**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 87410-1893

State of New Mexico Energy, Minerals and Natural Resources Department

## **OIL CONSERVATION DIVISION**

APPLICATION FOR DOWNHOLE COMMINGLING

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

**APPROVAL PROCESS:** 

\_X\_ Administrative \_\_\_Hearing

EXISTING WELLBORE
\_x\_YES \_\_\_NO

#### PO Box 4289, Farmington, NM 87499 **Burlington Resources Oil & Gas Company** Address F 15-27-5 Rio Arriba San Juan 27-5 Unit 96 Well No. Unit Ltr. - Sec - Twp - Rge County ing Unit Lease Types: (ch , (and/or) Fee , State OGRID NO. \_14538\_ \_\_ Property Code \_\_7455\_\_\_ API\_NO. \_30-039-60123\_\_Federal \_ The following facts are submitted in support of downhole commingling: Intermediate Upper Basin Dakota - 71599 Blanco Mesaverde - 72319 1. Pool Name and Pool Code DECEIVE will be supplied upon completion 2. Top and Bottom of Pay Section (Perforations) will be supplied upon completion 3. Type of production (Oil or Gas) gas flowing flowing OIL CON. DIV. 4. Method of Production (Flowing or Artificial Lift) छिडिट अ (Current) a. 1343 psi (see attachment) a. 1148 psi (see attachment) 5. Bottomhole Pressure Oil Zones - Artificial Lift: Estimated Current Gas & Oil - Flowing: Measured Current (Original) b. 1668 psi (see attachment) b. 3073 psi (see attachment) b. All Gas Zones: Estimated or Measured Original BTU 1120 6. Oil Gravity (°API) or Gas BTU Content **BTU 1180** producing shut in 7. Producing or Shut-In? Production Marginal? (yes or no) no \* If Shut-In and oil/gas/water rates of last production Date: n/a Date: n/a Date: Rates: Rates: Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data Date: n/a \* If Producing, give data and oil/gas/water water of recent test (within 60 days) Date: Date: n/a Rates: Gas: Gas: % Gas: 8. Fixed Percentage Allocation Formula -% for each zone (total of %'s to equal 100%) Oil: will be supplied upon completion 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? If not, have all working, overriding, and royalty interests been notified by certified mail? Have all offset operators been given written notice of the proposed downhole commingling?

11. Will cross-flow occur? \_x\_ 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. \_x\_ Yes \_\_\_\_No (If No, 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. \_X\_Yes \_\_\_ No

12. Are all produced fluids from all commingled zones compatible with each other? \_\_\_x\_Yes \_\_\_No
13. Will the value of production be decreased by commingling? \_\_\_Yes \_X\_No (If Yes, attach explanation)

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

District i PO Box 1988, Hobbs, NM 88241-1988 District II

PO Drawer DD. Artesia. NM 88211-0719 District III

1000 Rio Brazos Rd., Aziec, NM 87410

District IV

PO Box 2008, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerais & Natural Resources Department

OIL CONSERVATION DIVISION PO Box 2088 Santa Fe, NM 87504-2088

Form C-102

Revised February 21, 1994

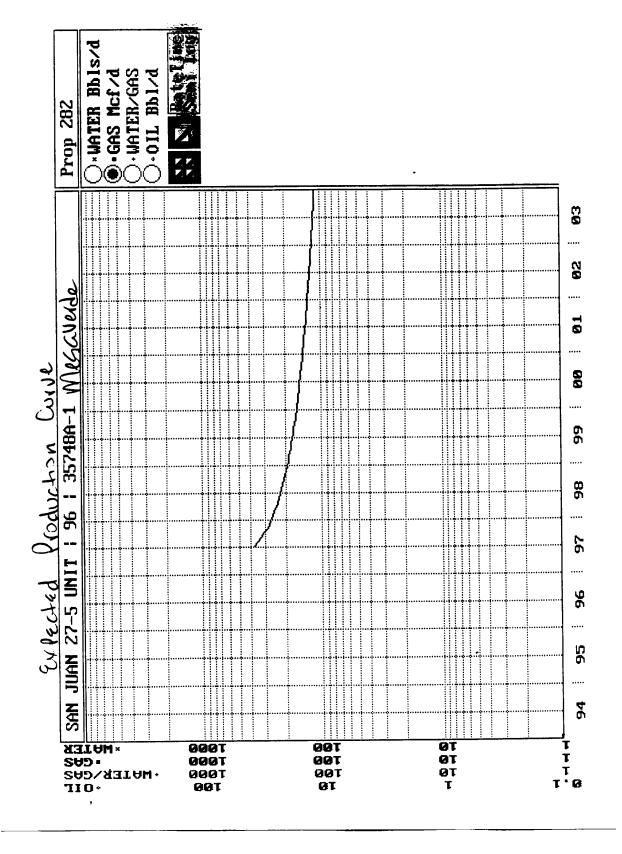
Instructions on DACK Submit to Appropriate District Office

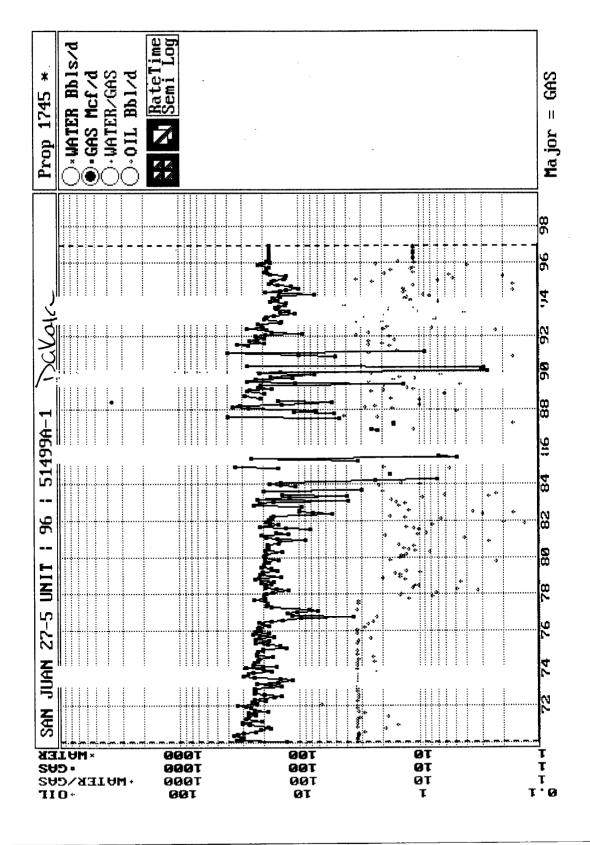
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Fee Lease - 3 Copies

AMENDED REPORT

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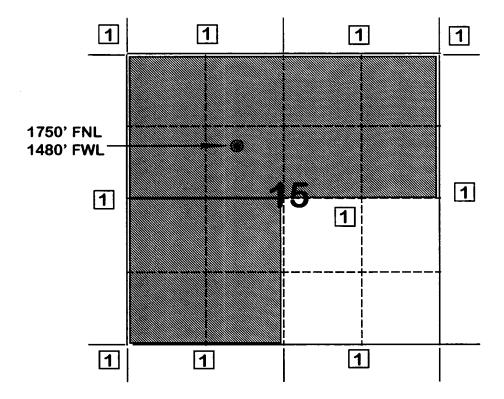




### **BURLINGTON RESOURCES OIL AND GAS COMPANY**

# San Juan 27-5 Unit #96 OFFSET OPERATOR \ OWNER PLAT Mesaverde (W/2)/Dakota (N/2) Formations Commingle Well

Township 27 North, Range 5 West



1) Burlington Resources Oil and Gas Company Successor to Meridian Oil Inc.

Page No.: 6
Print Time: Thu Jan 02 14:42:13 1997
Property ID: 1745
Property Name: SAN JUAN 27-5 UNIT | 96 | 51499A-1 75068
Table Name: K:\ARIES\RR97PDP\TEST.DBF

DATE	CUM_GAS	M SIWHP
01/20/65 10/25/65 09/02/66 10/23/67 05/02/68 06/30/69 10/07/70 07/22/71 06/06/72 07/19/73 09/04/75 08/01/79 06/03/81 09/06/83 02/20/84 06/04/85 05/29/90	0 113000 205000 405000 474000 622568 761803 833651 915157 991933 1162161 1278995 1400306 1528950 1633191 1652989 1678384 1846208	2524.0 1683.0 1744.0 1204.0 1214.0 1097.0 1532.0 1107.0 1080.0 1170.0 1059.0 1103.0 1006.0 974.0 1084.0 1060.0 1216.0 1138.0
04/29/92	1935124	955.0

# FLOWING AND STATIC BHP CULLENDER AND SMITH METHOD

VERSION 1.0 3/13/94

GAS GRAVITY	0.655
COND. OR MISC. (C/M)	С
%N2	0.23
%CO2	1.11
%H2S	0
DIAMETER (IN)	2.375
DEPTH (FT)	7717
SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	200
FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	2524
BOTTOMHOLE PRESSURE (PSIA)	3073.2

SAN JUAN 27-5 UNIT #96 DAKOTA - ORIGINAL

# FLOWING AND STATIC BHP CULLENDER AND SMITH METHOD

VERSION 1.0 3/13/94

GAS GRAVITY	0.655
COND. OR MISC. (C/M)	С
%N2	0.23
%CO2	1.11
%H2S	0
DIAMETER (IN)	2.375
DEPTH (FT)	7717
SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	200
FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	955
BOTTOMHOLE PRESSURE (PSIA)	1147.5
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SAN JUAN 27-5 UNIT #96 DAKOTA - CURRENT

Page No.: 7

Print Time: Fri Jan 03 13:43:59 1997

Property ID: 3895

Property Name: SAN JUAN 27-5 UNIT | 96E | 53408A-1 27-5 #96 MV Offset Table Name: K:\ARIES\RR97PDP\TEST.DBF

DATE	CUM_GAS	
11/22/82	0	1134.0
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09/06/83	33591	1398.0
01/04/85	134346	1247.0
03/05/85	143520	555.0
06/04/85	151842	1239.0
11/19/85	173470	612.0
10/20/86	212331	525.0
06/28/88	289360	1010.0
08/22/89	339620	714.0
02/21/90	393056	377.0
06/29/90	393229	1133.0
05/13/91	407551	489.0
06/29/91	393229	1133.0

#### FLOWING AND STATIC BHP CULLENDER AND SMITH METHOD

VERSION 1.0 3/13/94

GAS GRAVITY	
COND. OR MISC. (C/M)	С
%N2	0.2
%CO2	0.85
%H2S	0
DIAMETER (IN)	1.5
DEPTH (FT)	6112
SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	150
FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	1398
BOTTOMHOLE PRESSURE (PSIA)	1668.1
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SAN JUAN 27-5 UNIT #96E MESAVERDE - ORIGINAL

# FLOWING AND STATIC BHP CULLENDER AND SMITH METHOD

VERSION 1.0 3/13/94

GAS GRAVITY	0.69
COND. OR MISC. (C/M)	С
%N2	0.2
%CO2	0.85
%H2S	0
DIAMETER (IN)	1.5
DEPTH (FT)	6112
SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	150
FLOWRATE (MCFPD)	Ö
SURFACE PRESSURE (PSIA)	1133
BOTTOMHOLE PRESSURE (PSIA)	1343.3

SAN JUAN 27-5 UNIT #96E MESAVERDE - CURRENT

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## 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:
  - 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;

- 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;
  - 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 the 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 and 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 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 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;
  - 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 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 C-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 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 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 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