

BURLINGTON RESOURCES

SAN JUAN DIVISION

July 11, 1997

SENT FEDERAL EXPRESS

Mr. William LeMay
New Mexico Oil Conservation Division
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Re: Canyon Largo Unit #294E
900'FSL, 1505'FEL Section 2, T-25-N, R-6-W
30-039-not yet assigned

Dear Mr. LeMay:

This is a request for administrative approval for downhole commingling the Blanco Mesa Verde and Basin Dakota pools in the subject well. This is a new drill Mesa Verde/Dakota well for the 1997 Program.

To comply with the New Mexico Oil Conservation Division rules, Burlington Resources Oil & Gas Company is submitting the following for your approval of this commingling:

1. Form C107A - Application for Downhole Commingling;
2. C-102 plat for each zone showing its spacing unit and acreage dedication;
3. Anticipated production curves for Mesa Verde and Dakota;
4. Notification list of offset operators;
5. Shut in wellhead pressure and calculated down hole pressure of surrounding wells;
6. Nine-section plats for the Mesa Verde and Dakota.

Notification of Mesa Verde and Dakota interest owners is covered under Order R-10786 dated April 3, 1997 attached.

We will consult with the Supervisor of the Aztec District Office of the New Mexico Oil Conservation Division to establish an allocation formula.

Please let me know if you require additional data.

Sincerely,



Peggy Bradford
Regulatory/Compliance Administrator

xc: Bureau of Land Management - hand delivered

E

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 87505-6429

Form C-107-A New 3-12-96

APPROVAL PROCESS :

X Administrative Hearing

EXISTING WELLBORE

YES NO

APPLICATION FOR DOWNHOLE COMMINGLING

Burlington Resources Oil & Gas Company

PO Box 4289, Farmington, NM 87499

Operator Address CANYON LARGO UNIT 294E O 2-25N-6W Rio Arriba

Lease Well No. Unit Ltr. - Sec - Twp - Rge Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 14538 Property Code 8667 API NO. 30-039-not assigned Federal x State x (and/or) Fee

Table with 4 columns: The following facts are submitted in support of downhole commingling, Upper Zone, Intermediate Zone, Lower Zone. Rows include Pool Name and Pool Code, Top and Bottom of Pay Section, Type of production, Method of Production, Bottomhole Pressure, Oil Gravity, Producing or Shut-in?, Production Marginal?, and Fixed Percentage Allocation Formula.

- 9. If allocation formula is based upon something other than current or past production...
10. Are all working, overriding, and royalty interests identical in all commingled zones?
11. Will cross-flow occur?
12. Are all produced fluids from all commingled zones compatible with each other?
13. Will the value of production be decreased by commingling?
14. If this well is on, or communitized with, state or federal lands...
15. NMOCD Reference Cases for Rule 303(D) Exceptions:
16. ATTACHMENTS:

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

SIGNATURE Joan M Easley TITLE Production Engineer DATE 07/10/97

TYPE OR PRINT NAME Joan M. Easley TELEPHONE NO. (505) 326-9700

District I
 PO Box 1980, Hobbs, NM 88241-1980
 District II
 PO Drawer DD, Artesia, NM 88211-0719
 District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 District IV
 PO Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
 Energy, Minerals & Natural Resources Department

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

Form C-
 Revised February 21, 1988
 Instructions on b
 Submit to Appropriate District Of
 State Lease - 4 Coj
 Fee Lease - 3 Coj

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-039-		Pool Code 72319/71599	Pool Name Blanco Mesaverde/Basin Dakota
Property Code 6886	Property Name Canyon Largo Unit		Well Number 294E
OGRID No. 14538	Operator Name BURLINGTON RESOURCES OIL & GAS COMPANY		Elevation 6682'

10 Surface Location

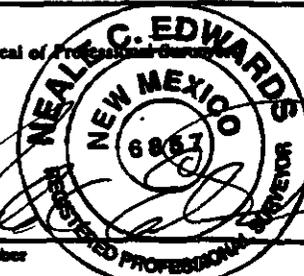
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	2	25-N	6-W		900	South	1505	East	R.A.

11 Bottom Hole Location If Different From Surface

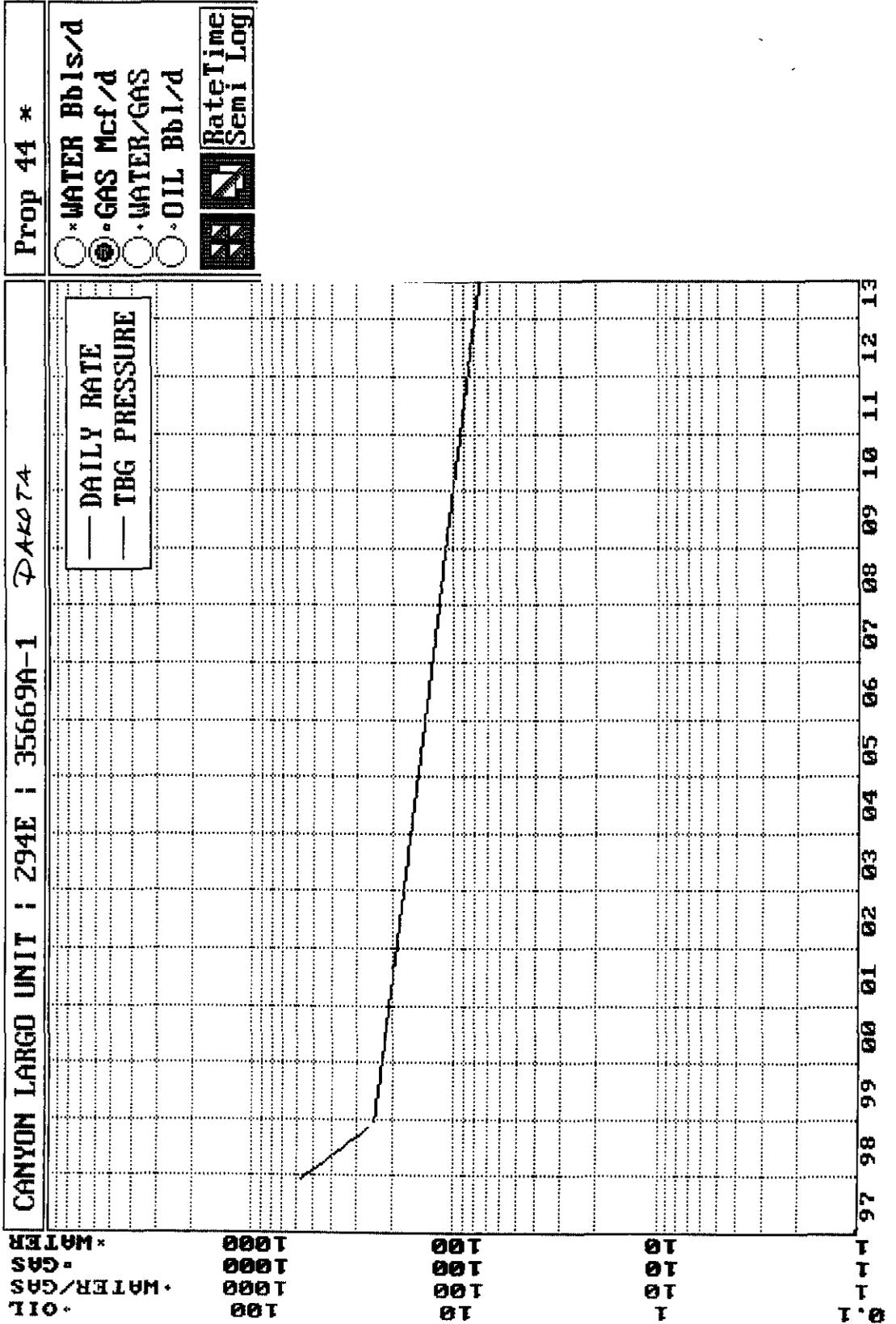
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

12 Dedicated Acres MV-E/320 DK E/320	13 Joint or Infill	14 Consolidation Code	15 Order No.
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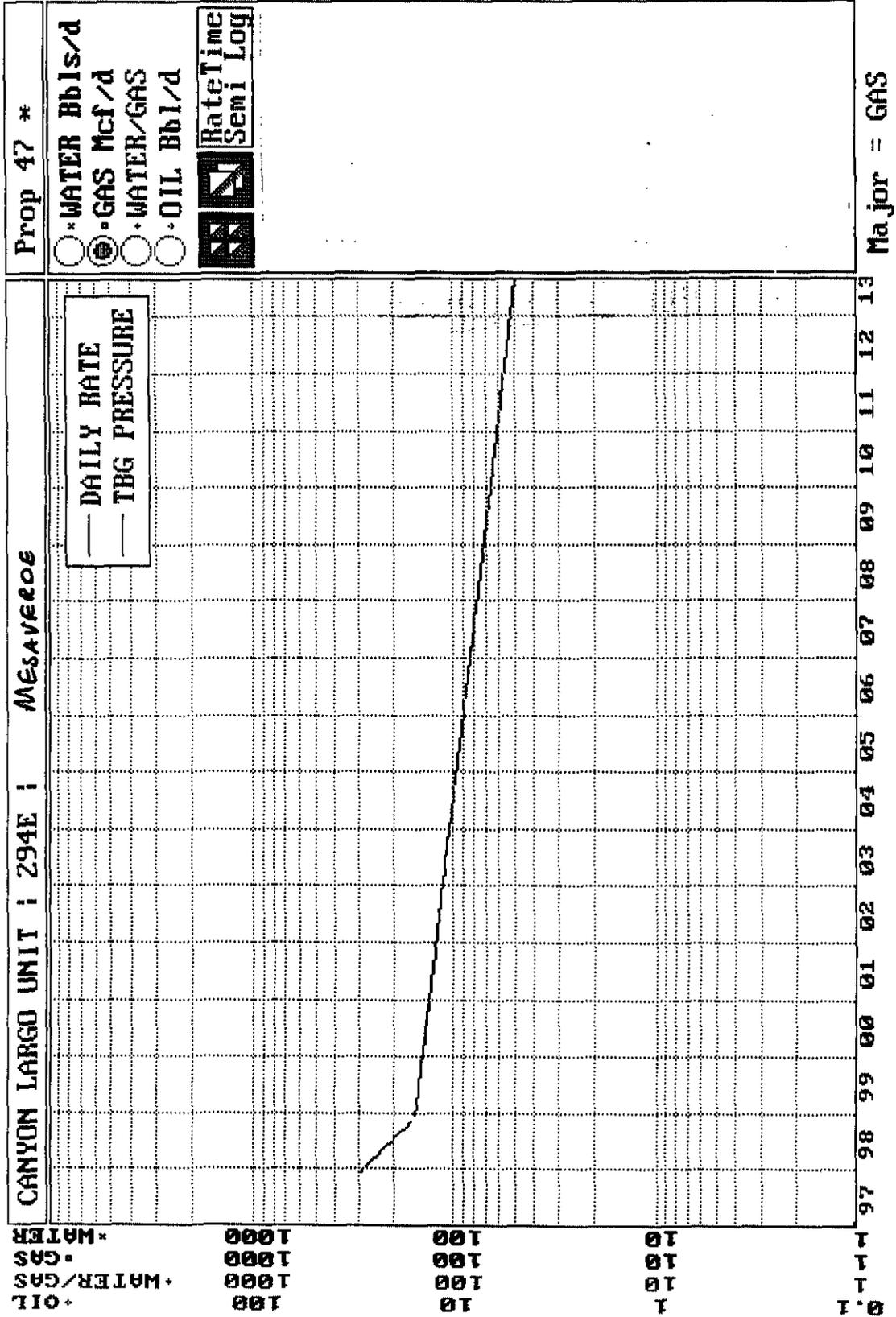
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16 1318.68 4 1301.52 2603.04	5300.46		1 1318.02 1305.48	17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature Peggy Bradfield Printed Name Regulatory Administrator Title Date
	2 E-291-49	2 E-291-50		
	5245.68		2610.96	18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by or under my supervision, and that the same is true and correct to the best of my belief. 5/12/97 Date of Survey Signature and Seal of Professional Surveyor  6857 Certificate Number

ANTICIPATED PRODUCTION PROFILE



ANTICIPATED PRODUCTION PROFILE

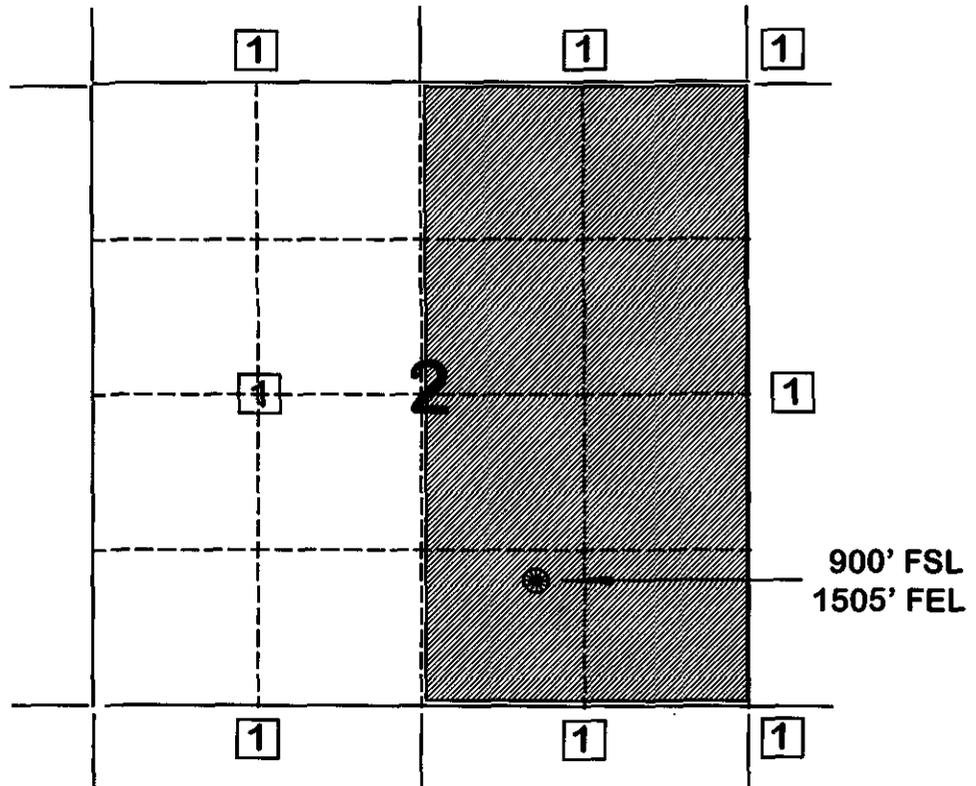


BURLINGTON RESOURCES OIL AND GAS COMPANY

**Canyon Largo Unit #294E
OFFSET OPERATOR \ OWNER PLAT**

Mesaverde/Dakota Formations Commingle Well

Township 25 North, Range 6 West



1) Burlington Resources Oil and Gas Company

Page No.: 2

Print Time: Tue Jun 10 11:26:22 1997

Property ID: 162

Property Name: CANYON LARGO UNIT | 294 | 45011A-1 ← PARENT DAKOTA WELL

Table Name: K:\ARIES\RR98PDP\TEST.DBF

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

01/08/81	0	2552.0	← original
01/15/81	0	2553.0	
04/06/81	39260	1837.0	
05/28/82	192154	1139.0	
07/12/83	275605	1056.0	
09/04/85	433913	799.0	
03/05/88	573907	821.0	
04/22/90	664674	682.0	
11/12/92	727771	676.0	← current

**FLOWING AND STATIC BHP
CULLENDER AND SMITH METHOD**

VERSION 1.0 3/13/94

GAS GRAVITY	<u>0.706</u>
COND. OR MISC. (C/M)	<u>C</u>
%N2	<u>0.95</u>
%CO2	<u>0.83</u>
%H2S	<u>0</u>
DIAMETER (IN)	<u>2.875</u>
DEPTH (FT)	<u>7250</u>
SURFACE TEMPERATURE (DEG F)	<u>60</u>
BOTTOMHOLE TEMPERATURE (DEG F)	<u>190</u>
FLOWRATE (MCFPD)	<u>0</u>
SURFACE PRESSURE (PSIA)	<u>2552</u>
BOTTOMHOLE PRESSURE (PSIA)	<u>3139.4</u>

CANYON LARGO UNIT #294 - ORIGINAL DAKOTA PRESSURE

**FLOWING AND STATIC BHP
CULLENDER AND SMITH METHOD**

VERSION 1.0 3/13/94

GAS GRAVITY	0.706
COND. OR MISC. (C/M)	C
%N2	0.96
%CO2	0.83
%H2S	0
DIAMETER (IN)	2.875
DEPTH (FT)	7250
SURFACE TEMPERATURE (DEG F)	60
BOTTOMHOLE TEMPERATURE (DEG F)	190
FLOWRATE (MCFPD)	0
SURFACE PRESSURE (PSIA)	676
BOTTOMHOLE PRESSURE (PSIA)	812.2

CANYON LARGO UNIT #294 - CURRENT DAKOTA PRESSURE

Page No.: 1

Print Time: Tue Jun 10 10:46:18 1997

Property ID: 2571

Property Name: CANYON LARGO UNIT NP | 237 | 52919A-1

Table Name: K:\ARIES\RR98PDP\TEST.DBF

Mesavender

← Nearest offset of current data

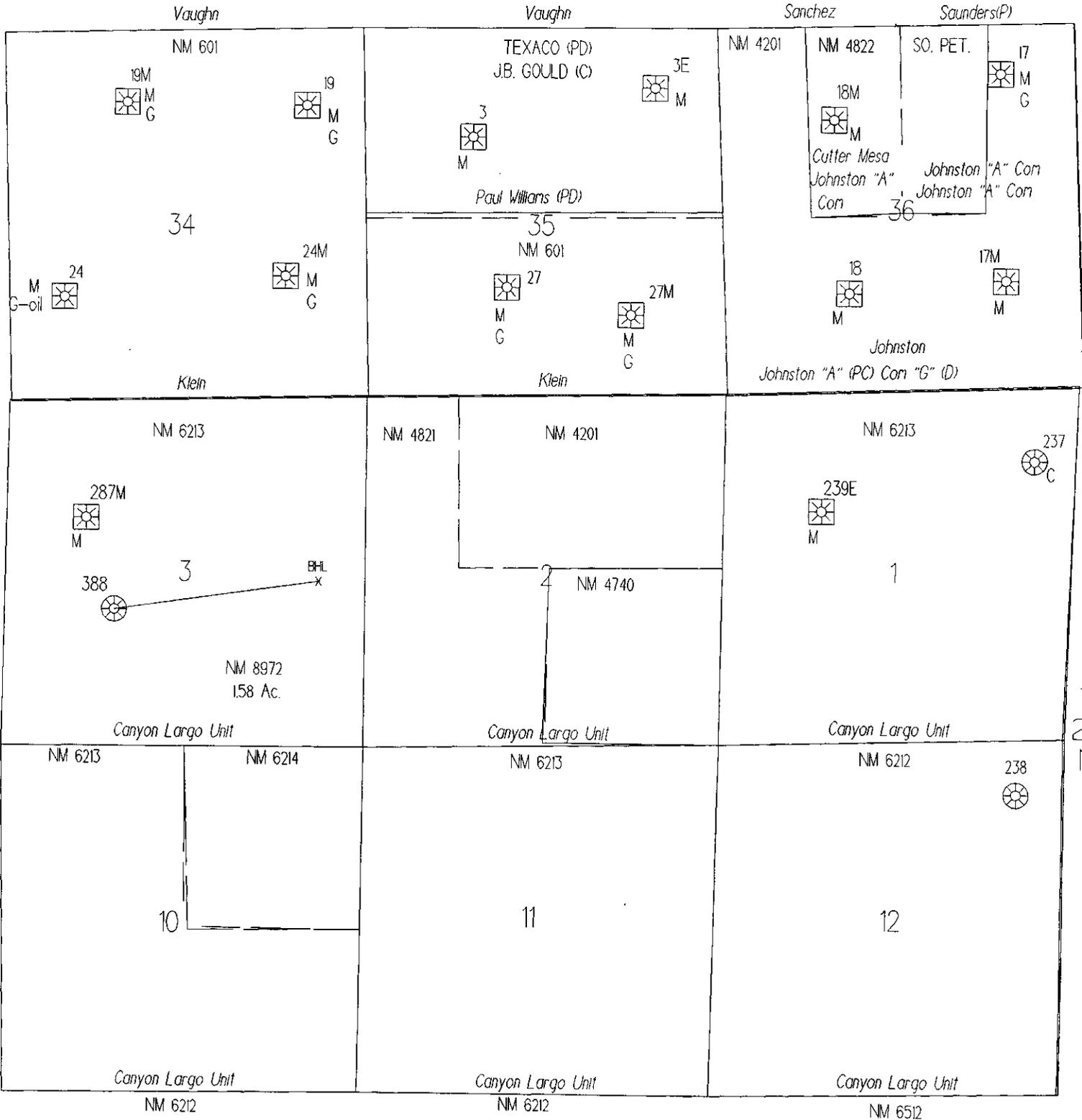
--DATE-- ---CUM GAS-- M SIBHP
Mcf Psi

DATE	CUM GAS (Mcf)	SIBHP (Psi)
06/03/74	0	0
07/09/74	0	1430.0
10/07/74	10493	1311.0
05/19/75	39317	1106.0
05/05/76	111974	731.0
04/03/78	205455	768.0
06/04/80	272578	725.0
12/07/89	434856	605.0
01/24/91	485363	535.0
11/22/91	507859	535.0
10/05/93	571988	422.0

← original Bottomhole Pressure

← current Bottomhole Pressure

Canyon Largo Unit #294E
 Blanco Mesaverde
 02-25N-06W



R-06-W

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. 11685
ORDER NO. R-10786

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

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on January 23, 1997, at Santa Fe, New Mexico, before Examiner David R. Catznach.

NOW, on this 3rd day of April, 1997, 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, Pictured Cliffs, Chacra, Gallup and Fruitland Coal gas production within existing or future drilled wells within the Canyon Largo Unit, Rio Arriba County, New Mexico.

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

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"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) Burlington Resources Oil & Gas Company is the current operator and Merrion Oil & Gas Corporation (Merrion) is the sub-operator of the Gallup formation within the Canyon Largo Unit which encompasses some 49,876 acres in Townships 24 and 25 North, Ranges 6 and 7 West, NMPM, Rio Arriba County, New Mexico.

(5) Within the Canyon Largo Unit, Burlington or Merrion currently operate forty-five (45) Basin-Dakota Gas Pool wells, five (5) Blanco-Mesaverde Gas Pool wells, twenty-eight (28) Otero-Chacra Gas Pool wells, fifty-nine (59) Devils Fork-Gallup Pool wells, one-hundred forty (140) Ballard-Pictured Cliffs and South Blanco-Pictured Cliffs Gas Pool wells, and zero (0) 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, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal formations whereby these formations and/or pools may be identified as "marginal" on Form C-107-A's subsequently filed for wells within the Canyon Largo 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, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal 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 Canyon Largo 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 Canyon Largo Unit; and,

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d) establish a "reference case" or an administrative procedure for authorizing the downhole commingling of existing or future drilled wells within the Canyon Largo 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 indicate that within the Canyon Largo Unit:

- a) in general, the Dakota formation within the Canyon Largo unit should be marginal, however, there is potential for encountering isolated compartmentalized Dakota producing sands which may produce at non-marginal rates;
- b) although there are only a small number of Mesaverde producing wells, there is extensive geologic data regarding the Mesaverde formation within the Canyon Largo Unit. This data indicates that the Mesaverde formation presents limited opportunities within the Canyon Largo Unit and should be considered a marginal reservoir;
- c) the better Pictured Cliffs and Chacra reservoir development lies within the northeast portion of the Canyon Largo Unit. The potential for further development of the Pictured Cliffs and Chacra formations outside this area is limited and both should be considered marginal reservoirs;
- d) there is extensive Gallup development in the southern portion of the Canyon Largo Unit, however remaining potential in the Gallup formation should be considered marginal;
- e) the Basin-Fruitland Coal reservoir within the Canyon Largo Unit is in an under-pressured area of the San Juan Basin and presents limited opportunity;
- f) the average recoverable oil and gas reserves and average initial producing rates from the various formations within the Canyon Largo Unit are summarized as follows:

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<u>FORMATION</u>	<u>AVERAGE ESTIMATED ULTIMATE RECOVERY</u>	<u>AVERAGE INITIAL PRODUCING RATE</u>
Dakota	987 MMCFG	196 MCFGD
Mesaverde	841 MMCFG	262 MCFGD
Pictured Cliffs	678 MMCFG	126 MCFGD
Chacra	1096 MMCFG	320 MCFGD
Gallup	501 MMCFG 44 MBO	76 MCFGD 14 BOPD
Fruitland Coal	NA	NA

(8) The evidence and testimony presented by the applicant indicate that the Dakota, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal formations within the Canyon Largo Unit should be properly classified as "marginal".

(9) In support of its request to except pressure criteria within the Dakota, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal formations within the Canyon Largo Unit, the applicant presented engineering evidence and testimony which indicate that the average shut-in bottomhole pressure at the time of initial development and average current shut-in bottomhole pressure within the subject formations are as follows:

<u>FORMATION</u>	<u>AVERAGE INITIAL SHUT-IN BOTTOMHOLE PRESSURE</u>	<u>AVERAGE CURRENT SHUT-IN BOTTOMHOLE PRESSURE</u>
Dakota	2754 psi	937 psi
Mesaverde	1431 psi	741 psi
Pictured Cliffs	822 psi	255 psi
Chacra	986 psi	280 psi
Gallup	NA	NA
Fruitland Coal	822 psi	822 psi

(10) There is sufficient pressure data available within the Canyon Largo Unit so as to except pressure criteria in the Dakota, Pictured Cliffs, Chacra and Gallup formations, however, there is insufficient data to except pressure criteria in the Fruitland Coal and Mesaverde formations as proposed by the applicant.

(11) The applicant testified that various allocation methods will be utilized for downhole commingled wells within the Canyon Largo 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;

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Order No. R-10786
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- 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 addition to the above, the applicant proposed utilizing a formula by which the production allocation may be determined by utilizing the BTU content and/or API gravity of the commingled stream.

(14) The proposed formula described in Finding No. (13) above should be used only to verify the results of production allocation derived by the methods described in Finding No. (11) above.

(15) In support of its request to establish a "reference case" or administrative procedure for providing notice within the Canyon Largo Unit the applicant presented evidence and testimony which indicate that:

- a) the interest ownership between two zones within a given wellbore in the Canyon Largo Unit is generally not common;
- b) pursuant to Division Rule No. 303.D., applicant is currently required to notify all interest owners within the Canyon Largo 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 Canyon Largo Unit of subsequent downhole comminglings is unnecessary and is an excessive burden on the applicant;
- d) the downhole commingling of wells within the Canyon Largo Unit Area will benefit working, royalty, and overriding royalty interest owners. In addition, the downhole commingling of wells within the Canyon Largo 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.

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Order No. R-10786

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(16) An administrative procedure should be established within the Canyon Largo Unit for obtaining approval for subsequently 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.

(17) 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 Canyon Largo 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 marginal economic criteria and modification of notification rules on a unit-wide basis for downhole commingling of Dakota, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal gas production within existing or future drilled wells within the Canyon Largo Unit, located in portions of Townships 24 and 25 North, Ranges 6 and 7 West, NMPM, Rio Arriba County, New Mexico, is hereby approved.

(2) The application of Burlington Resources Oil & Gas Company to establish a "reference case" for pressure criteria in the Dakota, Pictured Cliffs, Chacra and Gallup formations within the Canyon Largo Unit is hereby approved, provided however that, the portion of the application seeking to establish a "reference case" for pressure criteria in the Fruitland Coal and Mesaverde formations within the Canyon Largo Unit is hereby denied.

(3) Upon filing of Division Form No. C-107-A's for wells subsequently downhole commingled within the Canyon Largo Unit Area, the applicant shall not be required to submit supporting data to justify the classification of the Dakota, Mesaverde, Pictured Cliffs, Chacra, Gallup and Fruitland Coal formations as "marginal", supporting data to verify the Dakota, Pictured Cliffs, Chacra and Gallup 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.

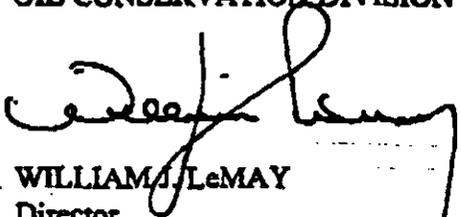
(4) In order to obtain Division authorization to downhole commingle wells within the Canyon Largo Unit, the applicant shall file a Form C-107-A with the Santa Fe and Aztec Offices of the Division. Such application shall contain all the information required under Rule No. 303.D. of the Division Rules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

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(5) 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