

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. BIG SPRING, MIDLAND, TX 79702

Operator

Address

RINCON UNIT

172M

F 26-27N-7W

RIO ARRIBA

Lease

Well No.

Unit Ltr. - Sec - Twp - Rge

County

OGRID NO. 023708

Property Code 011510

API NO. 30-039-26208

Spacing Unit Lease Types: (check 1 or more)

(and/or) Fee

Federal ☒ State ☐

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 Oil Zones - Artificial Lift: Gas & Oil - Flowing: All Gas Zones: Estimated Current Measured Current Estimated Or Measured Original	a. (Current) 1300 b. (Original) 1300	a. b.	a. 1690 b. 1690
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: to be provided pending test	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: %	To be determined see attachments 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. NMOC 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

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☒ Administrative ☐ Hearing

EXISTING WELLBORE

☐ YES ☒ NO

APPLICATION FOR DOWNHOLE COMMINGLING

UNION OIL COMPANY OF CALIFORNIA (UNOCAL)

1004 N. BIG SPRING, MIDLAND, TX 79702

Operator

Address

RINCON UNIT

169M

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	a. (Current) 1190	a.	a. 1700
Oil Zones - Artificial Lift: Estimated Current	b. (Original)	b.	b.
Gas & Oil - Flowing: Measured Current	1190		1700
All Gas Zones: Estimated Or Measured Original			
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	Date: Rates:	Date: Rates:	Date: Rates:
Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data	Date: Rates: to be provided pending test	Date: Rates:	Date: Rates: to be provided pending test
* If Producing, give date and oil/gas/water rates of recent test (within 60 days)			
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. NMOC Reference Cases for Rule 303(D) Exceptions: ORDER NO(S) _____

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- * 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

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
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1. All Number		2. Pool Code 72319		3. Pool Name Blanco Mesa Verde	
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 5665

10. Surface Location

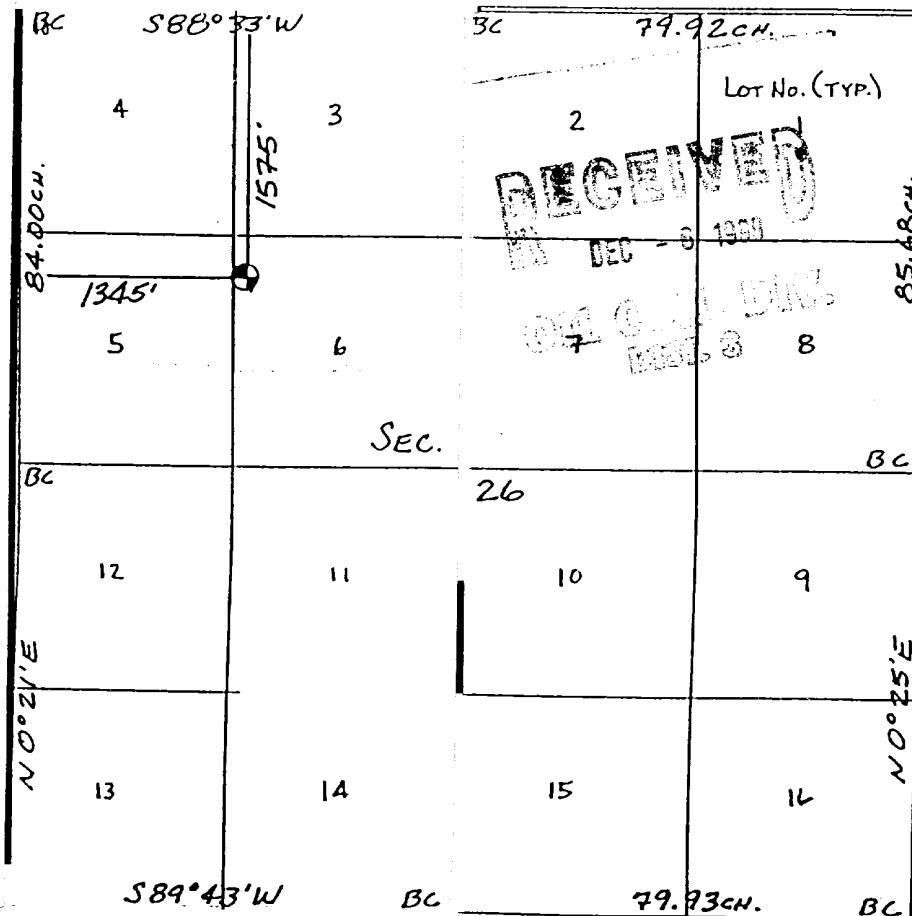
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
6	26	27 N	7 W		1575	North	1345	West	Rio Arriba

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



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: July 20, 1999

18. 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 belief.

Date of Survey: JUL 20 1999
Signature and Seal of Professional Surveyor: William E. Mahake II
Certificate Number: 8466

New Mexico Oil Conservation Division

District I
PO Box 1980, Hobbs, NM 88241-1980
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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.			

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. SURFACE LOCATION S88°33'W 79.92CH. Lot No. (TYP.) 1				17. OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. Signature: <u>Michael C. Phillips</u> Printed Name: <u>Michael C. Phillips</u> Title: <u>Rocky Mt. Drilling Foreman</u> Date: <u>July 20, 1999</u>	
18. 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 belief. Date of Survey: <u>July 20, 1999</u> Signature and Seal of Professional Surveyor: <u>William E. Mahake II</u> Certificate Number: <u>8466</u>					

Diagram showing well location and acreage dedication plat. The plat is divided into 16 sections (lots) arranged in a 4x4 grid. The well location is marked with a dot in section 5. The diagram includes bearings and distances: S88°33'W, 79.92CH., 1575', 1345', 84.00CH., 85.68-4., 89°43'W, 79.73CH., 80°21'E, 80°25'E. The word 'SEC.' is written in the center of the grid.

New Mexico Oil Conservation Division

District I
 PO Box 1980, Hobbs, NM 88241-1980
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 PO Box 110, Artesia, NM 88211-0119
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State of New Mexico
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 Revised February 21, 1994
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

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

10 Surface Location

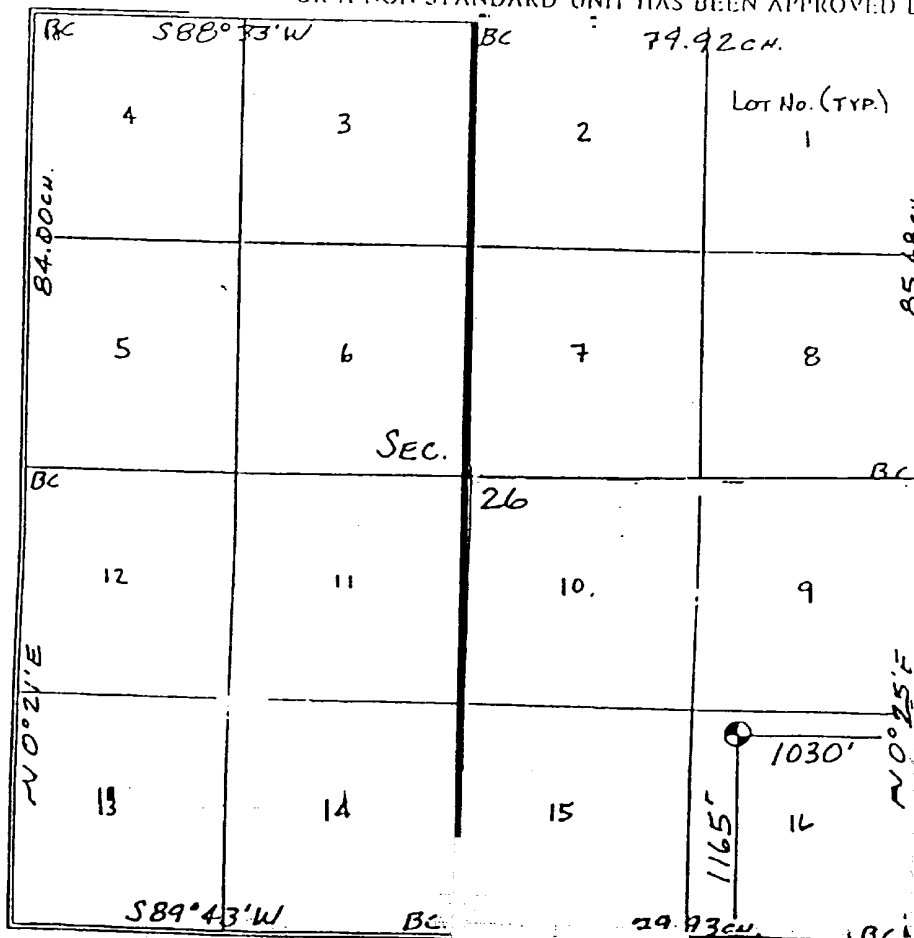
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
16	26	27 N	7 W		1165	South	1030	East	Rio Arriba

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



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**

18 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. Mahake II
 Certificate Number: **8466**

District I
 District II
 District III
 District IV

State of New Mexico
 Energy, Minerals & Natural Resources Department

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

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 Revised February 21, 1994
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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
* OCRID No.	* Operator Name		* Elevation
023710	UNION OIL COMPANY OF CALIFORNIA		6696

" Surface Location

UL 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

" Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot 1dn	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

BC	S88°33'W	BC	79.92cm.	17 OPERATOR CERTIFICATION
4	3	2	Lot No. (TYP.)	I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief
5	6	7	1	Signature
12	11	10	8	Micheal C. Phillips
13	14	15	9	Printed Name
			16	Rocky Mt. Drilling Foreman
				Title
				June 22, 1999
				Date
				18 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 and belief
				Date of Survey
				Signature and Seal of Professional Surveyor
				William S. Mahoke II
				Certificate Number 8466

Offset Commingle 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

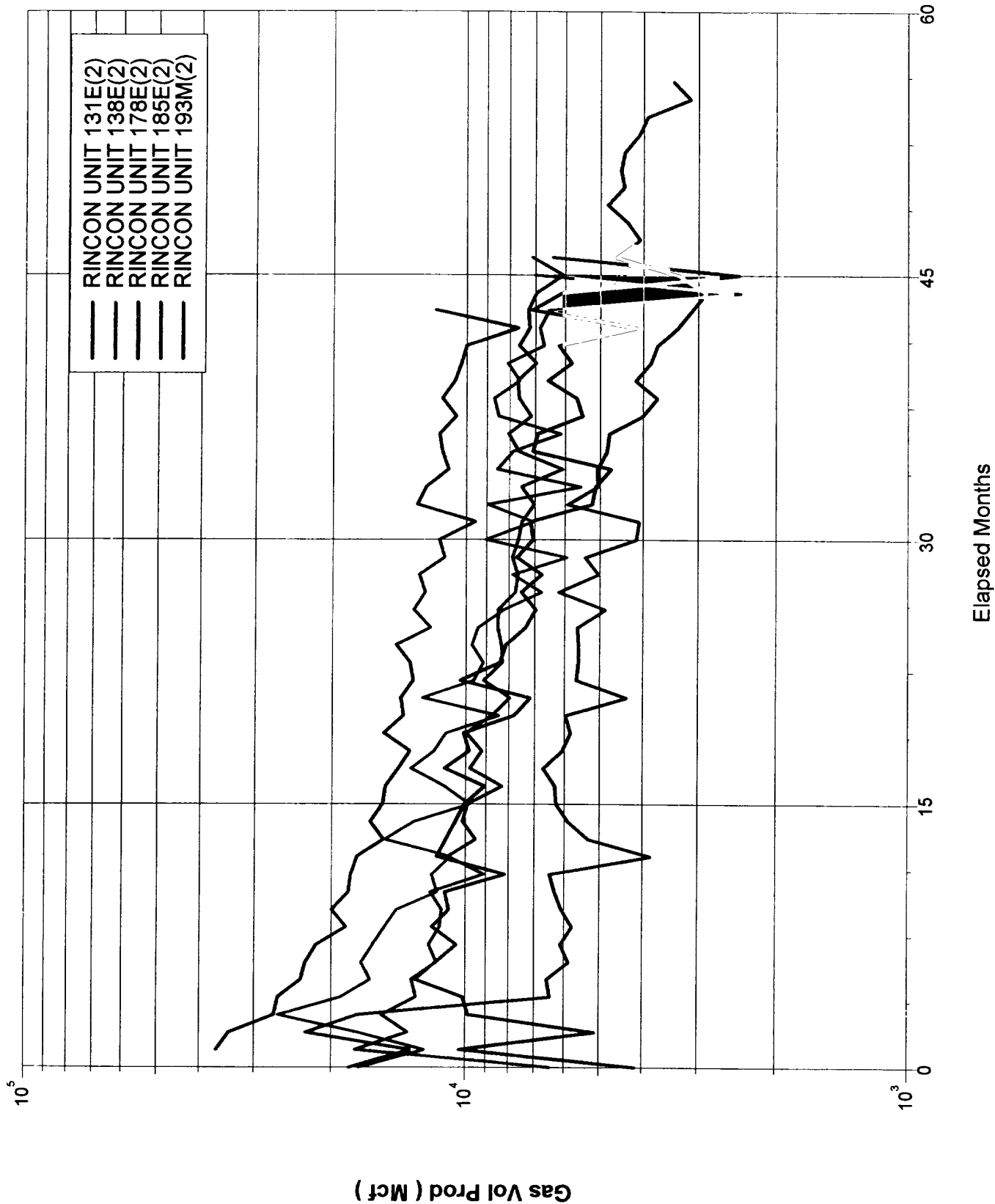
	Initial Rate (MCFD) Commingled	Rate @ 3 months	Rate @ 6 months	Rate @ 12 months	GCUM @ 36 months (MMCF)	OCUM @ 36 months (MBBL)	Dakota Initial Rate (MCFD)	Mesaverde Initial Rate (MCFD)	Mesaverde (%)
Average 1 Mesaverde Contribution High (Wells 193M & 131E)	1518	906	647	463	515	2.5	699	816	54.5%
Average 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

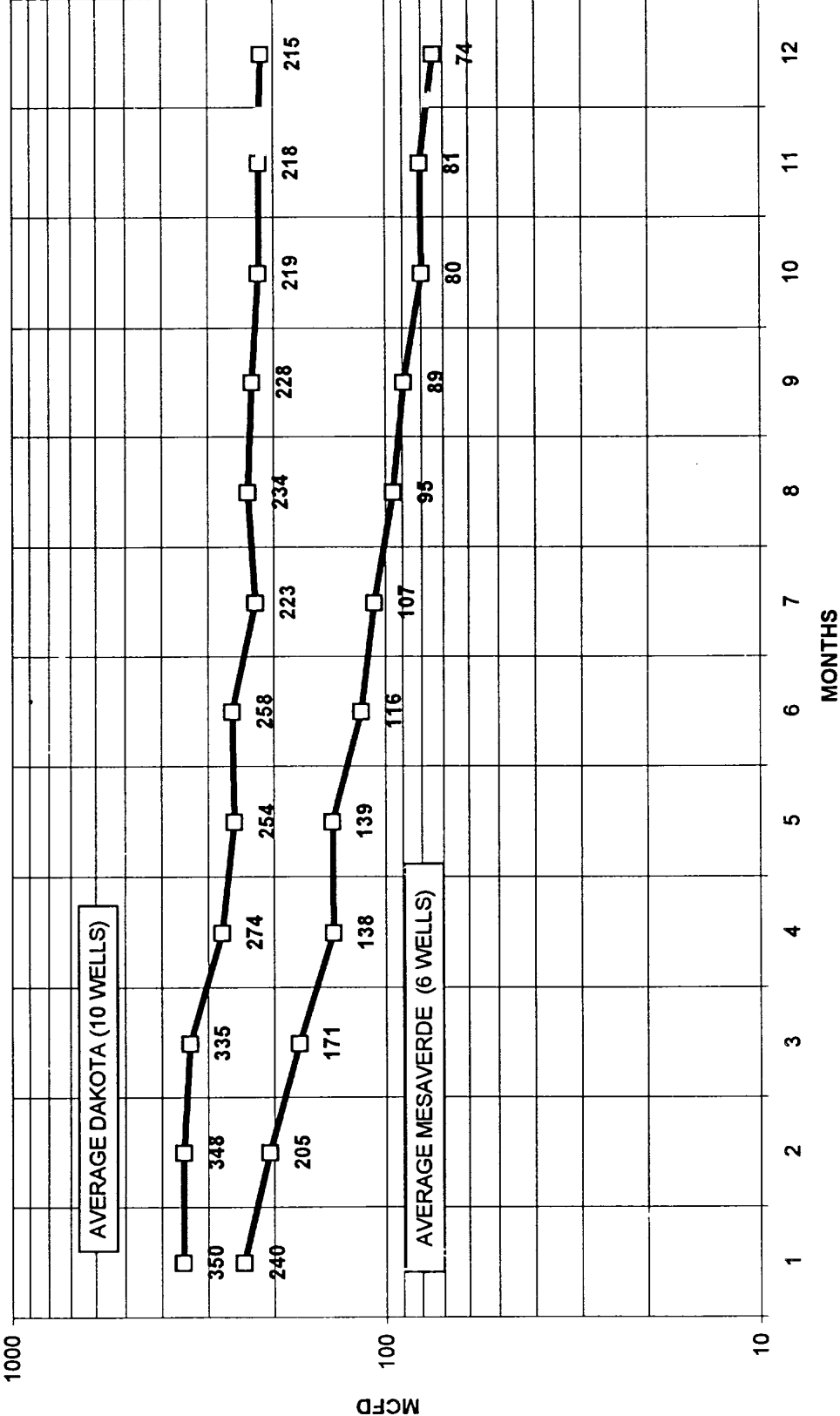
	Dakota/Gr Interval	Mesaverde Interval	Dakota Frac	Graneros Frac	Mesaverde Frac
193M	7338-7514	5362-5382	225M-XL	96M-XL	73M-L
131E	7244-7456	5100-5402	200M-XL	100M-XL	75M-L
138E	7490-7562	5206-5306	195M-XL		90M-L
178E	7388-7593	5102-5486	210M-XL	92M-XL	60M-L
185E	7364-7488	5326-5535	200M-XL	92M-XL	70M-L

*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)



SPIRIT ENERGY 76

New Name. Same Spirit.
A Business Unit of Unocal

December 2, 1999

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

RECEIVED
DEC - 6 1999

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

OIL COAL LAND
DEPT. S

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