



3.8.95

1105

OIL CONSERVATION DIVISION

Midland Division
Exploration Production

RECEIVED

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Conoco Inc.
10 Desta Drive, Suite 100W
Midland, TX 79705-4500
(915) 686-5400

February 15, 1995

State of New Mexico
Energy & Minerals Department
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87504

**Re: Application to Downhole Commingle
Mesaverde and Dakota Gas Production in the
Federal No. 13, 1850' FSL & 1650' FWL, Unit K
Sec. 21, T-26N, R-6W, Rio Arriba County, New Mexico**

Gentlemen:

It is proposed to downhole commingle the Mesaverde and Dakota zones in this well to maintain economic operation and to maximize the efficient and effective recovery of gas at this location. Economic evaluation of the continued operation of this well as a dual completion has shown that it can only be economically maintained if it can be downhole commingled and operated as a single completion.

The Mesaverde and Dakota producing rates have declined to marginal levels of 237 MCFGPD and 103 MCFGPD respectively. Elimination of excess operational equipment and operating expense associated with dual operation would contribute to the maximization of the producing lives and recoveries from each pool. Downhole commingling would permit the elimination of one tubing string, one separator and one tank now required for the operation of this dual completion and would eliminate maintenance costs of maintaining isolation of the two completions.

The following attachments are submitted in support of this application:

1. EXHIBIT A is a plat (a) showing all Mesaverde wells on the lease, (b) indicating the subject well, (c) identifying offset operators, and (d) outlining the current Mesaverde proration unit.
2. EXHIBIT B is a plat (a) showing all Dakota wells on the lease, (b) indicating the subject well, (c) identifying offset operators, and (d) outlining the current Dakota proration unit.
3. EXHIBIT C is a GOR test form (C-116) with the most recent tests for each completion.
4. EXHIBIT D and E are current decline curves for Mesaverde and Dakota gas production.
5. Bottom hole pressures at a common datum of 5000 feet are 664 and 388 psig for the Mesaverde and Dakota respectively.

6. EXHIBITS F and G are typical water analyses for Mesaverde and Dakota production which do not indicate any anticipated incompatibilities in the mixture of these fluids
7. Oil gravity for Mesaverde production is in the 44-45° API range. No oil production is indicated for the Dakota completion in this well.
8. WI, RI, and ORRI ownerships are identical for both formations.
9. EXHIBITS F & G are Mesaverde and Dakota gas analyses. BTU values are very similar for both pools and since sales are based on a \$/BTU rate, revenue for the combined gas stream will be the same as for the separated sales streams of the dual completion. Therefore, there would be no revenue or royalty loss due to commingling.
10. Allocation percentages based on the C-116 tests included in this application are suggested as follows:

	<u>Water</u>	<u>Oil</u>	<u>Gas</u>
Blanco Mesaverde	100%	100%	70%
Basin Dakota	0%	0%	30%

11. Copies of this application were sent by certified mail to each offset operator as identified on EXHIBITS A and B. Copies of the certified mail receipts to them are included as EXHIBIT J. Since this well involves federal minerals, a copy was also sent to the Farmington BLM Office for their approval.

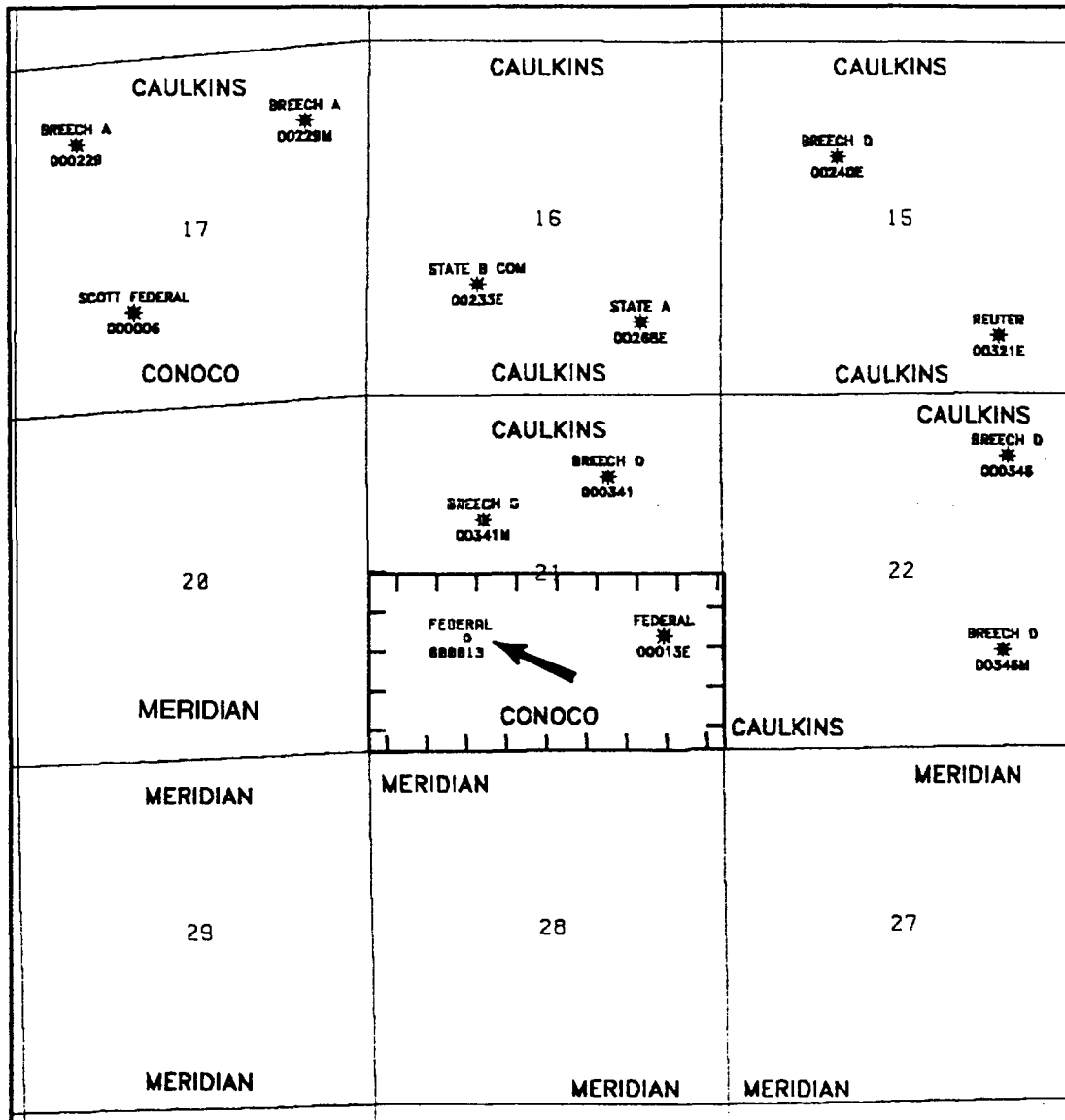
Very truly yours,



Jerry W. Hoover
Sr. Conservation Coordinator

R6W

T26N



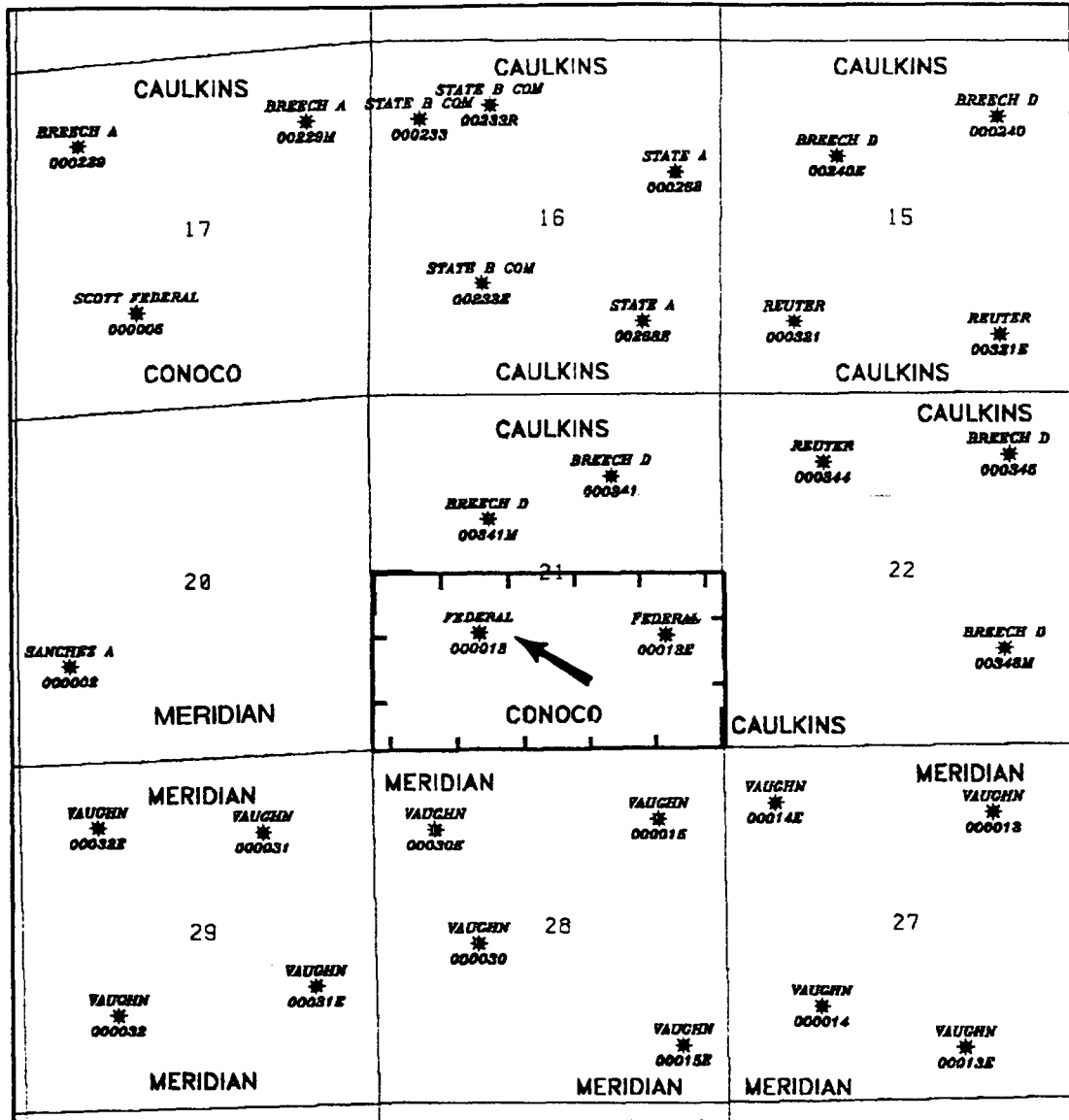
MesaVerde Wells

Federal No. 13

EXHIBIT A

R6W

T26N



DAKOTA WELLS

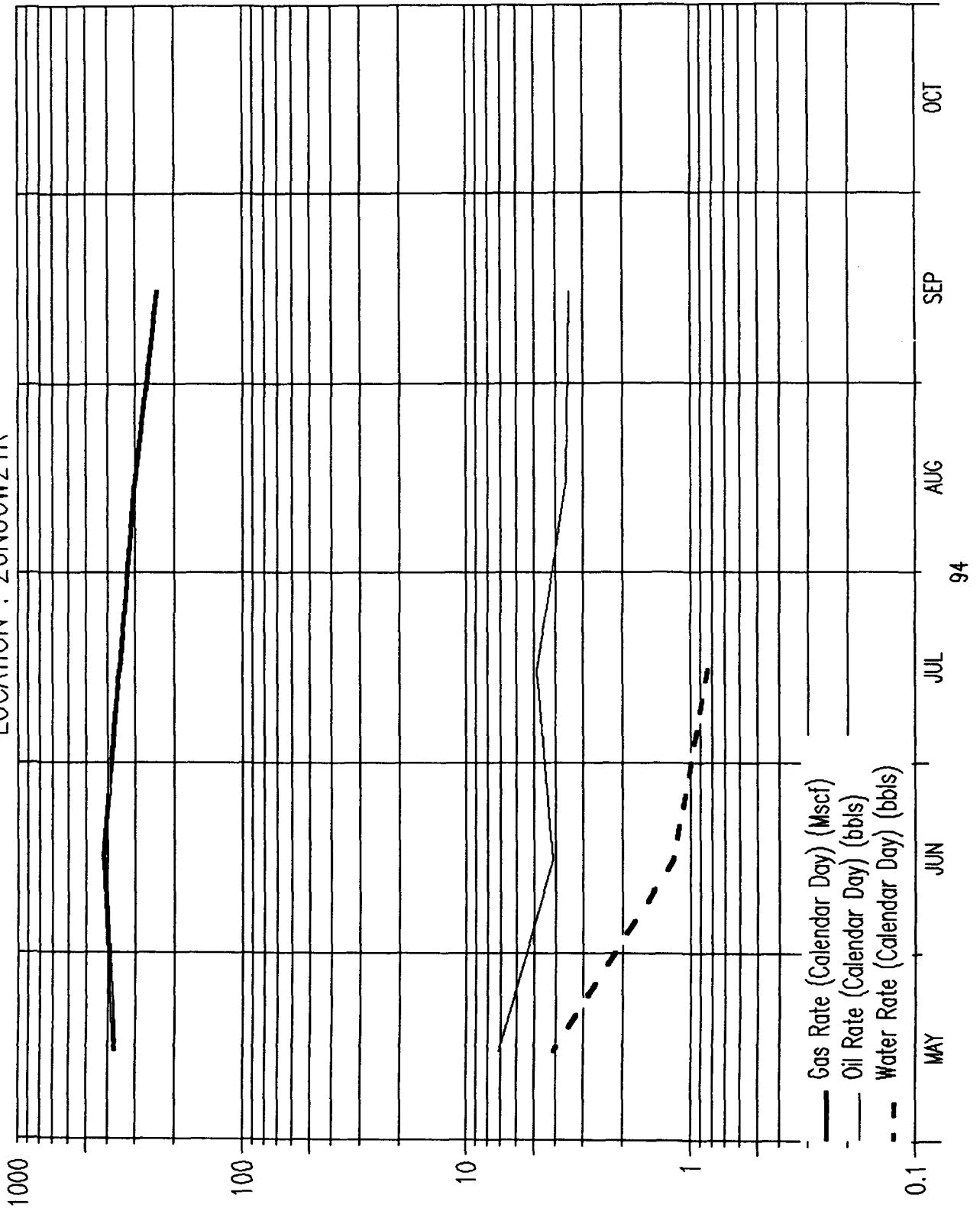
Federal No. 13

EXHIBIT B



FEDERAL 000013 ZONE : MVRD
STATUS : ACT OPERATOR : CONOCO INC

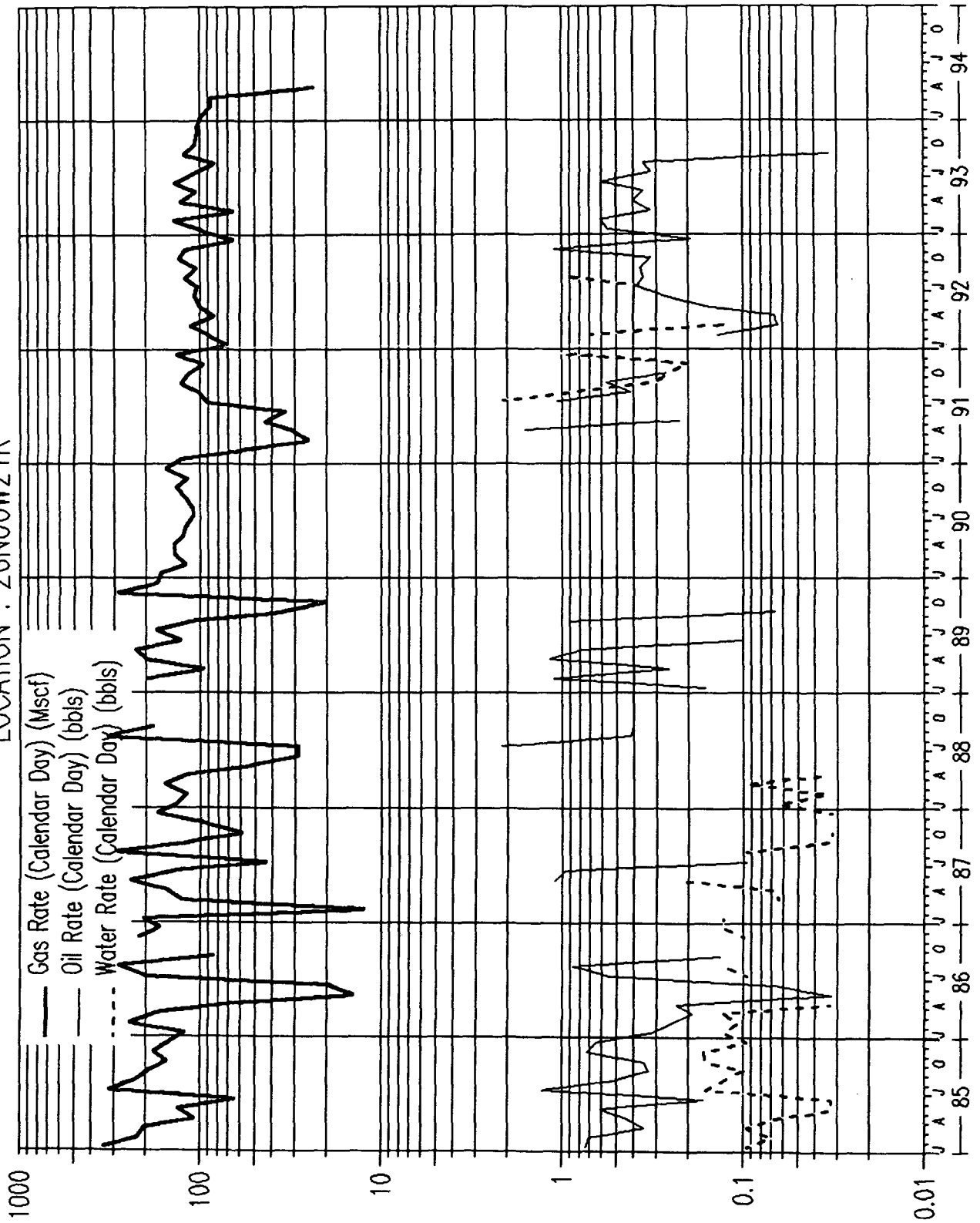
LOCATION : 26N06W21K





FEDERAL 000013 ZONE : DKOT
STATUS : ACT OPERATOR : CONOCO INC

LOCATION : 26N06W21K



TYPICAL MESAVERDE

WATER ANALYSIS REPORT

Company : CONOCO
 Address : FARMINGTON N.M.
 Lease : SAN JUAN
 Well : FED. 6E MV
 Sample Pt. :

Date : 2-12-94
 Date Sampled : 2-10-94
 Analysis No. :

ANALYSIS		mg/L		* meq/L
-----		-----		-----
1. pH	7.0			
2. H2S	0			
3. Specific Gravity	1.01			
4. Total Dissolved Solids		38649.3		
5. Suspended Solids				
6. Dissolved Oxygen				
7. Dissolved CO2				
8. Oil In Water				
9. Phenolphthalein Alkalinity (CaCO3)				
10. Methyl Orange Alkalinity (CaCO3)				
11. Bicarbonate	HCO3	878.0	HCO3	14.4
12. Chloride	Cl	22600.0	Cl	637.5
13. Sulfate	SO4	194.0	SO4	4.0
14. Calcium	Ca	120.0	Ca	6.0
15. Magnesium	Mg	121.5	Mg	10.0
16. Sodium (calculated)	Na	14712.8	Na	640.0
17. Iron	Fe	1.0		
18. Barium	Ba	22.0		
19. Strontium	Sr	0.0		
20. Total Hardness (CaCO3)		800.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter		Compound	Equiv wt X meq/L	= mg/L
-----		-----	-----	-----
6 *Ca <----- *HCO3	14	Ca(HCO3)2	81.0	6.0 485
/----->		CaSO4	68.1	
10 *Mg -----> *SO4	4	CaCl2	55.5	
<-----/		Mg(HCO3)2	73.2	8.4 615
640 *Na -----> *Cl	638	MgSO4	60.2	1.6 96
-----		MgCl2	47.6	
Saturation Values Dist. Water 20 C		NaHCO3	84.0	
CaCO3	13 mg/L	Na2SO4	71.0	2.4 174
CaSO4 * 2H2O	2090 mg/L	NaCl	58.4	637.5 37257
BaSO4	2.4 mg/L			

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
 D. STEWART

EXHIBIT F

TYPICAL MESAVERDE
SCALE TENDENCY REPORT

Company	: CONOCO	Date	: 2-12-94
Address	: FARMINGTON N.M.	Date Sampled	: 2-10-94
Lease	: SAN JUAN	Analysis No.	:
Well	: FED. 6E MV	Analyst	: D. STEWART
Sample Pt.	:		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO₃ Scaling Tendency

S.I. =	-0.2	at	80 deg. F	or	27 deg. C
S.I. =	-0.1	at	100 deg. F	or	38 deg. C
S.I. =	-0.1	at	120 deg. F	or	49 deg. C
S.I. =	0.0	at	140 deg. F	or	60 deg. C
S.I. =	0.1	at	160 deg. F	or	71 deg. C

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	4909	at	80 deg. F	or	27 deg C
S =	5017	at	100 deg. F	or	38 deg C
S =	5046	at	120 deg. F	or	49 deg C
S =	5055	at	140 deg. F	or	60 deg C
S =	4983	at	160 deg. F	or	71 deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
D. STEWART

TYPICAL DAKOTA

WATER ANALYSIS REPORT

Company : CONOCO
 Address : FARMINGTON N.M.
 Lease : SAN JUAN
 Well : FED. 6E DK
 Sample Pt. :

Date : 2-12-94
 Date Sampled : 2-10-94
 Analysis No. :

ANALYSIS		mg/L		* meq/L	
-----		----		-----	
1.	pH	7.0			
2.	H ₂ S	0			
3.	Specific Gravity	1.01			
4.	Total Dissolved Solids	4359.2			
5.	Suspended Solids				
6.	Dissolved Oxygen				
7.	Dissolved CO ₂				
8.	Oil In Water				
9.	Phenolphthalein Alkalinity (CaCO ₃)				
10.	Methyl Orange Alkalinity (CaCO ₃)				
11.	Bicarbonate	HCO ₃	646.0	HCO ₃	10.6
12.	Chloride	Cl	2100.0	Cl	59.2
13.	Sulfate	SO ₄	12.5	SO ₄	0.3
14.	Calcium	Ca	40.0	Ca	2.0
15.	Magnesium	Mg	24.3	Mg	2.0
16.	Sodium (calculated)	Na	1519.4	Na	66.1
17.	Iron	Fe	5.0		
18.	Barium	Ba	12.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO ₃)		200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound	Equiv wt X meq/L = mg/L		
+-----+				-----			
2	*Ca <-----	*HCO3	11	Ca (HCO3) 2	81.0	2.0	162
	/----->			CaSO4	68.1		
2	*Mg ----->	*SO4	0	CaCl2	55.5		
	<-----/			Mg (HCO3) 2	73.2	2.0	146
66	*Na ----->	*Cl	59	MgSO4	60.2		
+-----+				-----			
Saturation Values Dist. Water 20 C				MgCl2	47.6		
CaCO3		13 mg/L		NaHCO3	84.0	6.6	554
CaSO4 * 2H2O		2090 mg/L		Na2SO4	71.0	0.3	18
BaSO4		2.4 mg/L		NaCl	58.4	59.2	3462

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
 D. STEWART

EXHIBIT G

Submit 2 copies to Appropriate District Office.
DISTRICT I
P.O. Box 1980, Hobbs, NM 88240
DISTRICT II
P.O. Drawer DD, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-1116
Revised 1/1/89

OIL CONSERVATION DIVISION

P.O. Box 2088
Santa Fe, New Mexico 87504-2088

GAS - OIL RATIO TEST

Operator CONOCO INC.		Pool Blanco Mesaverde / Basin Dakota		County Rio Arriba									
Address 10 DESTA DR STE 100W, MIDLAND, TX 79705		TYPE OF TEST - (X)		Completion ☐ Special ☒									
LEASE NAME	WELL NO.	LOCATION			DATE OF TEST	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST			GAS - OIL RATIO CU.FT/BBL.
		U	S	T						R	WATER BBL.S.	GRAV. OIL	
Federal (Mesaverde)	13	K	21	26N	6W	4/94				720	0	3	237
	13	K	21	26N	6W	4/94				720	0	0	103
Federal (Dakota)													

Instructions:

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in that well can be assigned increased allowables when authorized by the Division.
Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F.
Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

See Rule 301, Rule 1116 & appropriate pool rules.)

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

Jerry W. Hoover
Signature

Jerry W. Hoover Sr. Conservator
Coordinator

Printed name and title

2/9/95

Date

(915) 686-65

Telephone No.

EXHIBIT C

Gas Company of New Mexico
Bloomfield, NM
CERTIFICATE OF ANALYSIS
for 09/94

10/11/94 09:02:59
PAGE 94

Meter ID: 103317
Meter Name: FEDERAL 0013
Operator: CONOCO INC.
Analysis Source:

Analysis ID: 118769
Effective Date: 09/07/94

Analyzed By: GCNM
Analyzed Date: 09/09/94

Sampled By: GCNM
Sampled Date: 09/07/94

Component	Mol %	GPM
CO2	0.3900	
N2	0.6000	
Methane	78.2900	
Ethane	10.9000	0.000
Propane	5.9500	0.000
I-butane	0.9600	0.000
N-butane	1.4700	0.000
I-pentane	0.4400	0.000
N-pentane	0.3200	0.000
Hexanes (C6+)	0.6800	0.000
TOTAL	100.0000	0.000

Calculation Parameters:

Sample Gravity: 0.7404

Dry BTU @ 14.730: 1284

Remark:

EXHIBIT H



1115 Farmington Avenue
Farmington, N.M. 87401
(505) 325-6622

Analysis No. CON40172
Cust. No. 18300-10780

WELL/LEASE INFORMATION

Company : CONOCO, INC.
Well Name : FEDERAL #13
County : RIO ARRIBA
State : NM
Location : 21 26N-6W
Fld/Formation :
Cust.Stn.No. : 3317-30

Source :
Pressure : 210 PSIG
Sample Temp. : N/A DEG.F
Well Flowing : YES
Date Sampled : 12/27/94
Sampled By : T. CHAVEZ
Foreman/Engr :

Remarks:

ANALYSIS

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*
NITROGEN	0.660	0.0000	0.00	0.0064
CO2	0.347	0.0000	0.00	0.0053
METHANE	78.222	0.0000	791.84	0.4333
ETHANE	11.084	2.9650	196.60	0.1151
PROPANE	6.154	1.6960	155.20	0.0937
I-BUTANE	0.990	0.3238	32.27	0.0199
N-BUTANE	1.525	0.4808	49.86	0.0306
I-PENTANE	0.394	0.1442	15.80	0.0098
N-PENTANE	0.269	0.0974	10.81	0.0067
HEXANES	0.355	0.1549	18.25	0.0114
TOTAL	100.000	5.8621	1270.63	0.7322

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

** @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR (1/Z) 1.0037
BTU/CU.FT. (DRY) CORRECTED FOR (1/Z) 1275.3
BTU/CU.FT. (WET) CORRECTED FOR (1/Z) 1253.1
REAL SPECIFIC GRAVITY 0.7346

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

CYLINDER # : AZT034
CYLINDER PRESSURE : 210 PSIG
DATE RUN : 12/29/94
ANALYSIS RUN BY : LISA CLAYTON

EXHIBIT I

Z 111 001 113



**Receipt for
Certified Mail**

No Insurance Coverage Provided

Caulkins Oil Company
1600 Broadway, Ste. 2100
Denver, CO 80202

PS Form 3800, March 1993

Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date 2/15/95	

Z 111 001 159



**Receipt for
Certified Mail**

No Insurance Coverage Provided

Meridian Oil Inc.
P.O. Box 4289
Farmington, NM 87499

PS Form 3800, March 1993

Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$
Postmark or Date 2/15/95	

TYPICAL DAKOTA

SCALE TENDENCY REPORT

Company	: CONOCO	Date	: 2-12-94
Address	: FARMINGTON N.M.	Date Sampled	: 2-10-94
Lease	: SAN JUAN	Analysis No.	:
Well	: FED. 6E DK	Analyst	: D. STEWART
Sample Pt.	:		

STABILITY INDEX CALCULATIONS (Stiff-Davis Method) CaCO₃ Scaling Tendency

S.I. =	-0.4	at	80 deg. F	or	27 deg. C
S.I. =	-0.3	at	100 deg. F	or	38 deg. C
S.I. =	-0.3	at	120 deg. F	or	49 deg. C
S.I. =	-0.2	at	140 deg. F	or	60 deg. C
S.I. =	-0.2	at	160 deg. F	or	71 deg. C

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS (Skillman-McDonald-Stiff Method) Calcium Sulfate

S =	1772	at	80 deg. F	or	27 deg C
S =	1783	at	100 deg. F	or	38 deg C
S =	1774	at	120 deg. F	or	49 deg C
S =	1760	at	140 deg. F	or	60 deg C
S =	1721	at	160 deg. F	or	71 deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
D. STEWART