

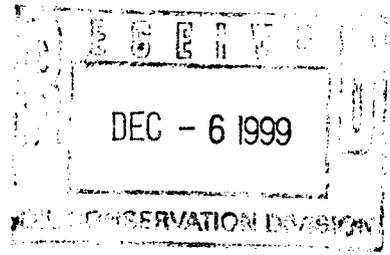


DHC 12/27/99

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  |
|-----------------|--------------------|---|
| <del>172M</del> | <del>Federal</del> | <del>1575' FNL, 1345' FWL, NW Sec 26, T27N, R7W</del> |
| <del>169M</del> | <del>Federal</del> | <del>1165' FSL, 1030' FEL, SE Sec 26, T27N, R7W</del> |

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. Francis Dr., Hobbs, NM 88240  
DISTRICT II  
611 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<br>Oil Zones - Artificial Lift:<br>Gas & Oil - Flowing:<br>All Gas Zones:<br>Estimated Current<br>Measured Current<br>Estimated Or Measured Original   | a. (Current) 1300                                 | a.                | a. 1690   |
|   | b. (Original) 1300                                | b.                | 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)<br><br>* If Shut-In, give date and oil/gas/water rates of last production<br><br>Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data<br><br>* If Producing, give date and oil/gas/water rates of recent test (within 60 days) | yes   |                   | yes   |
|   | Date:<br>Rates:                                   | Date:<br>Rates:   | Date:<br>Rates:                                   |
|   | Date:<br>Rates: to be provided pending test       | Date:<br>Rates:   | Date:<br>Rates: to be provided pending test       |
| 8. Fixed Percentage Allocation<br>Formula - % for each zone<br>(total of %'s to equal 100%)   | To be determined see attachments<br>Oil: % Gas: % | Oil: % Gas: %     | To be determined see attachments<br>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  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  
State Lease - 4 Copies  
Fee Lease - 3 Copies

AMENDED REPORT

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                     |             | 172M              |
| * OGRID No.     | * Operator Name                 |             | * Elevation       |
| 023710          | UNION OIL COMPANY OF CALIFORNIA |             | 6665              |

" 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 |

" 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 84.00CH.</p> <p>84.00CH.</p> <p>1345'</p> <p>1575'</p> <p>85.68CH.</p> <p>BC</p> | <p>BC 588° 53' W</p> <p>4</p> <p>3</p> <p>2</p> <p>1</p> <p>LOT No. (TYP.)</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><i>Michael C. Phillips</i></p> <p>Signature</p> <p>Michael C. Phillips</p> <p>Printed Name</p> <p>Rocky Mt. Drilling Foreman</p> <p>Title</p> <p>July 20, 1999</p> <p>Date</p> |  |
|  | <p>BC</p> <p>12</p> <p>11</p> <p>10</p> <p>9</p> <p>SEC.</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>WILLIAM E. MAHARKE II</p> <p>Date of Survey</p> <p>Signature and Seal of Professional Surveyor:</p> <p>#8466</p> <p>REGISTERED PROFESSIONAL SURVEYOR</p> <p>William E. Mahake II</p> <p>Certificate Number 8466</p> |
|  | <p>BC</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>BC</p> <p>79.92CH.</p> <p>79.93CH.</p> <p>BC</p> |  |  |

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 AIT Number    |  | 2 Pool Code                     |  | 3 Pool Name  |               |
|                 |  | 71599                           |  | Basin Dakota |               |
| 4 Property Code |  | 5 Property Name                 |  |              | 6 Well Number |
| 011510          |  | RINCON UNIT                     |  |              | 172M          |
| 7 OGRID No.     |  | 8 Operator Name                 |  |              | 9 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 |
|----------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
|                |         |          |       |         |               |                  |               |                |        |

|                    |                    |                       |              |
|--------------------|--------------------|-----------------------|--------------|
| 12 Dedicated Acres | 13 Joint or Infill | 14 Consolidation Code | 15 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

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

District I  
 PO Box 1980, Hobbs, NM 88241-1980  
 District II  
 PO Drawer 110, 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. Well Number   |  | 2. Pool Code                    |  | 3. Pool Name      |  |
|                  |  | 72319                           |  | Blanco Mesa Verde |  |
| 4. Property Code |  | 5. Property Name                |  | 6. Well Number    |  |
| 011510           |  | RINCON UNIT                     |  | 169M              |  |
| 7. OGRID No.     |  | 8. Operator Name                |  | 9. Elevation      |  |
| 023710           |  | UNION OIL COMPANY OF CALIFORNIA |  | 6696              |  |

10. Surface Location

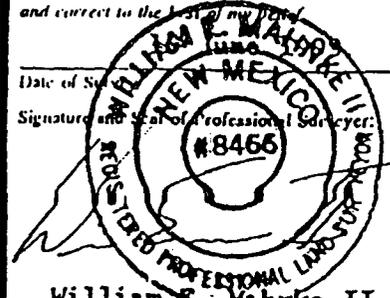
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County     |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|------------|
| 16            | 26    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

11. Bottom Hole Location If Different From Surface

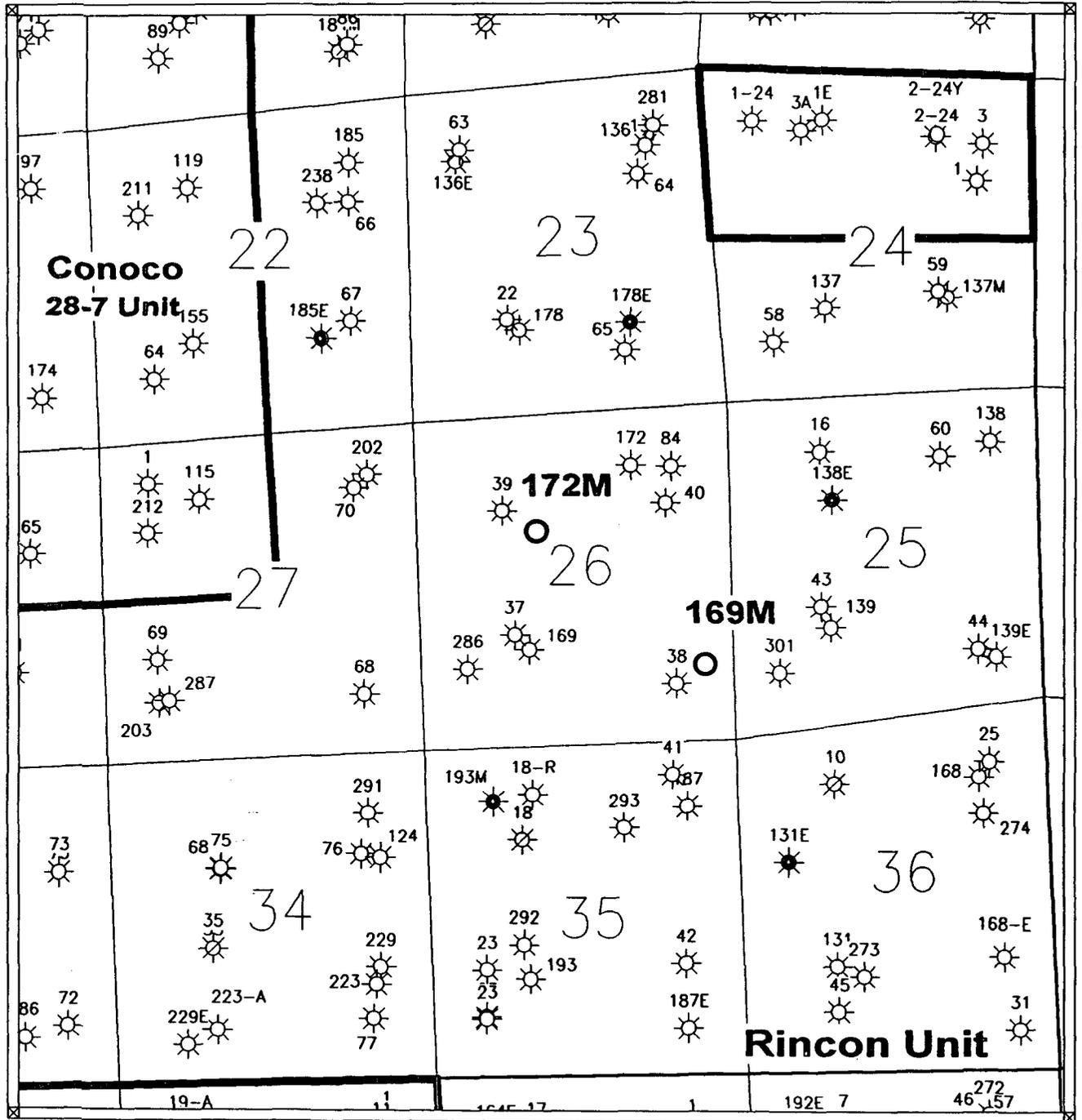
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
|               |         |     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

|                     |                     |                        |               |
|---------------------|---------------------|------------------------|---------------|
| 12. Dedicated Acres | 13. Joint or Infill | 14. Consolidation Code | 15. Order No. |
| 320                 |                     |                        |               |

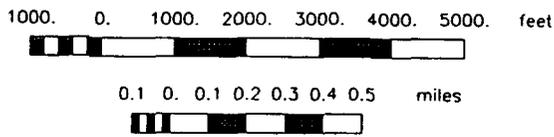
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

|   |   |  |  |
|---|---|--|--|
| BC<br>S88°33'W<br>4<br>3<br>2<br>1<br>84.00ch.                      | BC<br>79.92ch.                                    | 17. OPERATOR CERTIFICATION   |  |
|   |   | I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.  |  |
| 5<br>6<br>7<br>8<br>SEC.  | 26<br>9<br>85.68ch.                               | Signature: <u>Michael C. Phillips</u><br>Printed Name: <u>Michael C. Phillips</u><br>Title: <u>Rocky Mt. Drilling Foreman</u><br>Date: <u>June 22, 1999</u>  |  |
|   |   | Date of Survey: _____<br>Signature and Seal of Professional Surveyor: _____<br>   |  |
| BC<br>12<br>11<br>10<br>9<br>N0°21'E                                | 16<br>15<br>14<br>13<br>1165'<br>1030'<br>N0°25'E | 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. |  |
| BC<br>S89°43'W<br>16<br>15<br>14<br>13<br>1165'<br>1030'<br>N0°25'E |   | William S. Mahuke II<br>Certificate Number: 8466   |  |





Scale 1:31844.67



|                                       |            |          |
|---------------------------------------|------------|----------|
| LOCATOR MAP                           |            |          |
| RINCON UNIT NO. 169M & 172M DK/MV     |            |          |
| OPERATOR: UNION OIL CO. OF CALIFORNIA |            |          |
| Scale 1:31844.67                      |            |          |
| HADH:GEM                              | 10/27/1999 | 169M.GRT |

## 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%         |

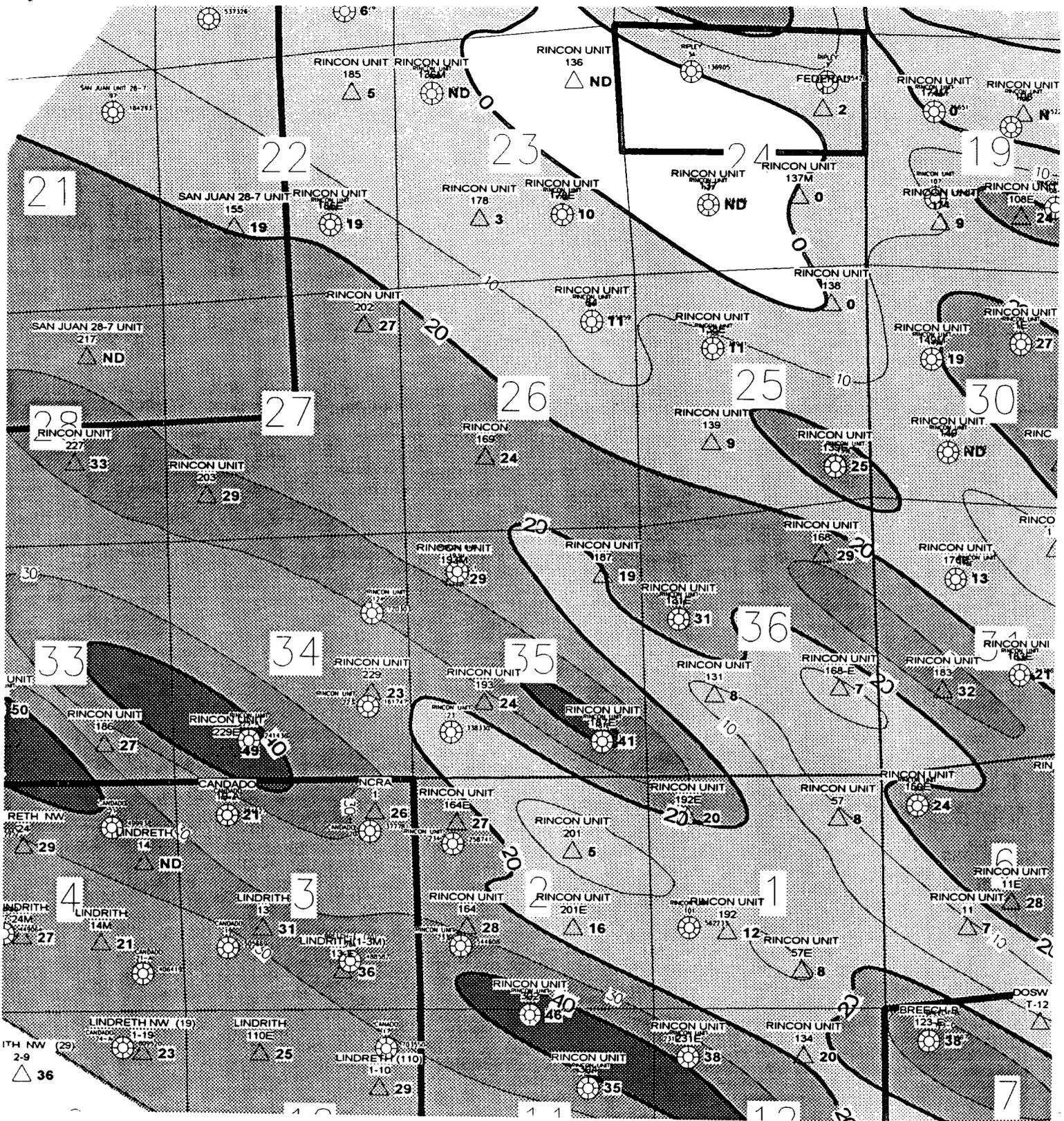
### Average Gas Production Data

|           |   | 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          |

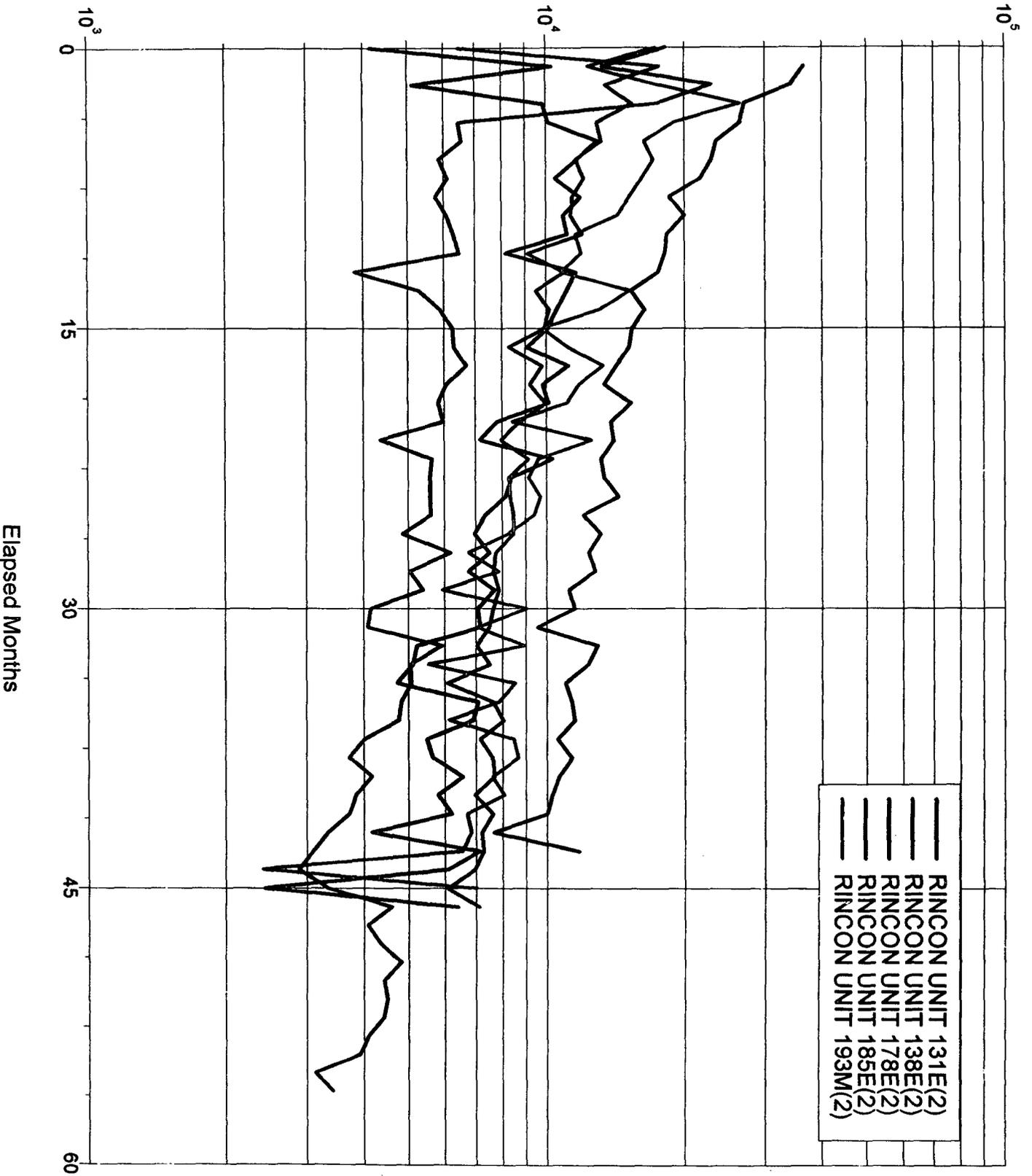
\*Frac. Lbs. of Sand - Fluid Type XL (Cross Link Gel), L (Linear Gel)



Point Lookout Net Pay > 20 mv SP & 25 Ohms Res.

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

Gas Vol Prod ( Mcf )



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

