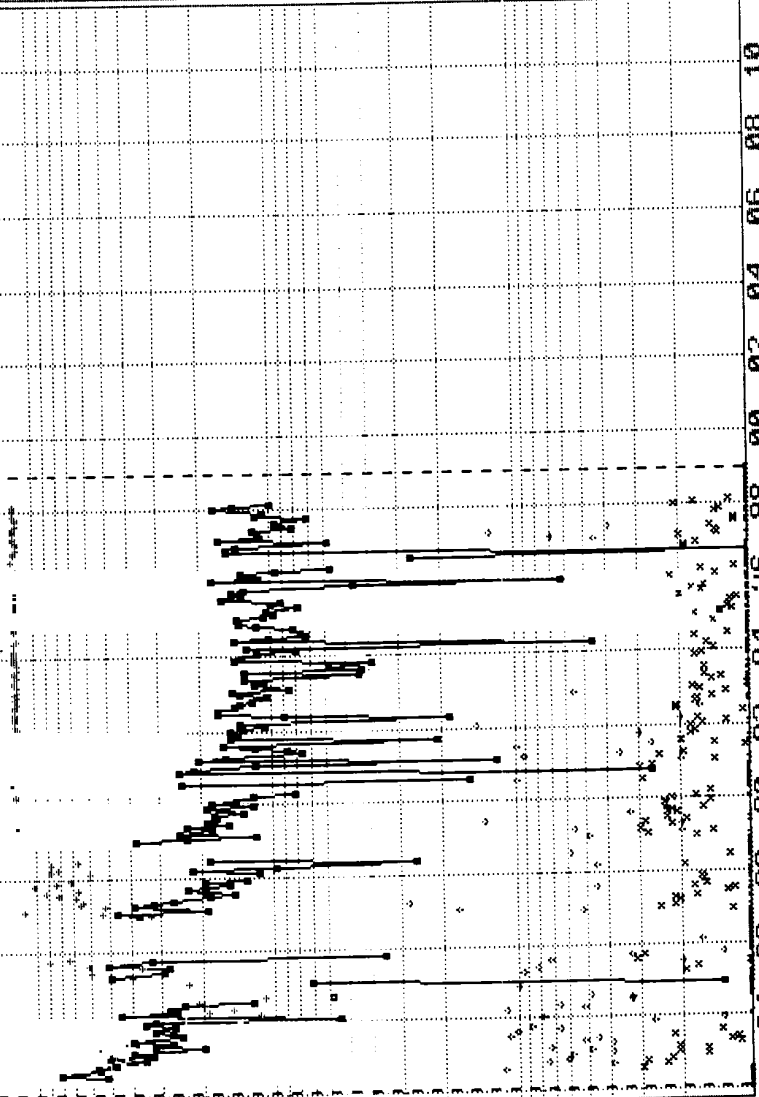
RateTime
Semi Log

100
10
1000

10
1
100

1
0.1
10

1
0.1
10



Major = GAS

San Juan 28-5 Unit #57M
Bottom Hole Pressures
Flowing and Static BHP
Cullender and Smith Method
Version 1.0 1/14/98

Mesaverde		Dakota	
<u>MV-Current</u>		<u>DK-Current</u>	
GAS GRAVITY	0.703	GAS GRAVITY	0.604
COND. OR MISC. (C/M)	C	COND. OR MISC. (C/M)	C
%N2	0.22	%N2	0.17
%CO2	0.97	%CO2	1.51
%H2S	0	%H2S	0
DIAMETER (IN)	7	DIAMETER (IN)	2.375
DEPTH (FT)	5453	DEPTH (FT)	7683
SURFACE TEMPERATURE (DEG F)	60	SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	165	BOTTOMHOLE TEMPERATURE (DEG F)	208
FLOWRATE (MCFPD)	0	FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	307	SURFACE PRESSURE (PSIA)	298
BOTTOMHOLE PRESSURE (PSIA)	350.5	BOTTOMHOLE PRESSURE (PSIA)	347.0
<u>MV-Original</u>		<u>DK-Original</u>	
GAS GRAVITY	0.703	GAS GRAVITY	0.604
COND. OR MISC. (C/M)	C	COND. OR MISC. (C/M)	C
%N2	0.22	%N2	0.17
%CO2	0.97	%CO2	1.51
%H2S	0	%H2S	0
DIAMETER (IN)	7	DIAMETER (IN)	2.375
DEPTH (FT)	5453	DEPTH (FT)	7683
SURFACE TEMPERATURE (DEG F)	60	SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	165	BOTTOMHOLE TEMPERATURE (DEG F)	208
FLOWRATE (MCFPD)	0	FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	305	SURFACE PRESSURE (PSIA)	1519
BOTTOMHOLE PRESSURE (PSIA)	1047.6	BOTTOMHOLE PRESSURE (PSIA)	1802.3

Page No.: 11

Print Time: Fri May 08 08:28:39 1998

Property ID: 171

Property Name: SAN JUAN 28-5 UNIT | 57M | MESAVERDE

Table Name: S:\ARIES\78LTL\TEST.DBF

<u>--DATE--</u>	<u>--CUM_OIL--</u> Bbl	<u>---CUM_GAS---</u> Mcf	<u>M SIWHP</u> Psi	
11/12/81		0	905.0	Original
07/12/82		29983	793.0	
09/19/83		169187	590.0	
05/01/84		225079	561.0	
04/16/86		371538	525.0	
09/18/89		602844	592.0	
08/26/91		675782	592.0	
10/24/91		690230	580.0	
03/29/93		787920	466.0	Current Estimated from P/z data
04/01/98		1078820	307.0	

Page No.: 1

Print Time: Mon May 18 09:27:43 1998

Property ID: 172

Property Name: SAN JUAN 28-5 UNIT | 57M | DK

Table Name: S:\ARIES\78LTL\TEST.DBF

<u>--DATE--</u>	<u>--CUM OIL--</u> Bbl	<u>---CUM GAS---</u> Mcf	<u>M SIWHP</u> Psi
-----------------	---------------------------	-----------------------------	-----------------------

11/12/81		0	1435.0
09/03/82		40228	1519.0
09/19/83		189842	944.0
05/01/84		260154	558.0
05/17/85		299227	552.0
11/09/88		452924	536.0
07/31/90		553798	522.0
03/29/92		622798	822.0
05/24/93		678486	511.0

04/01/98

847709

298.0

Current Estimated From P/z data

Original

Package Preparation Volume Data

DPNo: 53423A

SAN JUAN 28-S UNIT

STM

Form: 11V

Supt: 60 KEN RAYBON

FF: 335 LARY BYARS

MS: 319 STEVE BAIRD

Pipeline: WFS

Plunger: No

Dual: Yes

Compressor: No

Ownership (No Trust)

	<u>Gas</u>	<u>Oil</u>
GWl:	73.1659%	73.1659%
GNI:	62.3562%	62.3562%

Volumes

(Days On)

MCFD

BOPD

7 Day Avg	181	17.3
30 Day Avg	203	2.0
60 Day Avg	198	2.0
3 Mo Avg	199	2.4
6 Mo Avg	183	2.4
12 Mo Avg	194	2.2

Volumes

(Days in Month)

MCFD

BOPD

30 Day Avg	203	2.0
60 Day Avg	198	2.0
3 Mo Avg	199	2.4
6 Mo Avg	177	2.3
12 Mo Avg	177	2.0

Prior Year

	<u>MC/M</u>	<u>BOPM</u>	<u>Days</u> <u>On</u>		<u>MC/M</u>	<u>BOPM</u>	<u>Days</u> <u>On</u>
Jan	8,489	100.0	31		6,236	90.0	31
Feb	6,999	78.0	23.2		5,681	69.0	28
Mar	8,645	121.0	31		6,004	60.0	31
Apr	6,335	80.0	30		0	0.0	30
May	4,865	67.0	9.1		0	0.0	0
Jun	4,263	37.0	30		0	0.0	0
Jul	4,994	35.0	28		0	0.0	0
Aug	6,080	66.0	31		0	0.0	0
Sept	5,949	43.0	30		0	0.0	0
Oct	5,388	63.0	25		0	0.0	0
Nov	5,861	65.0	30		0	0.0	0
Dec	3,057	69.0	31		0	0.0	0
Total	70,925	824.0			17,921	219.0	

Print Form

Exit Volumes Data

Package Preparation Volume Data

DPNo: 53423B

SAN JUAN 28-5 UNIT

57M

Form: DK

Supt: 60 KEN RAYBON

FF: 335 LARY BYARS

MS: 319 STEVE BAIRD

Pipeline: WFS

Plunger: No

Dual: Yes

Compressor: No

Ownership (No Trust)

	Gas	Oil
GWI:	69.6124%	69.6124%
GNI:	58.8960%	58.8960%

Volumes (Days On)

	MCFD	BOPD
7 Day Avg	88	0.2
30 Day Avg	53	0.0
60 Day Avg	57	0.0
3 Mo Avg	122	0.0
6 Mo Avg	140	0.0
12 MoAvg	133	0.2

Volumes

(Days in Month)

	MCFD	BOPD
30 Day Avg	53	0.0
60 Day Avg	57	0.0
3 Mo Avg	101	0.0
6 Mo Avg	116	0.0
12 Mo Avg	105	0.1

Prior Year

	MCF/M	BOPM	Days On
Jan	1,705	14.0	21.7
Feb	5,085	21.0	27.8
Mar	3,321	0.0	31
Apr	3,392	38.0	29.2
May	3,653	12.0	13.8
Jun	2,444	0.0	20.3
Jul	2,846	0.0	23.7
Aug	2,894	0.0	20.9
Sept	2,088	0.0	30
Oct	3,463	0.0	28
Nov	3,231	0.0	28
Dec	5,316	0.0	20.3
Total	39,438	85.0	

Current Year

	MCF/M	BOPM	Days On
Jan	4,390	0.0	15.8
Feb	2,819	0.0	28
Mar	1,908	0.0	31
Apr	0	0.0	30
May	0	0.0	0
Jun	0	0.0	0
Jul	0	0.0	0
Aug	0	0.0	0
Sept	0	0.0	0
Oct	0	0.0	0
Nov	0	0.0	0
Dec	0	0.0	0
Total	9,117	0.0	

Print Form

Exit Volumes Data

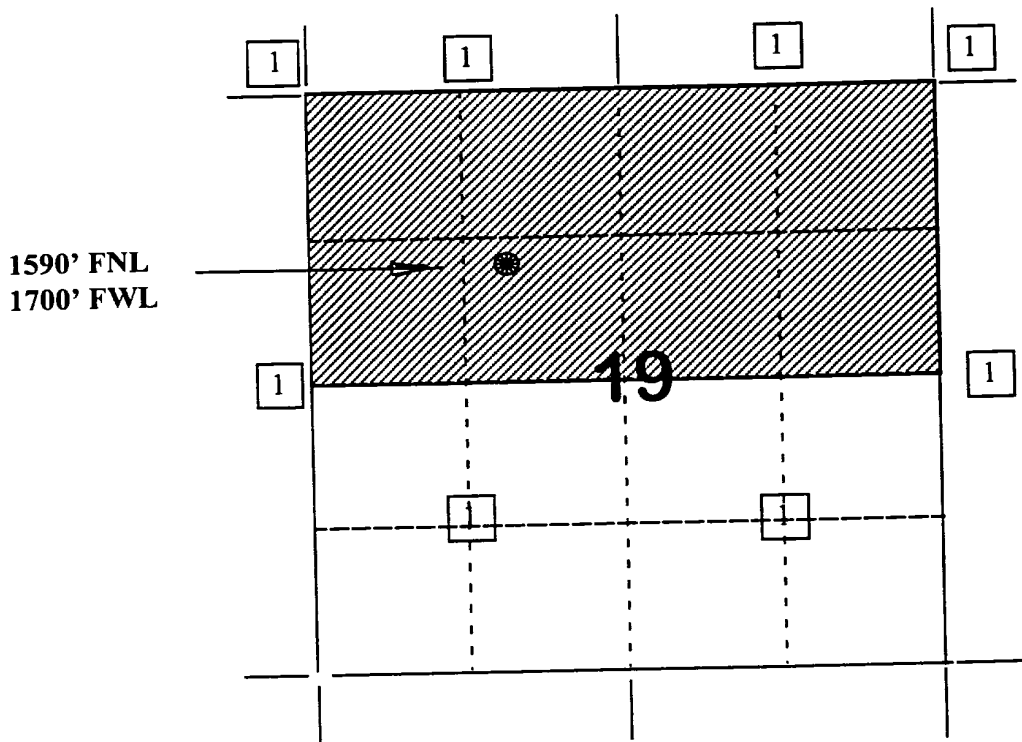
BURLINGTON RESOURCES OIL AND GAS COMPANY

San Juan 28-5 Unit #57M

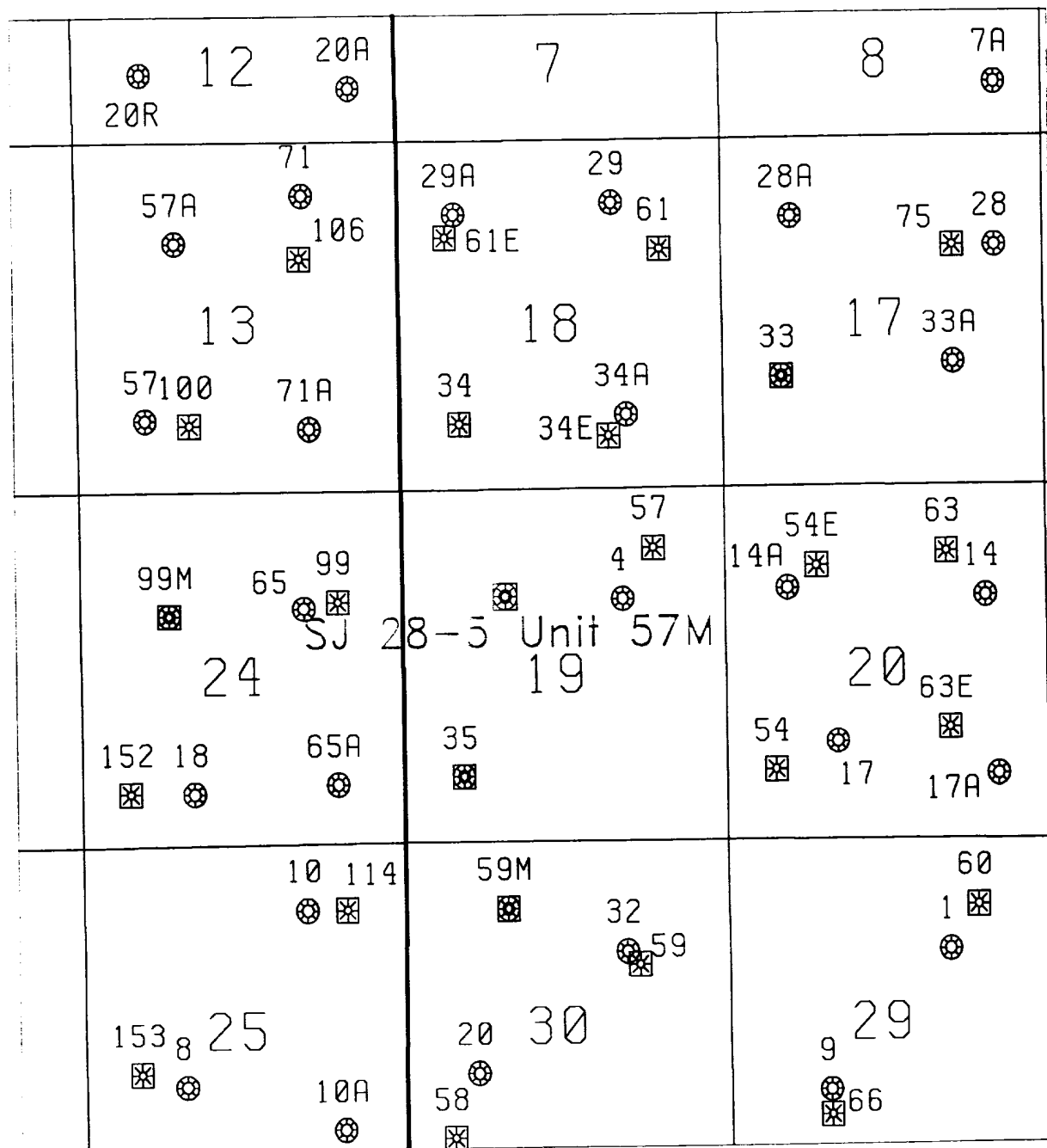
OFFSET OPERATOR/OWNER PLAT

Mesaverde / Dakota Formations Commingle Well

Township 28 North, Range 5 West



1) Burlington Resources



PLH 5/7/98

SJ 28-5 Unit 57M
Sec. 19, T28N, R5W
Mesaverde/Dakota

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. 11627
ORDER NO. R-10695

APPLICATION OF BURLINGTON RESOURCES
OIL & GAS COMPANY FOR THE ESTABLISHMENT
OF A DOWNHOLE COMMINGLING "REFERENCE
CASE" FOR ITS SAN JUAN 28-5 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 28-5 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 28-5 Unit which encompasses some 17,399 acres in Township 28 North, Range 5 West, NMPM, San Juan County, New Mexico.

(5) Within the San Juan 28-5 Unit, the applicant currently operates sixty-seven (67) Basin-Dakota Gas Pool wells, seventy-one (71) Blanco-Mesaverde Gas Pool wells, sixteen (16) Gobernador-Pictured Cliffs, Oso-Pictured Cliffs and Tapacito-Pictured Cliffs Gas Pool wells, and nineteen (19) 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 28-5 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 28-5 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 28-5 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 28-5 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 28-5 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 1,258 MMCFG and 77 MMCFG, respectively;
- c) the average initial producing rate for a newly drilled or recompleted Dakota and Pictured Cliffs gas well is approximately 276 MCFGD and 136 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 the Dakota and Pictured Cliffs formations within the San Juan 28-5 Unit should be properly classified as "marginal".

(9) In support of its request to except pressure criteria within the Dakota and Pictured Cliffs formations within the San Juan 28-5 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 3,149 psi and 1,143 psi, respectively; and.
- b) the average current shut-in bottomhole pressure within the Dakota and Pictured Cliffs formations are approximately 1,059 psi and 714 psi, respectively.

(10) There is sufficient pressure data available within the San Juan 28-5 Unit so 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 28-5 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 by 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 28-5 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 28-5 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 28-5 Unit every time a Form C-107-A is submitted to the Division. There are a considerable number of such interest owners within the unit;

- c) providing notice to each interest owner within the San Juan 28-5 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 28-5 Unit Area will benefit working, royalty, and overriding royalty interest owners. In addition, the downhole commingling of wells within the San Juan 28-5 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 28-5 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 C-107-A, will provide the applicant a streamlined method for obtaining downhole commingling approvals within the San Juan 28-5 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 28-5 Unit, San Juan County, New Mexico, is hereby approved.

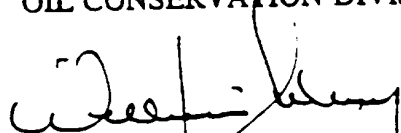
(2) Upon filing of Division Form No. C-107-A's for wells subsequently downhole commingled within the San Juan 28-5 Unit Area, the applicant shall not be required to submit supporting data to justify the classification of the Pictured Cliffs and Dakota formations as "marginal", supporting data to verify the Pictured 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 wells within the San Juan 28-5 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 28-5 Unit of such proposed commingling.

(4) 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



WILLIAM J. LeMAY
Director

S E A L