

June 16, 1999

Supplemental Data for C-107-A, Rincon Unit Well No. 178

Well History: The Rincon Unit Well No. 178 was drilled and completed as a Dakota gas producer in January, 1963. Mesaverde reserves would be developed most economically at this time with a downhole commingled completion. An estimated completion date for the Mesaverde is August 1999.

Production History: The average 1998 gas rate was 141 Mcfd from the Dakota with trace oil and water production. An estimated initial rate for the first 30 days of Mesaverde production is 300 Mcfd and 4 Bopd. This estimate is an average based on actual IP's and production from six recent Mesaverde completions on the Rincon Unit.

Pressure Data: Original and current bottom hole pressures were calculated from surface shut-in casing pressures. Pressure data from the offset Mesaverde well Rincon Unit #185E was used for the #178 Mesaverde completion. Current pressures are based on a three day shut-in in June of 1998. Please see attachments for the bottom hole pressure data.

Allocation of Production: Unocal proposes to use an allocation based on an established Dakota annual decline rate of 6.5%. Dakota production will be extrapolated monthly using Bureau of Land Management recommended allocation methods with the remainder of the commingled production being allocated to the Mesaverde formation. Please see attachments for the Dakota forecast. Initial flush production volumes have been added to the Dakota due to the anticipated extended shut-in during the workover. While tabular data has been provided for the first five years of the Dakota forecast, we anticipate being able to convert to a fixed allocation factor within 12 to 24 months. Unocal proposes using a yield factor for allocating liquid production. This factor is based on the average oil and water yield for 1998.

**SPIRIT
ENERGY**

76

New Name. Same Spirit.
A Business Unit of Unocal

DHC 6/17/99

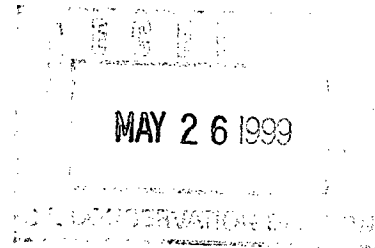
2362

May 21, 1999

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

Commissioner of Public Lands
State of New Mexico
Attn.: Pete Martinez
310 Old Santa Fe Trail, P.O. Box 1148
Santa Fe, NM 87504-1148

New Mexico Oil Conservation Division
Attn.: David Catanach
2040 S. Pacheco Street
Santa Fe, NM 87505
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
178	Federal	1450' FSL, 1850' FWL, SW Sec 23, T27N, R7W
185	Federal	990' FNL, 990' FEL, NE Sec 22, 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

APPLICATION FOR DOWNHOLE COMMINGLING

Form C-107-A
Revised March 17, 1999

APPROVAL PROCESS:

☒ Administrative ☐ Hearing

EXISTING WELLBORE

☒ YES ☐ NO

UNION OIL COMPANY OF CALIFORNIA (UNOCAL)

1004 N. BIG SPRING, MIDLAND, TX 79702

Operator

Address

RINCON UNIT

178

K - 23 - 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. 30-039-06971

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)	TO BE DETERMINED		7322 - 7492
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: Estimated Current All Gas Zones: Measured Current Estimated Or Measured Original	a. (Current) 316 psia b. (Original) 339 psia	a. b.	a. 369 psia b. 3043 psia
6. Oil Gravity (EAPI) or Gas BTU Content	1333 BTU		1233 BTU
7. Producing or Shut-In?	Not Completed - Shut in		Producing
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: SEE ATTACHED Rates:	Date: Rates:	Date: 2-99 Rates: 142 MCFD, 1.0 BOPD, 0 BWPD
* 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%)	Oil: % Gas: %	Oil: % Gas: %	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? ☒ Yes ☐ No (R-9893)
Have all offset operators been given written notice of the proposed downhole commingling? ☒ Yes ☐ No11. 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 ☐ No13. Will the value of production be decreased by commingling? ☐ Yes ☒ No (If Yes, attach explanation)14. If this well is on, or communized 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

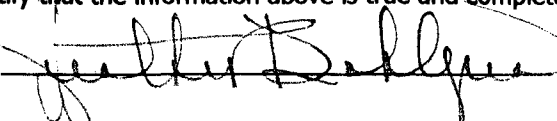
15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). SEE ATTACHED

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 all offset operators.
- * 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: Senior Engineering Tech DATE: 5/21/99

TYPE OR PRINT NAME

HEATHER DAHLGREN

TELEPHONE NO. (915) 685-7665

NMOCD Reference Cases for Rule 303(D) Exceptions

Unocal, Rincon Unit, Rio Arriba County, New Mexico

Rincon Unit Well	Legal Description UL S TWN RNG.	NMOCD Order No.	Issue Date
167M	C 13 27 N 7 W	DHC-863	11/5/1992
175M	F 20 27 N 6 W	DHC-864	11/24/1992
158M	J 22 27 N 6 W	DHC-909	4/27/1993
159M	F 18 27 N 6 W	DHC-904	6/18/1993
129M	P 29 27 N 6 W	DHC-903	6/18/1993
1E	G 30 27 N 6 W	DHC-902	6/18/1993
127M	D 28 27 N 6 W	DHC-916	8/17/1993
184M	P 15 27 N 7 W	DHC-911	8/25/1993
170M	I 20 27 N 6 W	DHC-920	9/17/1993
126M	P 27 27 N 6 W	DHC-914	9/17/1993
151M	O 14 27 N 7 W	DHC-918	9/17/1993
136E	D 23 27 N 7 W	DHC-912	9/17/1993
125M	F 26 27 N 6 W	DHC-95	9/17/1993
137E	J 24 27 N 7 W	DHC-913	9/17/1993
180M	D 21 27 N 6 W	DHC-940	10/25/1993
174M	F 19 27 N 6 W	DHC-966	1/31/1994
128M	O 28 27 N 6 W	DHC-1042	8/31/1994
133E	D 14 27 N 7 W	DHC-1043	8/31/1994
185E	J 22 27 N 7 W	DHC-1038	8/31/1994
178E	I 23 27 N 7 W	DHC-1040	8/31/1994
138E	P 25 27 N 7 W	DHC-1044	8/31/1994
139E	F 25 27 N 7 W	DHC-1041	8/31/1994
149M	F 30 27 N 7 W	DHC-1037	8/31/1994
131E	C 36 27 N 7 W	DHC-1039	8/31/1994
302	C 11 26 N 7 W	DHC-1050	11/3/1994
303	E 33 27 N 6 W	DHC-1086	2/3/1995
171M	J 21 27 N 6 W	DHC-1101	3/7/1995
229E	M 34 27 N 7 W	DHC-1124	5/16/1995
186M	L 33 27 N 6 W	DHC-1176	12/21/1995
187E	P 35 27 N 7 W	DHC-1176	12/21/1995
134	B 12 26 N 7 W	DHC-1190	3/7/1996
170	M 20 27 N 6 W	DHC-1192	3/7/1996
168E	I 36 27 N 7 W	DHC-1191	3/7/1996
203	M 27 27 N 7 W	DHC-1261	5/23/1996
183	K 31 27 N 6 W	DHC-1376	10/16/1996
168	A 36 27 N 7 W	DHC-1778	2/4/1998
139	K 25 27 N 6 W	DHC-1777	2/4/1998
181	G 22 27 N 6 W	DHC-1779	2/4/1998
166E	F 32 27 N 6 W	DHC-1784	2/24/1998
201E	J 2 26 N 7 W	DHC-1841	3/6/1998
57E	O 1 26 N 7 W	DHC-1865	4/1/1998
57	A 1 26 N 7 W	DHC-1892	4/9/1998
131	K 36 27 N 7 W	DHC-1906	4/14/1998
137	K 24 27 N 7 W	DHC-1907	4/14/1998
137E	J 24 27 N 7 W	DHC-913	4/14/1998
169	K 26 27 N 7 W	DHC-1917	4/27/1998
192	K 1 26 N 7 W	DHC-1918	4/27/1998
192E	D 1 26 N 7 W	DHC-2097	9/15/1998

Well Location and Acreage Dedication Plat

Section A.

Date AUGUST 7, 1962

Operator EL PASO NATURAL GAS COMPANY Lease RINCON UNIT SFO80385
 Well No. 178 Unit Letter K Section 23 Township 27-N Range 7-W NMPM
 Located 1450 Feet From SOUTH Line, 1850 Feet From WEST Line
 County RIO ARriba G. L. Elevation 6598 Dedicated Acreage 327.70 Acres
 Name of Producing Formation DAKOTA Pool BASIN DAKOTA

1. Is the Operator the only owner in the dedicated acreage outlined on the plat below?

Yes X No

2. If the answer to question one is "no", have the interests of all the owners been consolidated by communitization agreement or otherwise? Yes No. If answer is "yes", Type of Consolidation.

3. If the answer to question two is "no", list all the owners and their respective interests below:

Owner

Land Description

RECEIVED

AUG 31 1962

U. S. GEOLOGICAL SURVEY
FARMINGTON, NEW MEXICO

Section B.

Note: All distances must be from outer boundaries of section.

This is to certify that the information
in Section A above is true and complete
to the best of my knowledge and belief.

El Paso Natural Gas Company

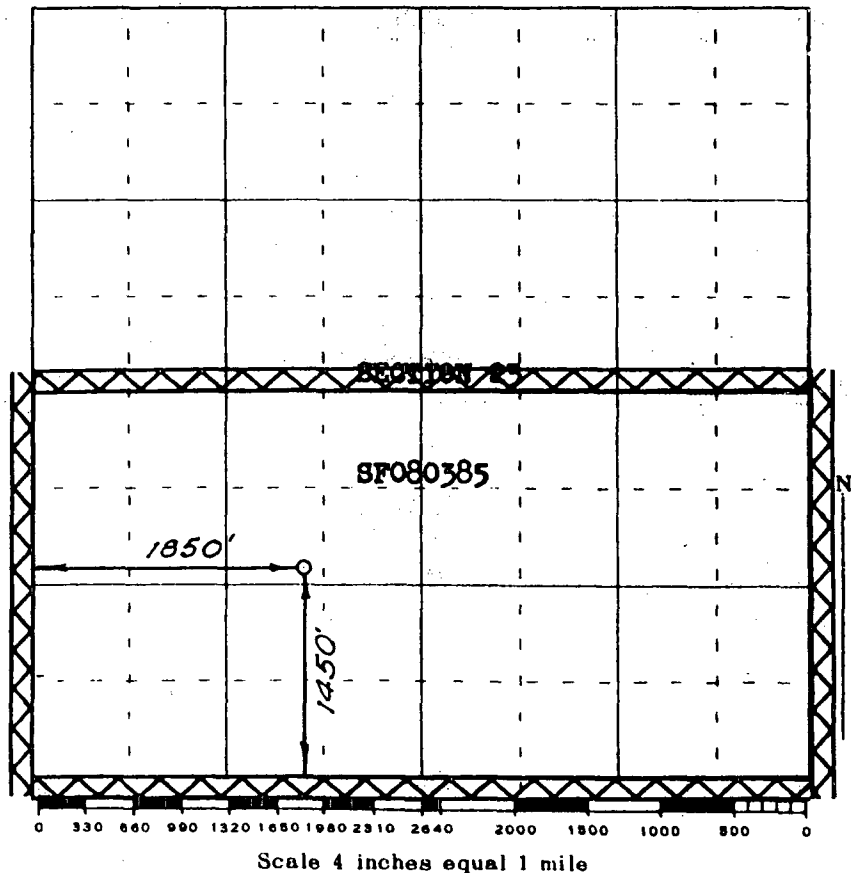
(Operator)

ORIGINAL SIGNED H.E. McANALLY

(Representative)

Box 990

(Address)

Farmington, New Mexico

This is to certify that the above plat was prepared from field notes of actual surveys
made by me or under my supervision and that the same are true and correct to the best
of my knowledge and belief.

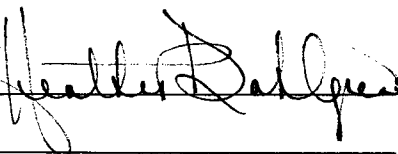
(Seal)

Date Surveyed

JUNE 25, 1962

Farmington, New Mexico

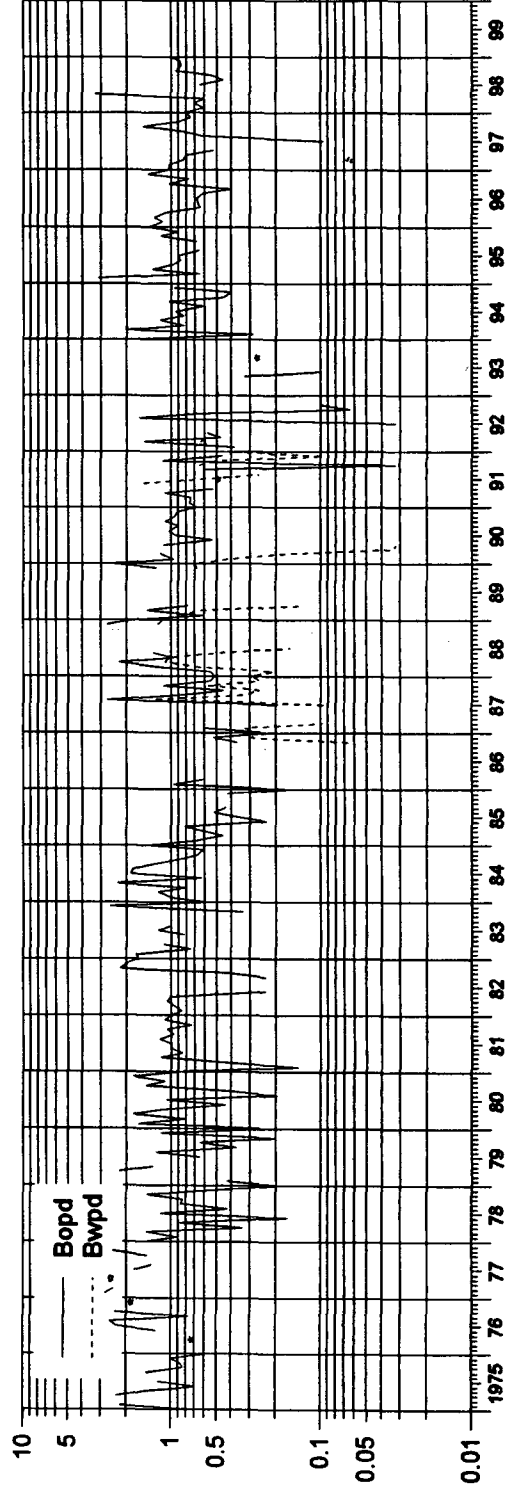
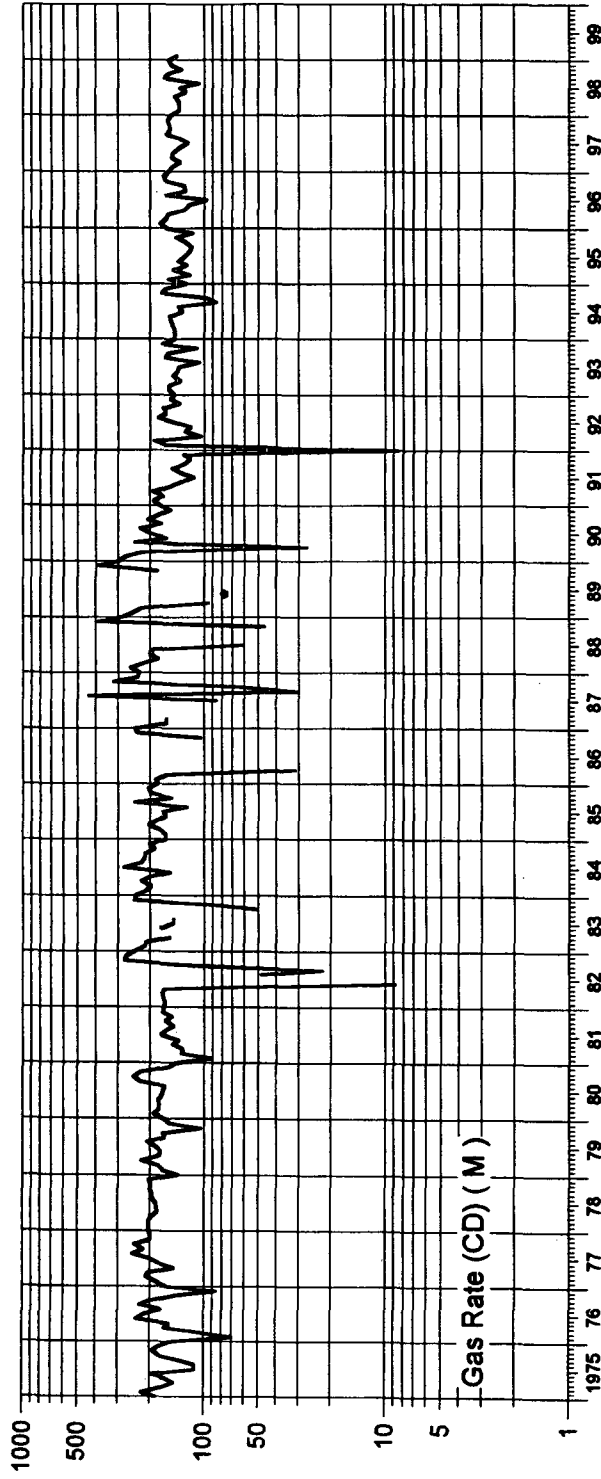
David J. Kilmer
 Registered Professional Engineer and/or Land Surveyor

16				17 OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief</i>  Printed Name HEATHER DAHLGREN Title _____ ENGINEERING TECHNICIAN Date _____ 5-19-99
	Sec. 23			18 SURVEYOR CERTIFICATION <i>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</i> _____ Date of _____ Survey _____ Signature and Seal of Professional Surveyor: _____ _____ Certificate Number _____
1850'	SF 080385 1450'			

UNION OIL COMPANY OF CALIFORNIA

RINCON UNIT 178:DK

RIO ARriba CO., NEW MEXICO



RINCON_UNIT_178:DK

DATE	GAS VOL PROD Mcf	OIL VOL PROD bbl	WATER VOL PROD bbl	Gas Rate (CD) Mcf/d	Oil Rate (CD) bbl/d	Water Rate (CD) bbl/d	Cum Gas Prod Mcf	Cum Oil Prod bbl
19970101	4944	32	0	159	1.0	0.0	2343003	15500
19970201	4198	29	0	150	1.0	0.0	2347201	15529
19970301	4235	26	2	137	0.8	0.1	2351436	15555
19970401	4530	24	0	151	0.8	0.0	2355966	15579
19970501	4601	16	0	148	0.5	0.0	2360567	15595
19970601	4162	0	0	139	0.0	0.0	2364729	15595
19970701	3789	3	0	122	0.1	0.0	2368518	15598
19970801	4195	19	0	135	0.6	0.0	2372713	15617
19970901	4868	25	0	162	0.8	0.0	2377581	15642
19971001	4781	48	0	154	1.5	0.0	2382362	15690
19971101	4704	27	0	157	0.9	0.0	2387066	15717
19971201	4933	23	0	159	0.7	0.0	2391999	15740
19980101	4681	25	0	151	0.8	0.0	2396680	15765
19980201	3856	17	0	138	0.6	0.0	2400536	15782
19980301	4263	22	0	138	0.7	0.0	2404799	15804
19980401	4156	18	0	139	0.6	0.0	2408955	15822
19980501	4521	101	0	146	3.3	0.0	2413476	15923
19980601	3760	0	0	125	0.0	0.0	2417236	15923
19980701	4223	20	0	136	0.6	0.0	2421459	15943
19980801	3323	14	0	107	0.5	0.0	2424782	15957
19980901	4981	16	0	166	0.5	0.0	2429763	15973
19981001	4924	29	0	159	0.9	0.0	2434687	16002
19981101	3997	26	0	133	0.9	0.0	2438684	16028
19981201	4732	27	0	153	0.9	0.0	2443416	16055
19990101	4881	31	0	157	1.0	0.0	2448297	16086
19990201	3986	28	0	142	1.0	0.0	2452283	16114

WELL NAME :**RINCON UNIT 185E MESAVERDE**

	ORIGINAL
Test Date:	Aug-95
GAS GRAVITY:	0.685
CONDENSATE (YES=1):	1
RESERVOIR TEMP:	150 F
SURFACE TEMP:	60 F
DEPTH OF ZONE:	5136 ft
% N2	0.38
% CO2	1.16
% H2S	0.00
Pc =	699.95
Tc =	379.07

SURFACE PRESS	300	psia
BHP	339	psia
Z	0.9613	
BHP/Z	353	psia

	CURRENT
Test Date:	Jun-98
GAS GRAVITY:	0.685
CONDENSATE (YES=1):	1
RESERVOIR TEMP:	150 F
SURFACE TEMP:	60 F
DEPTH OF ZONE:	5136 ft
% N2	0.38
% CO2	1.16
% H2S	0.00
Pc =	699.95
Tc =	379.07

SURFACE PRESS	280	psia
BHP	316	psia
Z	0.9638	
BHP/Z	328	psia

WELL NAME :**RINCON UNIT 178 DAKOTA**

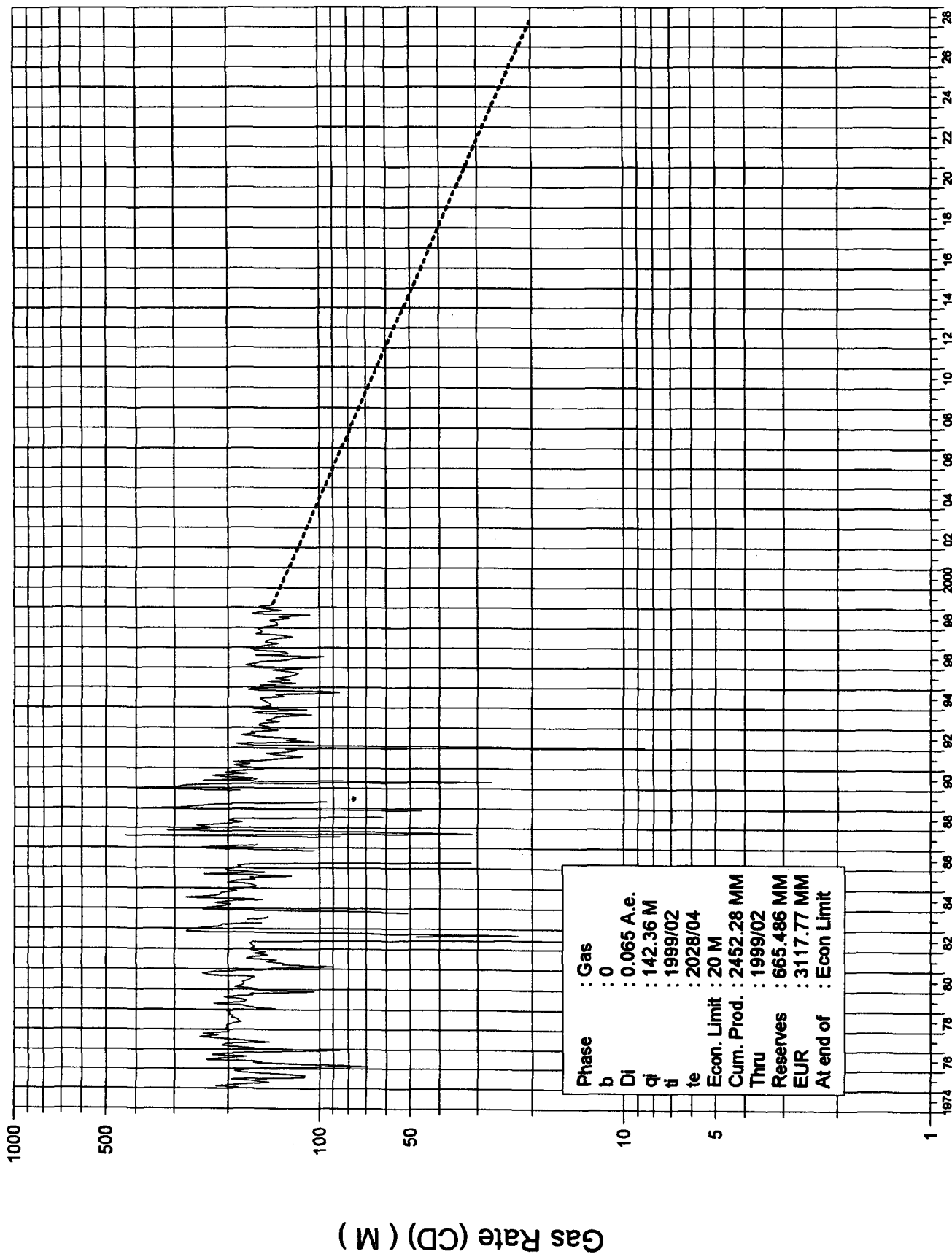
	ORIGINAL
Test Date:	Jan-63
GAS GRAVITY:	0.69
CONDENSATE (YES=1):	1
RESERVOIR TEMP:	190 F
SURFACE TEMP:	60 F
DEPTH OF ZONE:	7469 ft
% N2	0.21
% CO2	1.20
% H2S	0.00
Pc =	670.19
Tc =	380.13

SURFACE PRESS	2,467	psia
BHP by Buildup Measurement	3,043	psig
Z	0.8821	
BHP/Z	3,450	psia

	CURRENT
Test Date:	Jun-98
GAS GRAVITY:	0.691
CONDENSATE (YES=1):	1
RESERVOIR TEMP:	190 F
SURFACE TEMP:	60 F
DEPTH OF ZONE:	7469 ft
% N2	0.21
% CO2	1.20
% H2S	0.00
Pc =	670.19
Tc =	380.13

SURFACE PRESS	310	psia
BHP	369	psia
Z	0.9658	
BHP/Z	382	psia

RINCON UNIT 178:DK



RU 178DK Forecast

Well	RU 178
Existing Completion Prior to DHC	DK
Annual Decline	6.50%
Monthly Decline Factor (Annual / 12)	0.5417
Average Monthly volume (Mcf) prior to DHC	4285
Average Yield (bbls/mcf) Oil	0.006
Average Yield (bbls/mcf) Water	0.000
Est. Volume Prior to DHC (Mcf) - Aug. 1999	4279
	1998 Annual Average
	1998 Annual Average
	1998 Annual Average

* Forecasted volumes to be adjusted for actual days on production & actual volume prior to commingling

Month	DK Forecast (Mcf)	DK Forecast (Bbls-Oil)	DK Forecast (Bbls-Water)	+ DK flush volume @ 15%	+ DK flush volume @ 10%
1	162	4921	29.5	0.0	
2	154	4681	28.1	0.0	
3	141	4279	25.7	0.0	
4	140	4256	25.5	0.0	
5	139	4233	25.4	0.0	
6	138	4210	25.3	0.0	
7	138	4187	25.1	0.0	
8	137	4164	25.0	0.0	
9	136	4142	24.9	0.0	
10	135	4119	24.7	0.0	
11	135	4097	24.6	0.0	
12	134	4075	24.4	0.0	
13	133	4053	24.3	0.0	
14	133	4031	24.2	0.0	
15	132	4009	24.1	0.0	
16	131	3987	23.9	0.0	
17	130	3966	23.8	0.0	
18	130	3944	23.7	0.0	
19	129	3923	23.5	0.0	
20	128	3902	23.4	0.0	
21	128	3880	23.3	0.0	
22	127	3859	23.2	0.0	
23	126	3839	23.0	0.0	
24	126	3818	22.9	0.0	

RINCON UNIT 178:DK - Gas Forecast @ 6.5% A.E.

DATE	Average Rate Mscf/d	Monthly Volume MMscf	Cumulative Volume MMscf	Remaining Reserves MMscf
1999/ 3	142	4.40	2456.7	661.1
1999/ 4	141	4.24	2460.9	656.8
1999/ 5	140	4.35	2465.3	652.5
1999/ 6	140	4.19	2469.5	648.3
1999/ 7	139	4.30	2473.8	644.0
1999/ 8	138	4.28	2478.0	639.7
1999/ 9	137	4.12	2482.2	635.6
1999/10	136	4.23	2486.4	631.4
1999/11	136	4.08	2490.5	627.3
1999/12	135	4.18	2494.6	623.1
2000/ 1	134	4.16	2498.8	619.0
2000/ 2	134	3.88	2502.7	615.1
2000/ 3	132	4.11	2506.8	611.0
2000/ 4	132	3.96	2510.8	607.0
2000/ 5	131	4.06	2514.8	602.9
2000/ 6	131	3.92	2518.7	599.0
2000/ 7	130	4.02	2522.8	595.0
2000/ 8	129	4.00	2526.8	591.0
2000/ 9	128	3.85	2530.6	587.2
2000/10	127	3.95	2534.6	583.2
2000/11	127	3.81	2538.4	579.4
2000/12	126	3.91	2542.3	575.5
2001/ 1	126	3.89	2546.2	571.6
2001/ 2	125	3.51	2549.7	568.1
2001/ 3	124	3.83	2553.5	564.2
2001/ 4	124	3.71	2557.2	560.5
2001/ 5	123	3.80	2561.0	556.7
2001/ 6	122	3.67	2564.7	553.1
2001/ 7	121	3.76	2568.4	549.3
2001/ 8	121	3.74	2572.2	545.6
2001/ 9	120	3.60	2575.8	542.0
2001/10	119	3.70	2579.5	538.3
2001/11	119	3.56	2583.1	534.7
2001/12	118	3.65	2586.7	531.1
2002/ 1	117	3.64	2590.3	527.4
2002/ 2	117	3.28	2593.6	524.1
2002/ 3	116	3.58	2597.2	520.6
2002/ 4	116	3.47	2600.7	517.1
2002/ 5	115	3.55	2604.2	513.5
2002/ 6	114	3.43	2607.7	510.1
2002/ 7	113	3.51	2611.2	506.6
2002/ 8	113	3.50	2614.7	503.1
2002/ 9	112	3.37	2618.0	499.7
2002/10	111	3.46	2621.5	496.3
2002/11	111	3.33	2624.8	492.9
2002/12	110	3.42	2628.2	489.5
2003/ 1	110	3.40	2631.6	486.1
2003/ 2	109	3.07	2634.7	483.1
2003/ 3	108	3.35	2638.1	479.7
2003/ 4	108	3.24	2641.3	476.5
2003/ 5	107	3.32	2644.6	473.1
2003/ 6	107	3.20	2647.8	469.9
2003/ 7	106	3.29	2651.1	466.7
2003/ 8	106	3.27	2654.4	463.4
2003/ 9	105	3.15	2657.5	460.2
2003/10	104	3.23	2660.8	457.0
2003/11	104	3.12	2663.9	453.9
2003/12	103	3.19	2667.1	450.7
2004/ 1	103	3.18	2670.3	447.5
2004/ 2	102	2.96	2673.2	444.5

May 20, 1999

Conoco
10 Desta Dr. W, Suite 100W
Midland, TX 79705

Gentlemen:

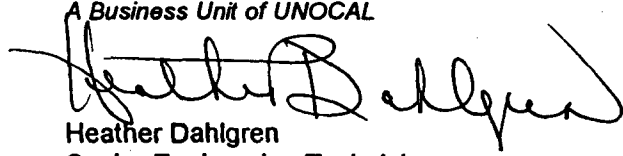
Union Oil Company of California (UNOCAL) has requested from the State of New Mexico Oil Conservation Division, approval to down hole commingle production from the Blanco Mesaverde and Basin Dakota formations in the following Rincon Unit wells, Rio Arriba County, New Mexico.

Well	Lease	Legal Location
178	Federal	1450' FSL, 1850' FWL, SW Sec 23, T27N, R7W
185	Federal	990' FNL, 990' FEL, NE Sec 22, T27N, R7W

If Conoco, as an offset operator, has an objection to these proposals, please notify NMOCD within twenty days. If you have any questions regarding these applications, please contact Heather Dahlgren at 915/685-7665.

Sincerely,

Spirit Energy 76
A Business Unit of UNOCAL



Heather Dahlgren
Senior Engineering Technician