

**SPIRIT
ENERGY**



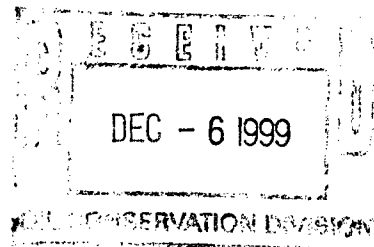
New Name. Same Spirit.
A Business Unit of Unocal

DHC 12/27/99

2556

December 2, 1999

U.S. Department of the Interior
Bureau of Land Management
Attn.: Jim LaVato
1235 La Plata Highway
Farmington, NM 87401



New Mexico Oil Conservation Division
Attn.: David Catanach
2040 S. Pacheco Street
Santa Fe, NM 87505-6429
Cc: NMOCD, 1000 Rio Brazos Road
Aztec, NM 87410

Gentlemen,

Union Oil Company of California (UNOCAL) requests approval to down hole commingle production from the Blanco Mesaverde and Basin Dakota formations in the following Rincon Unit wells, Rio Arriba County, New Mexico.

Well	Lease	Legal Location
172M	Federal	1575' FNL, 1345' FWL, NW Sec 26, T27N, R7W
169M	Federal	1165' FSL, 1030' FEL, SE Sec 26, T27N, R7W

As provided by Order No. R-9893, administrative approval may be granted without notice and hearing.

Form C-107-A with supporting data is attached.

If you have any questions please contact Heather Dahlgren at (915) 685-7665.

Sincerely,

Spirit Energy 76
A Business Unit of UNOCAL


Heather Dahlgren
Senior Engineering Technician

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
DISTRICT II
811 South First St., Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd. Aztec, NM 87410
DISTRICT IV
2040 S. Pacheco, Santa Fe, NM 87505

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
Revised August 1999

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☐ YES ☒ NO

APPLICATION FOR DOWNHOLE COMMINGLING

UNION OIL COMPANY OF CALIFORNIA (UNOCAL)

1004 N. B'G SPRING, MIDLAND, TX 79702

Operator

Address

RINCON UNIT

172M

F 26-27N-7W

RIO ARRIBA

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 023708

Property Code 011510

API NO. 30-039-26208

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 MESAVERDE 72319		BASIN DAKOTA 71599
2. Top and Bottom of Pay Section (Perforations)	5213-5388		7334-7516
3. Type of production (Oil or Gas)	GAS		GAS
4. Method of Production (Flowing or Artificial Lift)	FLOWING		FLOWING
5. Bottomhole Pressure	a. (Current) 1300	a.	a. 1690
Oil Zones - Artificial Lift:			
Gas & Oil - Flowing:	b. (Original)	b.	b.
All Gas Zones:	1300		1690
Estimated Or Measured Original			
6. Oil Gravity (EAPI) or Gas BTU Content	1230		1170
7. Producing or Shut-In?	Shut in		Shut in
	yes		yes
Production Marginal? (yes or no)			
* If Shut-In, give date and oil/gas/water rates of last production	Date:	Date:	Date:
	Rates:	Rates:	Rates:
Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data			
* If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date:	Date:	Date:
	Rates: to be provided pending test	Rates:	Rates: to be provided pending test
8. Fixed Percentage Allocation Formula - % for each zone (total of %'s to equal 100%)	To be determined see attachments Oil: % Gas: %	Oil: % Gas: %	To be determined see attachments Oil: % Gas: %

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? R-9893 ☒ 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). _____

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 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 Heather Dahlgren TITLE Engineering Asst. DATE 12-2-99

TYPE OR PRINT NAME Heather Dahlgren TELEPHONE NO. (915) 685-7665

DISTRICT I
1825 N. French Dr., Hobbs, NM 88240
DISTRICT II
811 South First St., Artesia, NM 88210
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1000 Rio Brazos Rd. Aztec, NM 87410
DISTRICT IV
2040 S. Pacheco, Santa Fe, NM 87505

State of New Mexico
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Santa Fe, New Mexico 87505-6429

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Revised August 1999

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☒ Administrative ☐ Hearing

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☐ YES ☒ NO

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1004 N. BIG SPRING, MIDLAND, TX 79702

Operator

Address

RINCON UNIT

§ 89M

P 26-27N-7W

RIO ARRIBA

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

Spacing Unit Lease Types: (check 1 or more)

OGRID NO. 023708 Property Code 011510 API NO. 30-039-26207 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 MESAVERDE 72319		BASIN DAKOTA 71599
2. Top and Bottom of Pay Section (Perforations)	5288-5475		7378-7602
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: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 1190 b. (Original) 1190	a. b.	a. 1700 b. 1700
6. Oil Gravity (EAPI) or Gas BTU Content	1230		1170
7. Producing or Shut-In?	Shut in		Shut in
Production Marginal? (yes or no)	yes		yes
* If Shut-In, give date 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 * If Producing, give date and oil/gas/water rates of recent test (within 60 days)	Date: Rates:	Date: Rates:	Date: Rates:
	Date: Rates: to be provided pending test	Date: Rates:	Date: Rates: to be provided pending test
8. Fixed Percentage Allocation Formula - % for each zone (total of %'s to equal 100%)	To be determined see attachments Oil: % Gas: %	Oil: % Gas: %	To be determined see attachments Oil: % Gas: %

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If not, have all working, overriding, and royalty interests been notified by certified mail? R-9893 ☒ Yes ☐ No

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- * 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 Heather Dahlgren TITLE Engineering Asst. DATE 12-2-99

TYPE OR PRINT NAME Heather Dahlgren TELEPHONE NO. (915) 685-7665

December 2, 1999

Supplemental Data in Support of Downhole Commingling Application
Rincon Unit Wells 172M and 169M

In 1992, Union Oil Company of California (UNOCAL) began developing Infill Dakota/Mesaverde locations on the Rincon Unit. Since that time, 40 Dakota/Mesaverde wells have been approved for Downhole Commingling. As spacing rules change, commingling continues to be the most economic method of developing reserves on the Rincon Unit.

The last seven years of new development have provided us with an ever increasing database of production histories, pressure data and geologic data. In support of this application, UNOCAL feels that this database provides an equitable and accurate means for allocating production between the commingled pools. Production allocation factors for the above wells will use the following data:

- A) Initial production flow tests.
- B) Offset well production history.
- C) Production profile models.
- D) Net pay.

While differences of production allocation do occur on the Rincon Unit, the average allocation is 60% Dakota, 40% Mesaverde. Wide variances from these averages can be attributed to geology. Through out most of the unit, the Dakota formation provides less geologic and production variability than does the Mesaverde. To determine the contribution of the Mesaverde in a given area and well, flow tests, offset production, model decline comparisons and net pay must be considered. The enclosed attachments provide examples of the types of supporting data that will be used to derive the allocation percentages.

Unocal is in the process of completing the production flow tests. We would request that the application be approved based on the above with allocation factors to be provided within the first 60 days of commingled production.

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-102
Revised February 21, 1994
Instructions on back
Submit to Appropriate District Office
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Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

AP# Number		Pool Code	Pool Name
		72319	Blanco Mesa Verde
Property Code	Property Name		Well Number
011510	RINCON UNIT		172M
GRID No.	Operator Name		Elevation
023710	UNION OIL COMPANY OF CALIFORNIA		6665

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
6	26	27 N	7 W		1575	North	1345	West	Rio Arriba

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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

<p>BC SB8°33'W</p> <p>84.00CH.</p> <p>1345'</p> <p>1575'</p> <p>SEC.</p> <p>BC</p> <p>NO 21'E</p> <p>SB9°43'W</p> <p>BC</p>				<p>BC 79.92CH.</p> <p>LOT No. (TYP.)</p> <p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>BC</p> <p>79.93CH.</p> <p>BC</p>		<p>17 OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief</p> <p>Signature: <u>Michael C. Phillips</u></p> <p>Printed Name: <u>Michael C. Phillips</u></p> <p>Title: <u>Rocky Mt. Drilling Foreman</u></p> <p>Date: <u>July 20, 1999</u></p>	
<p>BC</p> <p>26</p> <p>BC</p>				<p>18 SURVEYOR CERTIFICATION</p> <p>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 belief.</p> <p>Date of Survey: <u>JUL 20 1999</u></p> <p>Signature and Seal of Professional Surveyor: <u>William E. Mahake II</u></p> <p>REGISTERED PROFESSIONAL SURVEYOR</p> <p>#8466</p> <p>Certificate Number 8466</p>			

District I
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. AIT Number		2. Pool Code 71599		3. Pool Name Basin Dakota	
4. Property Code 011510		5. Property Name RINCON UNIT			6. Well Number 172M
7. OGRID No. 023710		8. Operator Name UNION OIL COMPANY OF CALIFORNIA			9. Elevation 6665

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
6	26	27 N	7 W		1575	North	1345	West	Rio Arriba

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 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

				<p>17. OPERATOR CERTIFICATION</p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief</p> <p>Signature: <i>Michael C. Phillips</i></p> <p>Printed Name: Michael C. Phillips</p> <p>Title: Rocky Mt. Drilling Foreman</p> <p>Date: July 20, 1999</p>	
<p>18. SURVEYOR CERTIFICATION</p> <p>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 belief.</p> <p>Date of Survey: <i>July 1999</i></p> <p>Signature and Seal of Professional Surveyor: <i>William E. Mahake II</i></p> <p>Professional Surveyor Seal: #8466</p> <p>Certificate Number: 8466</p>					

Revised February 21, 1994

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☐ AMENDED REPORT

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

* API Number		* Pool Code	* Pool Name
		72319	Blanco Mesa Verde
* Property Code	* Property Name		* Well Number
011510	RINCON UNIT		169M
* OGRID No.	* Operator Name		* Elevation
023710	UNION OIL COMPANY OF CALIFORNIA		6696

¹⁰ Surface Location

Pl. or lot no.	Section	Township	Range	Lot 1dn	Feet from the	North/South line	Feet from the	East/West line	County
16	26	27 N	7 W		1165	South	1030	East	Rio Arriba

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
"Dedicated Acres 320	"Joint or Infill	"Consolidation Code		"Order No.					

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

BC SB8°33'W 79.92 CH. 17 OPERATOR CERTIFICATION

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

Signature: Michael C. Phillips

Printed Name: Michael C. Phillips

Title: Rocky Mt. Drilling Foreman

Date: June 22, 1999

BC 85.68 CH.

4 3 2 1

5 6 7 8

SEC.

BC 26

12 11 10 9

13 14 15 16

1165' 1030'

17 SURVEYOR CERTIFICATION

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.

Date of Survey: June 22, 1999

Signature and Seal of Professional Surveyor: William S. Mahuke II

NEW MEXICO
REGISTERED PROFESSIONAL LAND SURVEYOR
#8466

William S. Mahuke II

Certificate Number: 8466

BC 29.73 CH. BC

84.00 CH. 85.68 CH.

NO°21'E NO°25'E

SB8°33'W SB9°43'W

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Form C-102

Revised February 21, 1994

Instructions on back

070 FARMINGTON, NM

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

* All Number		* Pool Code	* Pool Name
		71599	Basin Dakota
* Property Code	* Property Name		* Well Number
011510	RINCON UNIT		169M
* OGRID No.	* Operator Name		* Elevation
023710	UNION OIL COMPANY OF CALIFORNIA		6696

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
16	26	27 N	7 W		1165	South	1030	East	Rio Arriba

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

" Dedicated Acres	" Joint or Infill	" Consolidation Code	" Order No.
320			

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16C 588° 33' W				17C 79.92 CH.				17 OPERATOR CERTIFICATION							
4				3				2				LOT No. (TYP.)			
												1			
5				6				7				8			
				SEC.											
12				11				10				9			
13				14				15				16			
1165'				1030'											
589° 43' W				29.73 CH.											
17C				26				17C				18 SURVEYOR CERTIFICATION			
												I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief			
												Signature			
												Michael C. Phillips			
												Printed Name			
												Rocky Mt. Drilling Foreman			
												Title			
												June 22, 1999			
												Date			
												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			
												Date of Survey			
												Signature and Seal of Professional Surveyor			
												William S. Mahake II			
												Certificate Number 8466			

Offset Commingled Well Data to Wells 172M and 169M

Gas Production Data by Well

Reference Wells	Location	Completion Type	First Delivery	Initial Rate (MCFD) Commingled	Rate @ 3 months	Rate @ 6 months	Rate @ 12 months	GCUM @ 36 months (MMCF)	OCUM @ 36 months (MBBL)	Dakota Initial Rate (MCFD)	Mesaverde Initial Rate (MCFD)	Mesaverde (%)
131E	27N-7W-36_C	DH Comm.	Jan-31-96	1375	900	740	565	590	2.7	521	857	62.2%
193M	27N-7W-35_D	Surf. Comm.	Nov-14-95	1660	911	553	360	441	2.2	877	774	46.9%
185E	27N-7W-22_J	Surf. Comm.	Oct-24-95	800	500	390	350	374	2.2	638	168	20.8%
178E	27N-7W-23_J	DH Comm.	Oct-24-95	580	318	390	375	333	1.2	414	166	28.6%
138E	27N-7W-25_F	DH Comm.	Dec-12-94	350	563	195	193	256	0.5	220	130	37.1%

Average Gas Production Data

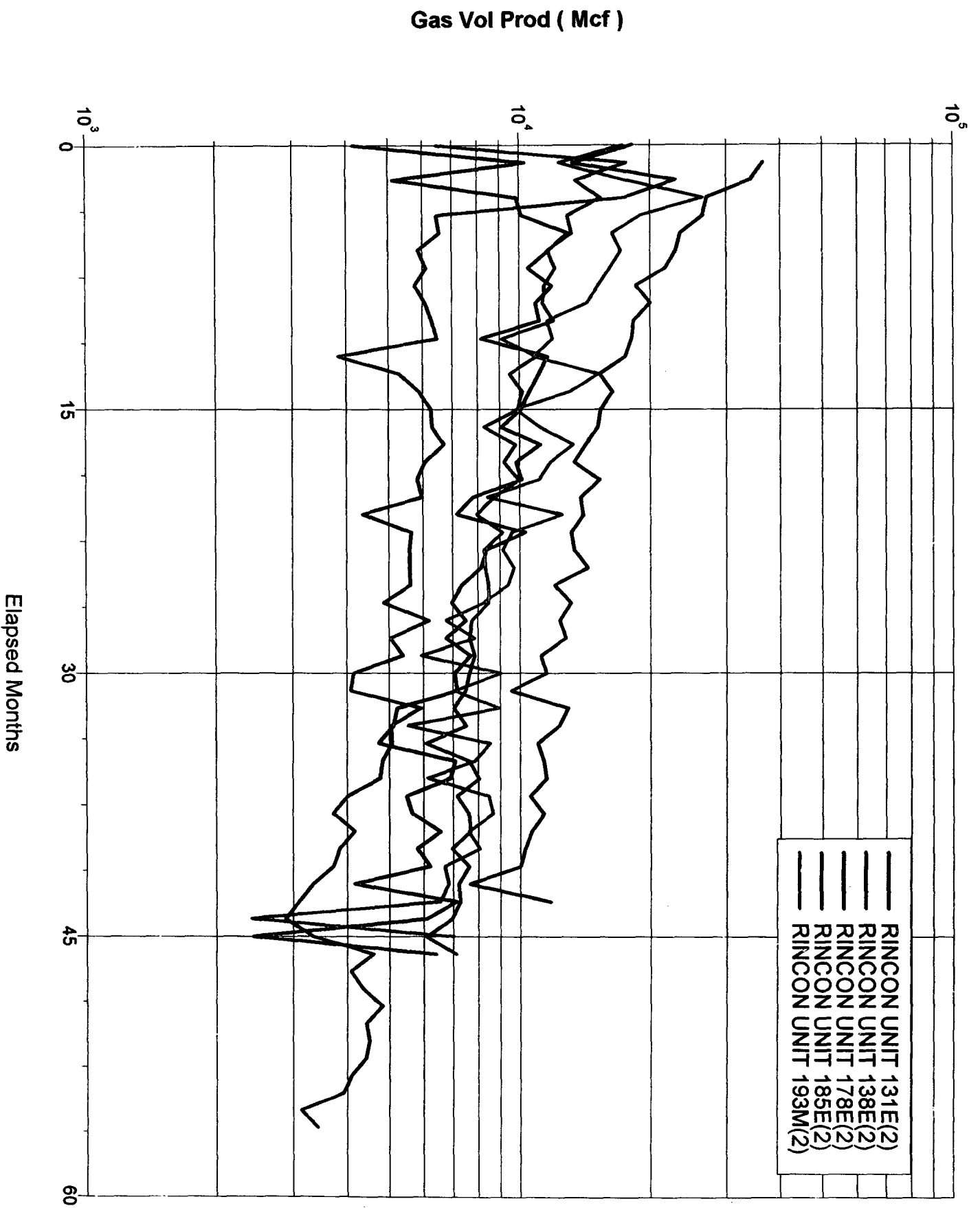
	Initial Rate (MCFD) Commingled	Rate @ 3 months	Rate @ 6 months	Rate @ 12 months	GCUM @ 36 months (MMCF)	OCUM @ 36 months (MBBL)	Dakota Initial Rate (MCFD)	Mesaverde Initial Rate (MCFD)	Mesaverde (%)
Average 1 Mesaverde Contribution High (Wells 193M & 131E)	1518	906	647	463	515	2.5	699	816	54.5%
Average 2 Mesaverde Contribution Avg. (Wells 178E & 185E)	690	409	390	363	353	2	526	167	24.7%
Low Case Dakota Below Avg. / Mesaverde Avg. (Well 138E)	350	563	195	193	256	1	220	130	37.1%

Completion Data

	Dakota/Gr Interval	Mesaverde Interval	Dakota Frac	Graneros Frac	Mesaverde Frac
193M	7338-7514	5362-5382	225M-XL	96M-XL	73M-L
131E	7244-7456	5100-5402	200M-XL	100M-XL	75M-L
138E	7490-7562	5206-5306	195M-XL		90M-L
178E	7388-7593	5102-5486	210M-XL	92M-XL	60M-L
185E	7364-7488	5326-5535	200M-XL	92M-XL	70M-L

*Frac: Lbs. of Sand - Fluid Type XL (Cross Link Gel), L (Linear Gel)

DK/MV Commingled Wells Surrounding Section 26-27N-7W



RINCON UNIT DAKOTA AND MESAVERDE PRODUCTION COMPARISON **for Separately Metered New Completions (Dual or Single Completion Types)**

