

November 28, 1994

Southern **Rockies** Business **Unit** 

Mr. William J. LeMay, Director New Mexico Oil Conservation Division 2040 S. Pacheco Street P. O. Box 6429 Santa Fe, NM 87504

Application for Exception to Rule 303-A Downhole Commingling Jicarilla 146 #12 Well 1510' FSL, 1754' FWL, Section 4-T25N-R5W Otero Chacra, So. Blanco Pictured Cliffs, Basin Fruitland Coal Pools <u>Rio Arriba County, New Mexico</u>

Amoco Production Company hereby requests administrative approval to downhole commingle production from the Otero Chacra, So. Blanco Pictured Cliffs, Basin Fruitland Coal Pools in the Jicarilla 146 #12 well referenced above. The ownership (WI, RI ORRI) of these three pools is identical in this wellbore. Production methods are limited due to the 4 1/2" casing in the well. Downhole commingling will offer an economical method of production while protecting against reservoir damage, waste of reserve and violation of correlative rights.

A copy of this application will be sent to the offset operators. If there are any questions concerning this matter, please contact me at (303) 830-5072.

Sincerely W. Hawkins

Enclosures

cc: Wayne Branam Steve Smethie

> Frank Chavez, Supervisor Amoco District III 1000 Rio Brazos Road Aztec, NM 87410

Conoco Inc. 10 Desta Drive, Suite 100W Midland, TX 79705-4500 Robert Kent Bureau of Land Management 435 Montano NE Albuquerque, Nm 87107

## Application for Exception to Rule 303: SEGREGATION OF PRODUCTION FROM POOLS

#### Requirements

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(1) Name and address of the operator:

Amoco Production Company P.O. Box 800 Denver, CO 80201

(2) Lease name, well number, well location, name of the pools to be commingled:

Lease Name:	Jicarilla 146
Well Number:	12
Well Location:	1510' FSL & 1754' FWL
	Section 4, T25N-R5W
	Rio Arriba County, New Mexico
Pools Commingled:	Otero Chacra
<b>U</b>	So. Blanco Pictured Cliffs
	<b>Basin Fruitland Coal</b>
	<b>Basin Fruitland Coal</b>

(3) A plat of the area showing the acreage dedicated to the well and the ownership of all offsetting leases.

#### Attached

(4) A current (within 30 days) 24-hour productivity test on Division Form C-116 showing the amount of oil, gas and water produced from each zone.

Prior to recompletion, the Otero Chacra produced an average stabilized rate of 40 mcfd without compression. The well was then recompleted to the Fruitland through perforations 2888'-2900' and Pictured Cliffs through perforations 2901'-2930'. Both zones were fracture stimulated together since there was no room to separate the two zones This was followed by a period of combined Fruitland and Pictured Cliffs zone production which stabilized at about 420 mcfd under compression. Additional testing for all three zones with compression is underway.

(5) A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed within the case of a newly completed or recently completed well which has little or not production history. However, a complete resume of the well's completion history including description of treating, testing, etc., of each zone, and a prognostication of future production from each zone shall be permitted.)

Otero Chacra Completion:	Historical production curve attached.
Basin Fruitland Coal /	New completions, recent recompletion summary attached.
So. Blanco Pictured Cliffs Completion:	• • • • •

(6) Estimated bottomhole pressure for each artificially lifted zone. A current (within 30 days) measured bottom hole pressure for each zone capable of flowing.

	<b>BH</b> Pressure	SI Tubing Press.	Fluid Level
Otero Chacra Completion:	344 psi	200 psi	265'
Basin Fruitland Coal/	-	-	
So. Blanco Pictured Cliffs Completion	295 psi	270 psi	0'

(7) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the wellbore.

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The fluids have no abnormal components that would prohibit commingling, or promote the creation of emulsions or scale (see attached produced gas and fluid analysis).

(8) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams:

Since the BTU content of the produced fluids are very similar, we would expect the commingled production to have the same value as the sum of the individual streams.

(9) A formula for the allocation of production to each of the commingled zones and a description of the factors or data used in determining such formula:

The well is undergoing additional testing to aid in determination of the allocation factor. The completion in the Fruitland/Pictured Cliffs zone precludes an evaluation of individual zone production rates. We propose using feet of perforations as a basis of allocation between Fruitland and Pictured Cliffs. The Fruitland has 12' of open perfs (2888'-2900') and the P.C. has 30' of open perfs (2901'-2930'). The Fruitland/Pictured Cliffs combined production will be allocated as follows: Fruitland -37.5%, Pictured Cliffs -62.5%. The current testing period will allow a further allocation between the Otero Chacra and the Fruitland /Pictured Cliffs combined production.

(10) A statement that all offset operators and, in the case of a well on federal land, the United States Bureau of Land Management, have been notified in writing of the proposed commingling.

All offsetting operators and the BLM will receive a copy of this application by certified mail. The offsetting operator is Conoco Inc., 10 Desta Drive, Suite 100W, Midland, TX 79705-4500

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U.S.G.S.		
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PRORATION OFFIC		
OPERATOR		

# NEW MEXICO OIL CONSERVATION COMMISSION WELL LOCATION AND ACREAGE DEDICATION PLAT

FORM C-128 Revised 5/1/57

SEE INSTRUCTIONS FOR COMPLETING THIS FORM ON THE REVERSE SIDE

OPERATOR									
Operator				Lease		<u> </u>		Well No.	
Pan American H			Lon		licarilla		146		12
Unit Letter Sect K	ion .	Township	25 North	Ran	5 West	County R10	Arriba		
Actual Footage Location	on of Well:	<b>_</b>		l					
<b>•</b> • • • •	t from the	South	line and	1	. <b>754</b> fee	t from the	West	line	
Ground Level Elev.	Producing Fo	ormation		Pool				Dedicated Acre	age:
6648		Chacra		Ot	oro Chacr	a.		נין	.60 Acres
who has the right to another. (65-3-29 2. If the answer to que wise? YES	<ol> <li>Is the Operator the only owner in the dedicated acreage outlined on the plat below? YES X NO ("Owner" means the person who has the right to drill into and to produce from any pool and to appropriate the production either for himself or for himself and another. (65-3-29 (e) NMSA 1935 Comp.)</li> <li>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</li> <li>If the answer to question two is "no," list all the owners and their respective interests below:</li> </ol>								
Owner					Land Descrip	tion			
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State of New Mexico Energy, Minerala & Natural Resources Department

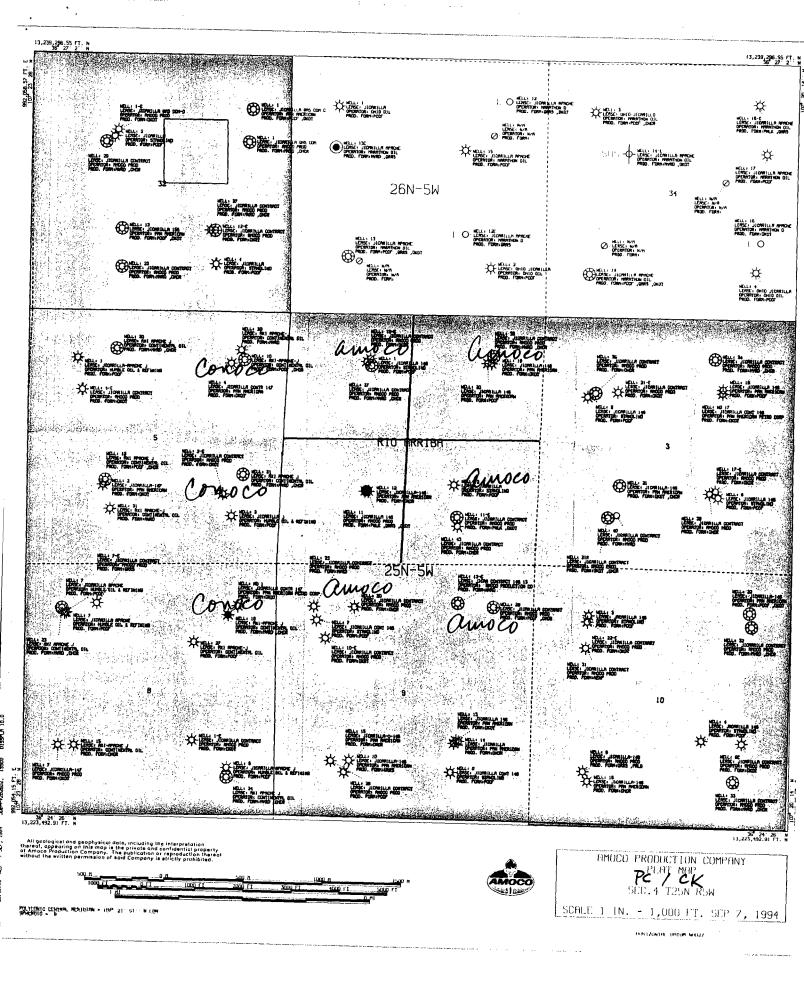
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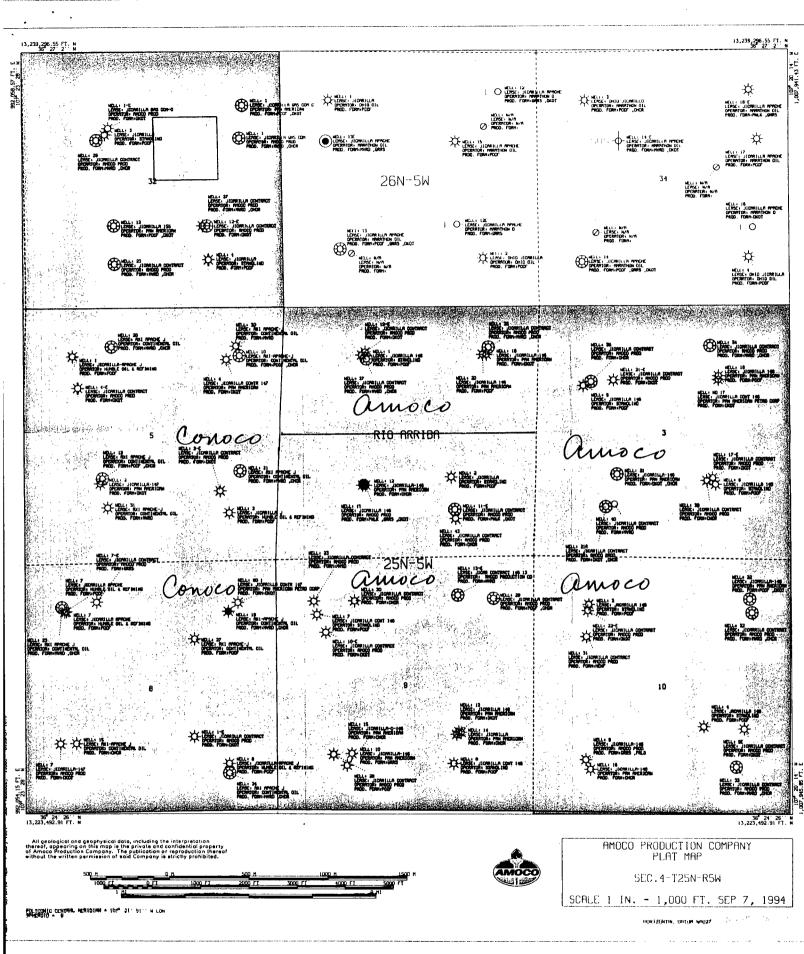
Form C-102 Danish Dalaman Dr. 100 Instructions on back Submit to Appropriate District Office State Lease - 4 Copies Fee Lease - 3 Copies

AMENDED REPORT

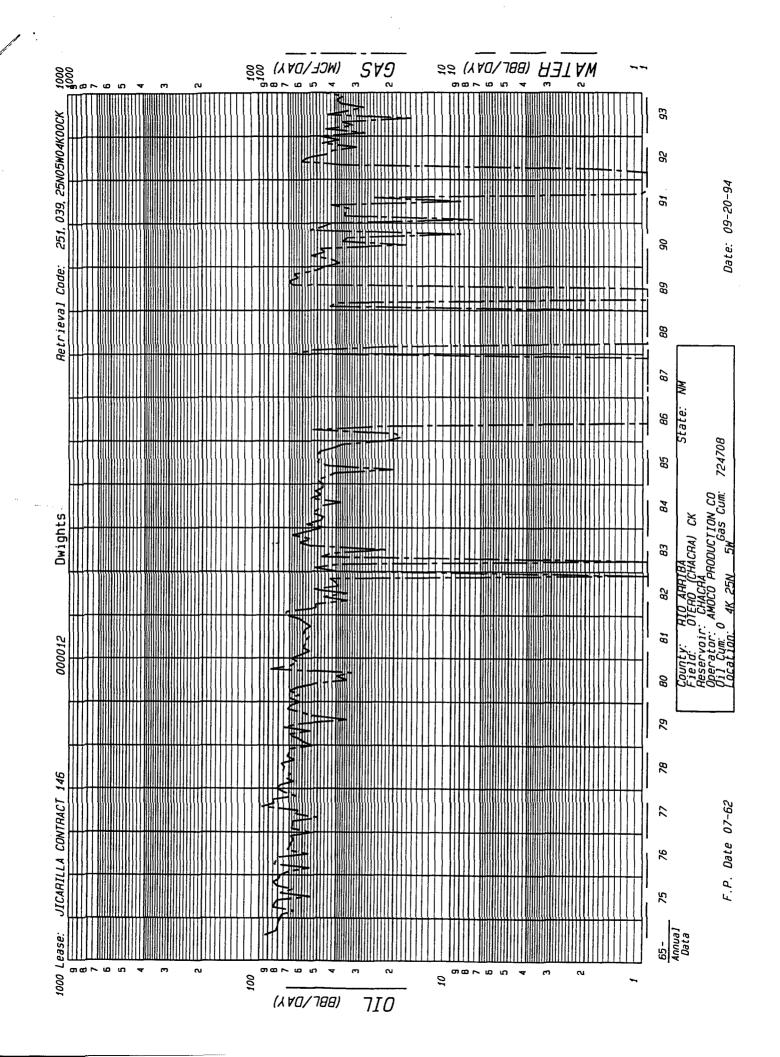
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District IV PO Bux 2088, San	ila Fe, NM	87504-2	088									] AME	NDED REPORT
			WEL	L LO	CATION	AND	ACR	REAGE DEDI	CATIO	N PL	.AT		
· /	PI Numbe		••• • • • • • • • • • • • • • • • • •	1	I Pool Cod	c				Pool Na	ine		
30-039-	06153				71629		Bas	sin Fruitland	l Coal	Gas 1	<u>Pool</u>		
<sup>4</sup> Property (	Code	тн	loari	11 2 0	ontract		uperty	Name				÷	Well Number 12
'OCRID	No.					<u> </u>	peratur	Name					<sup>1</sup> Elevation
000778	5	An	noco	Produ	ction C	•		,					
L	<u>-</u>			<u></u>			face	Location			I		·
UL or lot no.	Section	Town	ship	Range	Lot Idn	Feet from	the	North/South line	Feet from	n the	East/West	line	County
К	4	25	5N	5W		1510		South	1754		West		Rio Arriba
				<sup>11</sup> Bot	tom Hol	e Locati	on I	f Different Fro	om Sur	face	•		
UL or lot no.	Section	Towns	ıbip	Rauge	Lot Idn	Feet from	the	North/South line	Feet from	n the	East/West	lline	County
					<u></u>			1			l		1
" Dedicated Acr 320				oitabiloza		Order No.							
NO ALLOV	VABLE							ON UNTIL ALL EEN APPROVED				EN CO	NSOLIDATED
16					1		<u> </u>		17	OPEF	RATOR	CER	TIFICATION
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									Tiu	:		1)00	
						· · ·				07/20	/94		
				SEC	TION 4							OFD	TIELOATION
													TIFICATION in shown on this plat
						*			was	plotted fi	rom field not	es of actu	al surveys made by me
											supervision, a best of my b		he same is true and
1	754									04/29	/61		
		•	1 							of Surv	cy I Scal of Proi	(assignal)	Successor
									Sign	aute Mil	, Juli VI (10)		
			1510	)	1								
										1463		"0n 1	File"
									JI —	ificate N	umber		





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# JICARILLA CONTRACT 146 - 12 SEC 4 - T25N - R5W RIO ARRIBA COUNTY, NM PICTURED CLIFF / FRUITLAND COAL RECOMPLETION SUMMARY

1. The well was shut-in for 8 days (192 hr) and surface pressure data was collected. The shut-in surface tubing (Chacra) pressure was 200 psi.

2. The production tubing was pulled and a RBP was set at 3200'.

- 3. The wellbore was logged from 3169' 398' with a cement bond log and from 3177' 1985' with a Dual Spaced Neutron log. The top of cement behind pipe was identified at 2320'.
- 4. The casing positively pressured tested to 3000 psi.

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- 5. The Fruitland Coal (FR) was perforated from 2888' 2900' with 4 JSPF and the Pictured Cliff (PC) formation was perforated from 2901' 2930' with 4 JSPF.
- 6. The perforations from 2888' 2930' were fracture stimulated with 70 percent quality N2 foam and approximately 96,000 pounds of 20/40 sand.
- 7. The well was flowed back for 4 days to produce back frac fluid.
- 8. The wellbore was cleaned out with N2 and 2-3/8" tubing was landed at 2897'.
- 9. The well was flow tested for 8 days through a separator.

	Back	Flow Tbg	Flow Csg	Test	
1994	Pressure	Pressure	Pressure	Duration	
Date	<u>PSI</u>	<u>PSI</u>	<u>PSI</u>	Hour	<u>MCFD</u>
10/13	250	260		13	188
10/14	250	260	280	24	188
10/15	250	160	180	24	180
10/16	100	110	170	24	703
10/17	100	110	***	24	703
10/18	100	110	160	24	703
10/19	100	110		24	520
10/20	100			24	420

No water was recovered during the flow test.

- 10. The well was shut-in for 2 days (48 hr) to obtain shut-in surface pressure data. The shut-in tubing pressure (PC'FR) was 270 psi.
- 11. The wellbore was cleaned out and the RBP set at 3200' was pulled.
- 12. Production tubing (2-1/16") was landed at 3783'.
- 13. The wellbore is currently shut-in awaiting downhole commingling approval for the Chacra, Pictured Cliff, and Fruitland Coal formations.

PHONE NO. : 505 326 2555

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

Analysis No. AMO40629 Cust. No. 12300-12765

## WELL/LEASE INFORMATION

Well Name       : JICARILLA CONT. 146-12       Pr         County       :       Sa         State       :       Weillight         Location       :       Da         Fid/Formation:       CHACRA       Sa	ource : Pressure : N/A PS ample Temp. : N/A DH Well Flowing : YES Date Sampled : 06/13/ Sampled By : GREG V Foreman/Engr : JAKE H	EG <i>.</i> F /94 Vigil
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Remarks: JICARILLA FIELD

ANALYSIS							
COMPONENT	MOLE &	GPM**	B.T.U.*	SP.GR.*			
NITROGEN	0.420	0.0000	0.00	0.0041			
C02	0.258	0.0000	0.00	0.0039			
METHANE	84.815	0.0000	858.58	0.4698			
ETHANE	8.290	2.2176	147.04	0.0861			
PROPANE	3.708	1.0219	93.51	0.0565			
I-BUTANE	0.592	0.1936	19.30	0.0119			
N-BUTANE	0.928	0.2926	30.34	0.0186			
I-PENTANE	0.289	0.1057	11.59	0.0072			
N-PENTANE	0.214	0.0775	8.60	0.0053			
HEXANES	0.486	0.2120	24.99	0.0156			
TOTAL	100.000	4.1209	1193.95	0.6789			

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY \*\* @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR	(1/2)	1.0032
BTU/CU.FT. (DRY) CORRECTED	FOR $(1/Z)$	1197.8
BTU/CU.FT. (WET) CORRECTED	FOR $(1/2)$	1176.9
REAL SPECIFIC GRAVITY		0.6808

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

CYLINDER	#	:	N/A
CYLINDER	PRESSURE	:	85 PSIG
DATE RUN		:	06/21/94
ANALYSIS	RUN BY	:	SHEILA FELTMAN



Farming n, N.M. 87401 (505) 3\_J-6622

> Analysis No. AMO40913 Cust. No. 12300-13610

> > 7 pc

#### WELL/LEASE INFORMATION

Well Name : County :	AMOCO PRODUCTION COMPANY JICARILLA CONT. #40 RIO ARRIBA 146 NM	Pressure Sample Temp. Well Flowing Date Sampled Sampled By		N/A DEG.F YES 08/08/94
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Remarks:

COMPONENT	MOLE %	GPM**	B.T.U.*	SP.GR.*	
NITROGEN	0.827	0.0000	0.00	0.0080	
CO2	0.134	0.0000	0.00	0.0020	
METHANE	81.906	0.0000	829.13	0.4537	
BTHANE	7.,757	2.0750	137.59	0.0805	
PROPANE	5.001	1.3783	126.12	0.0761	
I-BUTANE	1.180	0.3860	38.46	0.0237	
N-BUTANE	1.457	0.4594	47.64	0.0292	
I-PENTANE	0.592	0.2166	23.74	0.0147	
N-PENTANE	0.404	0.1463	16.23	0.0101	
HEXANES	0.742	0.3237	38.15	0.0239	
TOTAL	100.000	4.9853	1257.06	0.7219	

ANALYSIS

\* @ 14.730 PSIA DRY & UNCORRECTED FOR COMPRESSIBILITY \*\* @ 14.730 & 60 DEG. F

COMPRESSIBILITY FACTOR	(1/Z)	1.0036
BTU/CU.FT. (DRY) CORRECTED	FOR $(1/Z)$	1261.6
BTU/CU.FT. (WET) CORRECTED	FOR $(1/Z)$	1239.6
REAL SPECIFIC GRAVITY		0.7242

ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

CYLINDER	#	:	A008
CYLINDER	PRESSURE	;	80 PSIG
DATE RUN		:	08/09/94
ANALYSIS	RUN BY	:	LINDA SPENCER



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

Analysis No. AMO40912 Cust. No. 12300-13615

#### WELL/LEASE INFORMATION

FR

Remarks:

		ANALYSIS		
COMPONENT	MOLE 8	GPM**	B.T.U.*	SP.GR.*
NITROGEN CO2 METHANE ETHANE PROPANE I-BUTANE N-BUTANE I-PENTANE N-PENTANE HEXANES	0.802 0.129 81.672 7.761 5.064 1.214 1.498 0.617 0.422 0.821	1.3956 0.3971 0.4723 0.2258	24.74	0.4524 0.0806 0.0771 0.0244 0.0301 0.0154 0.0105
TOTAL	100.000	5.0778	1264.59	0.7267
<ul> <li>* @ 14.730 PSIA</li> <li>** @ 14.730 &amp; 60</li> <li>COMPRESSIBILITY F BTU/CU.FT. (DRY)</li> <li>BTU/CU.FT. (WET)</li> <li>REAL SPECIFIC GRA</li> </ul>	DEG. F Actor Corrected for Corrected for	(1/Z) (1/Z)	RESSIBILITY 1.00 1269 1247 0.72	.3 .2

ANALVOIC

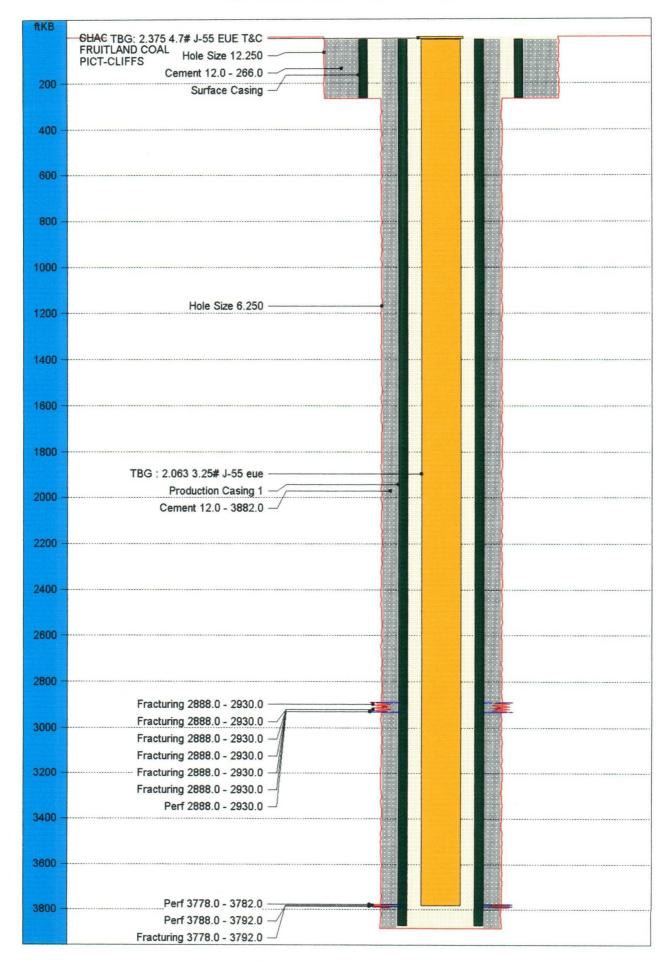
ANALYSIS RUN AT 14.730 PSIA & 60 DEGREES F

CYLINDER	#	:	040
CYLINDER	PRESSURE	:	32 PSIG
DATE RUN		:	08/09/94
ANALYSIS	RUN BY	:	LINDA SPENCER

## JICARILLA CONTRACT 146-12

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STATE OF NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DIVISION OIL CONSERVATION DIVISION AZTEC DISTRICT OFFICE 52



BRUCE KING

ANITA LOCKWOOD CABINET SECRETARY ICRO RIO BRAZOS ROAD AZTEC, NEW MEXICO 87410 (SOB) 334-6176

Date: 12, 94

Oil Conservation Division P.O. Box 2088 Santa Fe, NM 87504-2088

RE: Proposed MC\_\_\_\_\_ Proposed NSL\_\_\_\_\_ Proposed WFX\_\_\_\_\_ Proposed NSP\_\_\_\_\_

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Proposed DHC_	X
Proposed SWD_	
Proposed PMX_	
Proposed DD	

Gentlemen:

I have examined the application red	
for the <u> </u>	Jicarilla 146 #2
OPERATOR	LEASE & WELL NO.
K- 4-25N-5W	and my recommendations are as follows:
UL-S-T-R	
amore	
/ <i>b</i>	

Yours truly