



3-8-95

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OIL CONSERVATION DIVISION

RECEIVED

Midland Division
Exploration Production

95 FEB 17 AM 8 56

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. 12, 790' FNL & 1450' FWL, Unit C
Sec. 23, 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 180 MCFGPD and 100 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:

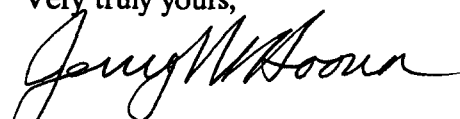
1. EXHIBIT A is a plat (a) showing all Mesaverde wells on the lease, (b) indicating the subject well, (c) identifying offset operators, and (d) outlining the current Mesaverde proration unit.
2. EXHIBIT B is a plat (a) showing all Dakota wells on the lease, (b) indicating the subject well, (c) identifying 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 595 and 991 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 gravities for both pools are identically in the 44-45° API range and commingling does not result in a change in sales value.
8. WI, RI, and ORRI ownerships are identical for both formations.
9. EXHIBITS H and I 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	0%	100%	64%
Basin Dakota	100%	0%	36%

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

	CAULKINS BREECH D * 00240E 15 REUTER * 00321E CAULKINS	CAULKINS BREECH C * 00244E 14 BREECH C * 00323E CAULKINS	CAULKINS BREECH C * 00248M BREECH C * 000248 13 BREECH C * 00389E CAULKINS	JICARILLA A * 00000
	CAULKINS BREECH D * 000348 22 BREECH D * 00346M CAULKINS	FEDERAL O 000012 23 FEDERAL O 00012E CONOCO	CONOCO FEDERAL * 00011E FEDERAL * 00011E AMOCO	AMOCO SANCHEZ * 00001E CAULKINS
	MERIDIAN 27 MERIDIAN	MERIDIAN 26 VAUGHN * 000033 MERIDIAN	CAULKINS SANCHEZ * 00004R 25 SANCHEZ * 00004E AMOCO	JICARILLA CONTRACT 155 * 000030 JICARILLA CONTRACT 155 * 000035 ROMERO COM * 000001

Mesa Verde Wells

Federal No. 12

EXHIBIT A

R6W

T26N

STATE A * 000200	CAULKINS BREECH D * 000240 BREECH D * 00240E 15 REUTER * 000321 REUTER * 00321E CAULKINS	CAULKINS BREECH C * 00244E BREECH C * 000244 14 BREECH C * 000323 BREECH C * 00323E CAULKINS	CAULKINS BREECH C * 00240H BREECH C * 000240 13 BREECH C * 000300 BREECH C * 00300E CAULKINS	JICARILLA A * 000000
	CAULKINS REUTER * 000344 CAULKINS BREECH D * 000340 22 BREECH D * 00340H CAULKINS	FEDERAL * 000012 CONOCO FEDERAL * 000011 23 FEDERAL * 00012E CONOCO FEDERAL * 00011E CONOCO	SANCHEZ * 000001 AMOCO REAMES A * 000001 24 SANCHEZ * 00001E REAMES A * 00001E CAULKINS	JICARILLA A * 000040
	VAUGHN * 00014E MERIDIAN VAUGHN * 000013 27 VAUGHN * 000014 VAUGHN * 00013E MERIDIAN	VAUGHN * 00012E MERIDIAN VAUGHN * 000000 26 VAUGHN * 000012 VAUGHN * 00000E MERIDIAN	CAULKINS SANCHEZ * 000004 SANCHEZ * 00001R 25 SANCHEZ * 00001E AMOCO	JICARILLA CONTRACT 155 * 000010 JICARILLA CONTRACT 155 * 00013E
VAUGHN * 00015E				

DAKOTA WELLS

Federal No. 12

EXHIBIT B

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
OIL CONSERVATION DIVISION

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

Form C-116
Revised 1/1/89

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)	12	C	23	26N	6W	4/94				720	0	6	180
	Federal (Dakota)	12	C	23	26N	6W	4/94			720	4	0	100

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

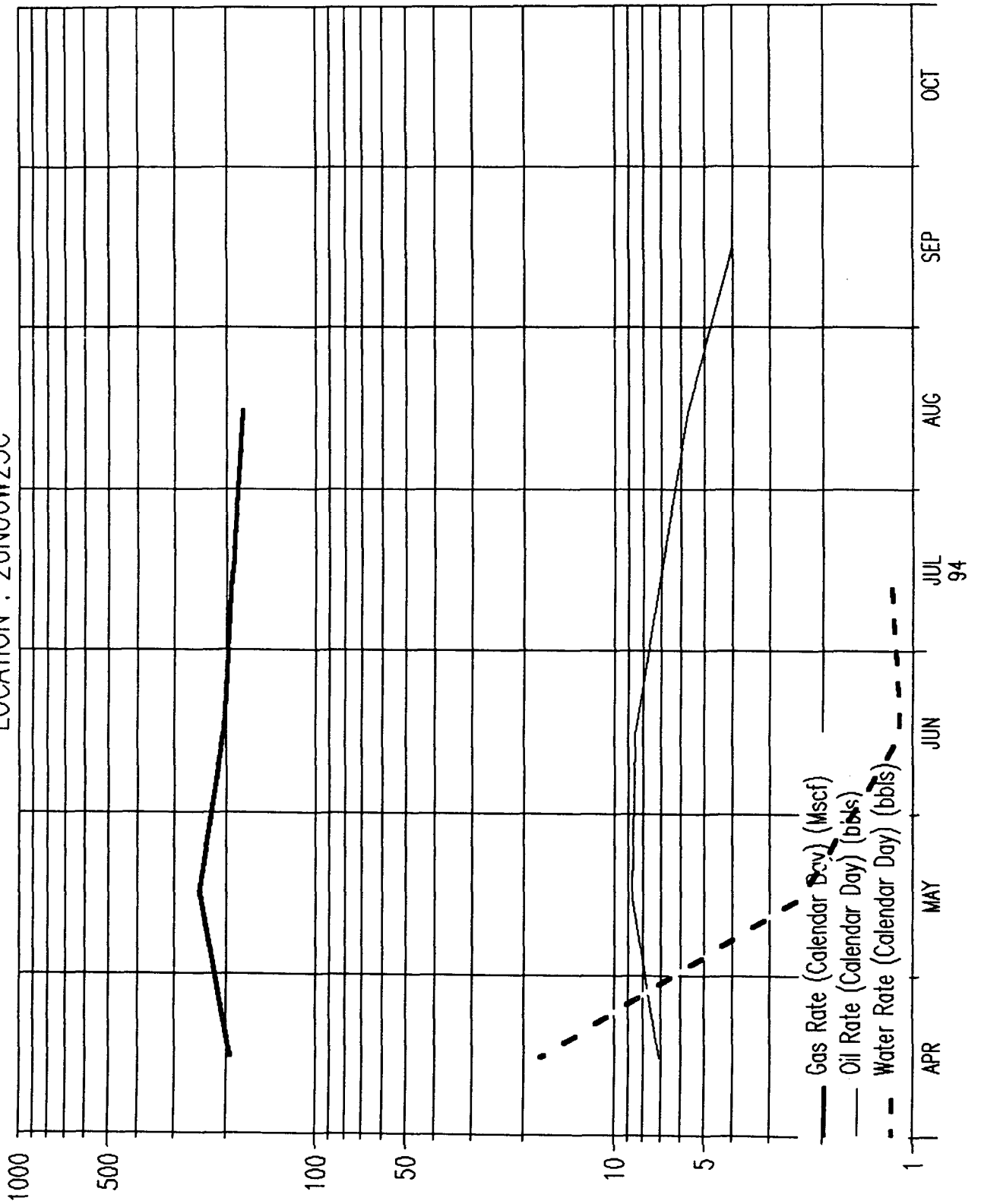
Jerry W. Hoover
Signature
Jerry W. Hoover Sr. Conservation Coordinator
Printed name and title
Date 2/9/95 (915) 486-65 Telephone No.

EXHIBIT C

NOTES:
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.
C : Rule 301, Rule 1116 & appropriate pool rules.)

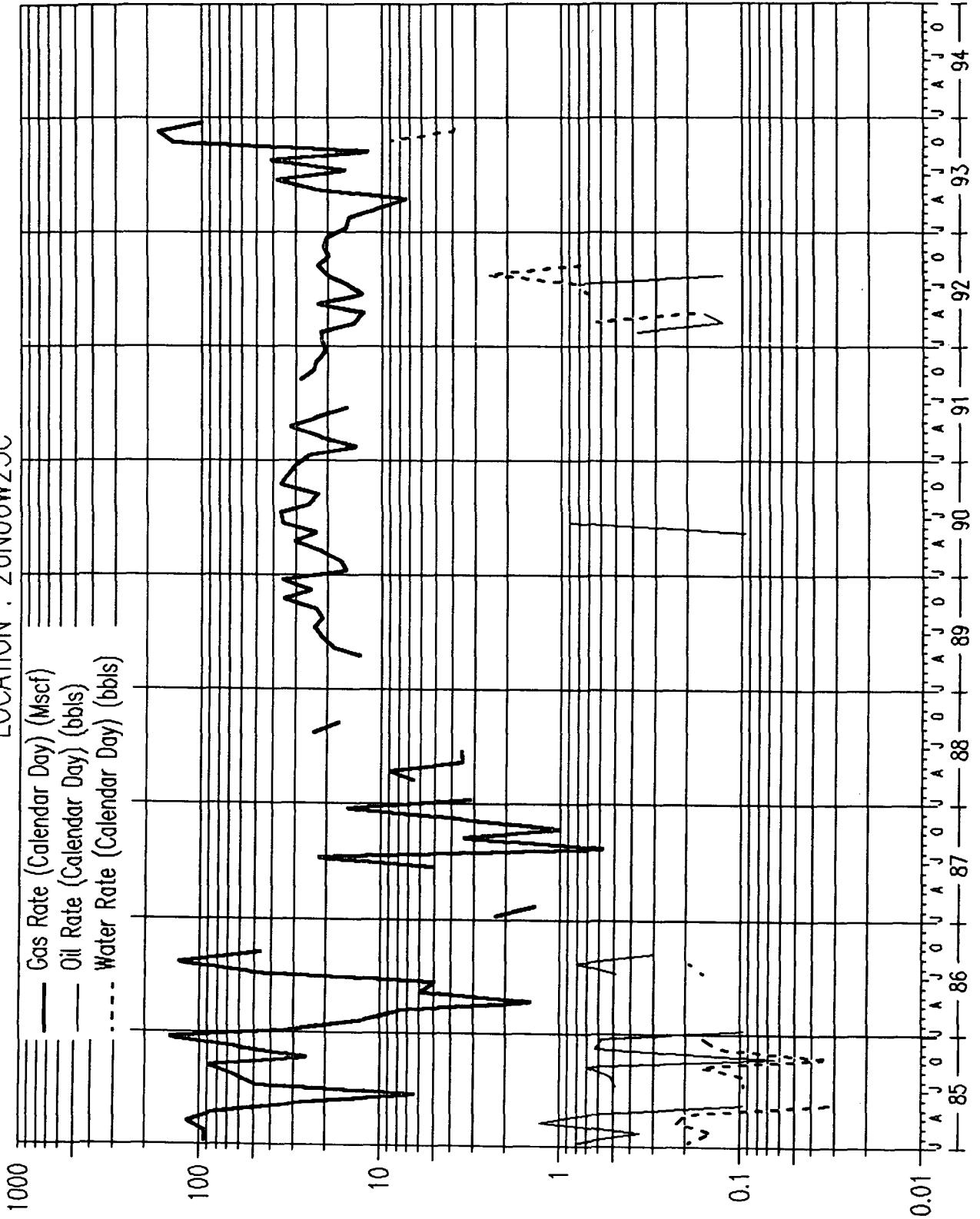


FEDERAL 000012 ZONE : MVRD
STATUS : ACT OPERATOR : CONOCO INC
LOCATION : 26N06W23C





FEDERAL 000012 ZONE : DKOT
STATUS : ACT OPERATOR : CONOCO INC
LOCATION : 26N06W23C



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. H2S	0			
3. Specific Gravity	1.01			
4. Total Dissolved Solids		4359.2		
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	646.0	HCO3	10.6
12. Chloride	Cl	2100.0	Cl	59.2
13. Sulfate	SO4	12.5	SO4	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 (CaCO3)		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		
+-----+	+-----+	MgCl2	47.6		
Saturation Values Dist. Water 20 C		NaHCO3	84.0	6.6	554
CaCO3 13 mg/L		Na2SO4	71.0	0.3	18
CaSO4 * 2H2O 2090 mg/L		NaCl	58.4	59.2	3462
BaSO4 2.4 mg/L					

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
 D. STEWART

EXHIBIT G

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



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

Analysis No. CON40170
Cust. No. 18300-10770

WELL/LEASE INFORMATION

Company	: CONOCO, INC.	Source	:
Well Name	: FEDERAL #12	Pressure	: 120 PSIG
County	: RIO ARriba	Sample Temp.	: N/A DEG.F
State	: NM	Well Flowing	: YES
Location	: 23-26N-6W	Date Sampled	: 12/27/94
Fld/Formation	: BARRO MESA VERDE	Sampled By	: T. CHAVEZ
Cust.Stn.No.	: 97-747-01	Foreman/Engr	:

Remarks:

ANALYSIS

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*
NITROGEN	0.794	0.0000	0.00	0.0077
CO2	0.408	0.0000	0.00	0.0062
METHANE	77.955	0.0000	789.14	0.4318
ETHANE	10.209	2.7309	181.08	0.1060
PROPANE	6.335	1.7459	159.76	0.0965
I-BUTANE	1.138	0.3722	37.09	0.0228
N-BUTANE	1.717	0.5414	56.14	0.0345
I-PENTANE	0.532	0.1947	21.33	0.0133
N-PENTANE	0.345	0.1250	13.86	0.0086
HEXANES	0.567	0.2473	29.15	0.0182
TOTAL	100.000	5.9574	1287.56	0.7455

* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY

** @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR	(1/Z)	1.0039
BTU/CU.FT. (DRY) CORRECTED FOR	(1/Z)	1292.6
BTU/CU.FT. (WET) CORRECTED FOR	(1/Z)	1270.1
REAL SPECIFIC GRAVITY		0.7481

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

CYLINDER # : K037
CYLINDER PRESSURE : 120 PSIG
DATE RUN : 12/29/94
ANALYSIS RUN BY : LISA CLAYTON

EXHIBIT H

EL PASO NATURAL GAS COMPANY
VOLUME ACCOUNTING DEPARTMENT
MEASUREMENT DIVISION
POST OFFICE BOX 1492
EL PASO, TEXAS 79978
PHONE: (915) 541-5267

DATE 9/08/93

CHROMATOGRAPHIC GAS ANALYSIS REPORT

MAILEE
23035

CONOCO INCORPORATED
ATTN: GAS MEASUREMENT
7415 EAST MAIN
FARMINGTON, NM 87402-9999

METER NUMBER 75329 - FEDERAL #12
OPERATOR 0286 - CONOCO - MESA OPERATING LTD

ANALYSIS DATE	8/14/93	TYPE CODE	2 - ACTUAL
SAMPLE DATE	8/05/93	H2S GRAINS	0
EFFECTIVE DATE	9/01/93	LOCATION	D - DANIELS FM
EFFECTIVE FOR	6 MONTHS		

COMPONENTS	NORMALIZED MOL %	GPM
CO2	1.07	.000
H2S	.00	.000
N2	.21	.000
METHANE	88.07	.000
ETHANE	6.96	1.862
PROPANE	1.87	.515
ISO-BUTANE	.36	.118
NORM-BUTANE	.53	.167
ISO-PENTANE	.23	.084
NORM-PENTANE	.16	.058
HEXANE PLUS	<u>.54</u>	<u>.236</u>
	100.00	3.040

SPECIFIC GRAVITY .854

MIXTURE HEATING VALUE
(BTU @ 14.73 DRY) 1138

RATIO OF SPECIFIC HEATS .000

NO TEST SECURED FOR H2S CONTENT

EXHIBIT I

Z 111 001 111



**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 111 001 157



**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	

EXHIBIT J