DHC 4-8-96

Southern Rockies Business Unit

March 13, 1996

1218

Mr. William J. LeMay, Director
New Mexico Oil Conservation Division
2040 S. Pacheco Street
P. O. Box 6429
Santa Fe, NM 87505

Application for Exception to Rule 303-C
Downhole Commingling
Barnes LS #4A Well
1018' FNL & 1720' FWL, Unit C Section 26-T32N-R11W
Blanco Mesaverde (Pool IDN 72319) and Blanco Pictured Cliffs (Pool IDN 72359) Pools
San Juan County, New Mexico

Amoco Production Company hereby requests administrative approval to downhole commingle production from the Blanco Mesaverde and Blanco Pictured Cliffs Pools in the Barnes LS #4A well referenced above. The Barnes LS #4A is currently a dual completion in the Mesaverde and Pictured Cliffs formations with the Pictured Cliffs formation temporarily shut-in. We plan to complete the well with both the Mesaverde and Pictured Cliffs formations being downhole commingled in the wellbore restoring the Pictured Cliffs to production. The two zones are expected to produce at a total commingled rate of about 273 MCFD with less than 1 BCPD. The ownership (WI, RI,ORI) of these pools is not common in this wellbore. Downhole commingling will offer an economical method of production while protecting against reservoir damage, waste of reserves and violation of correlative rights. Offset operators to this well and all interest owners involved in the two formations will receive a copy of this application by certified mail.

The allocation method that we plan to use for this commingled well is as follows. Both formations historically produced at stabilized rates until the Pictured Cliffs became temporarily abandoned due to low productivity. We recommend that the Mesaverde and Pictured Cliffs formations gas and condensate be allocated based on historical rates. The Mesaverde is currently producing 273 MCFD with 0.33 BCPD while the Pictured Cliffs has historically produced at 20 MCFD with less than 1 BCPD. The recommended allocation percentages after downhole commingling would be set as a percentage of the total rate with the Mesaverde attributing 93% of gas production and 93 % of condensate production. The Pictured Cliffs would be allocated at 7% of gas production and 7 % of condensate production. The actual commercial value of the commingled production will not be less than the sum of the values of the production from each of the common sources of supply.

Attached to aid in your review are plats showing the location of the well and offset wells in the same formation, a historical and recent production plot and a C-102 for each formation. This spacing unit is located on a federal lease (SF-078039) and we will send a copy of the application to the BLM as

their notice. Should you have questions concerning this matter, please contact me at (303) 830-5344.

Sincerely,

Pamela W. Staley

Enclosures

cc: Khanh Vu
Gail Jefferson
Proration File
Well File

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

Duane Spencer
Bureau of Land Management
1235 La Plata Hwy.
Farmington, NM 87401

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

Requirements

(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:	Barnes LS
Well Number:	#4A
Well Location:	1018' FNL & 1720' FWL Unit C Section 26-T32N-R11W San Juan County, New Mexico
Pools Commingled:	Blanco Mesaverde Pool (Pool IDN 72319) Blanco Pictured Cliffs Pool (Pool IDN 72359)

(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.

The Blanco Mesaverde produced an average stabilized rate of 253 MCFD and 0.33 BCPD. The Blanco Pictured Cliffs zone historically produced at an average rate of about 20 MCFD and less than 1 BCPD.

(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.

Blanco Pictured Cliffs Completion:	Historical production curve attached.
Blanco Mesaverde Completion:	Historical production curve attached.

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

Bottomhole pressures were estimated from 72 hour shut-in pressures during a packer leakage test for the well. Estimated bottomhole pressure in the Pictured Cliffs formation is 447 PSI while the estimated bottomhole pressure in the Mesaverde is 326 PSI. See attached calculations.

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

The two formations do not produce any fluids that are expected to prohibit commingling, or promote the creation of emulsions or scale.

(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 gasses are very similar, we would expect the commingled production to have a similar 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:

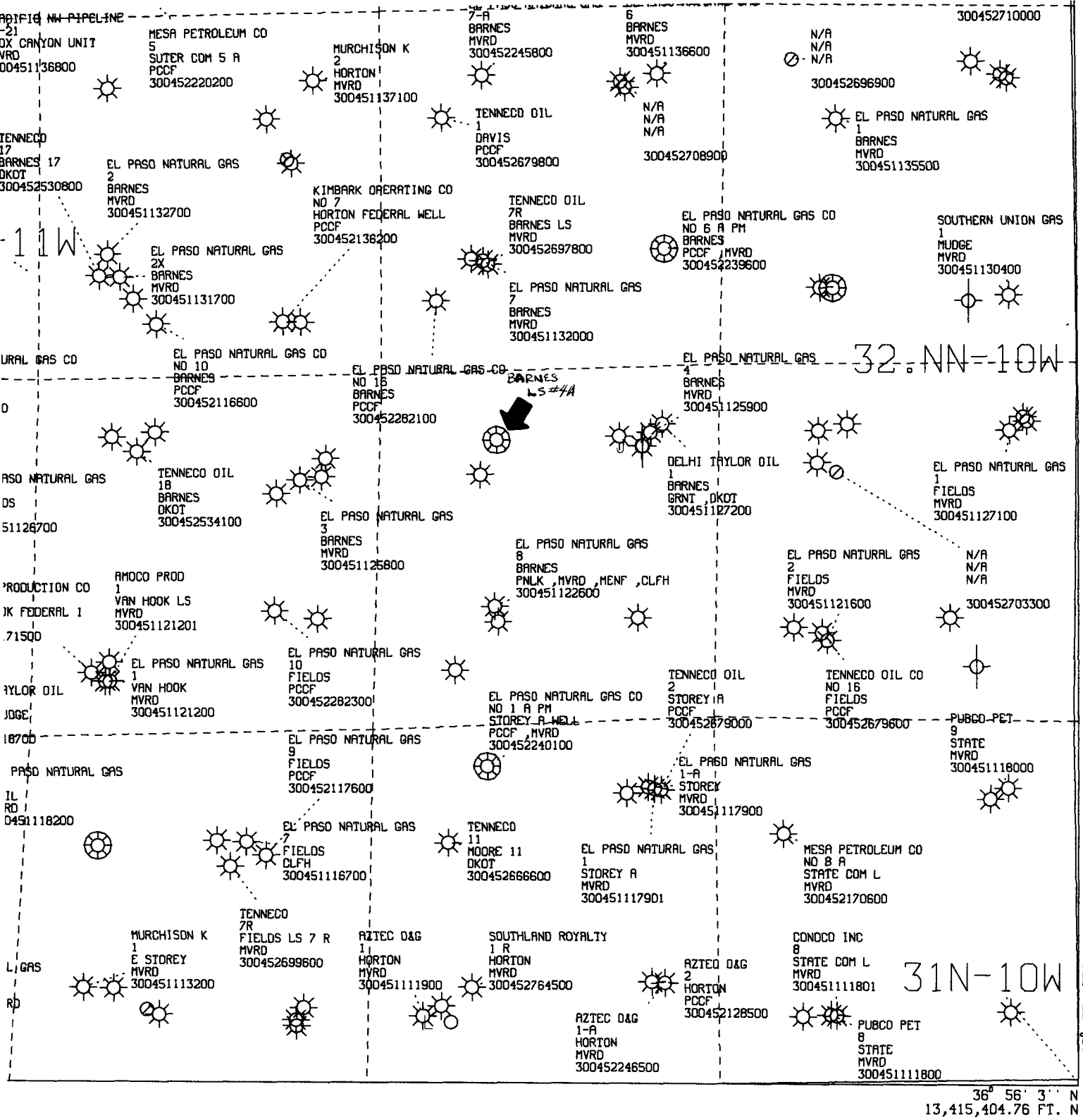
The allocation method that we plan to use for this commingled well is as follows. Both formations historically produced at stabilized rates until the Pictured Cliffs became temporarily abandoned due to low productivity. We recommend that the Mesaverde and Pictured Cliffs formations gas and condensate be allocated based on historical rates. The Mesaverde is currently producing 273 MCFD with 0.33 BCPD while the Pictured Cliffs has historically produced at 20 MCFD with less than 1 BCPD. The recommended allocation percentages after downhole commingling would be set as a percentage of the total rate with the Mesaverde attributing 93% of gas production and 93 % of condensate production. The Pictured Cliffs would be allocated at 7% of gas production and 7 % of condensate production. The actual commercial value of the commingled production will not be less than the sum of the values of the production from each of the common sources of supply.

(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.

BLM will receive a copy of this application by certified mail. The offsetting operators listed on the attached sheet will receive a copy of this application by certified mail.

(11) Referencing NMOCD Order No. 10470 Rule 303 (D) (11): In a case where there is diversity of ownership between the zones to be commingled (including working royalty, or overriding royalty interest), the applicant shall submit a statement that all such interest owners have been notified in writing of the proposed commingling.

All interest owners in the two formations will receive a copy of this application by certified mail.



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AMOCO

AMOCO PRODUCTION COMPANY
PLAT MAP
Barnes LS 4A
Offset Wells

SCALE 1 IN. = 2,000 FT. APR 28, 1995

HORIZONTAL DATUM NAD27

DWS154431--RUN#9511185041

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
EL PASO NATURAL GAS COMPANY	BARNES (SF-078039)	4A

Unit Letter	Section	Township	Range	County
C	26	32-N	11-W	SAN JUAN

Actual Footage Location of Well: 1018 feet from the NORTH line and 1720 feet from the WEST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
6487	MESA VERDE	BLANCO MESA VERDE	320.00 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

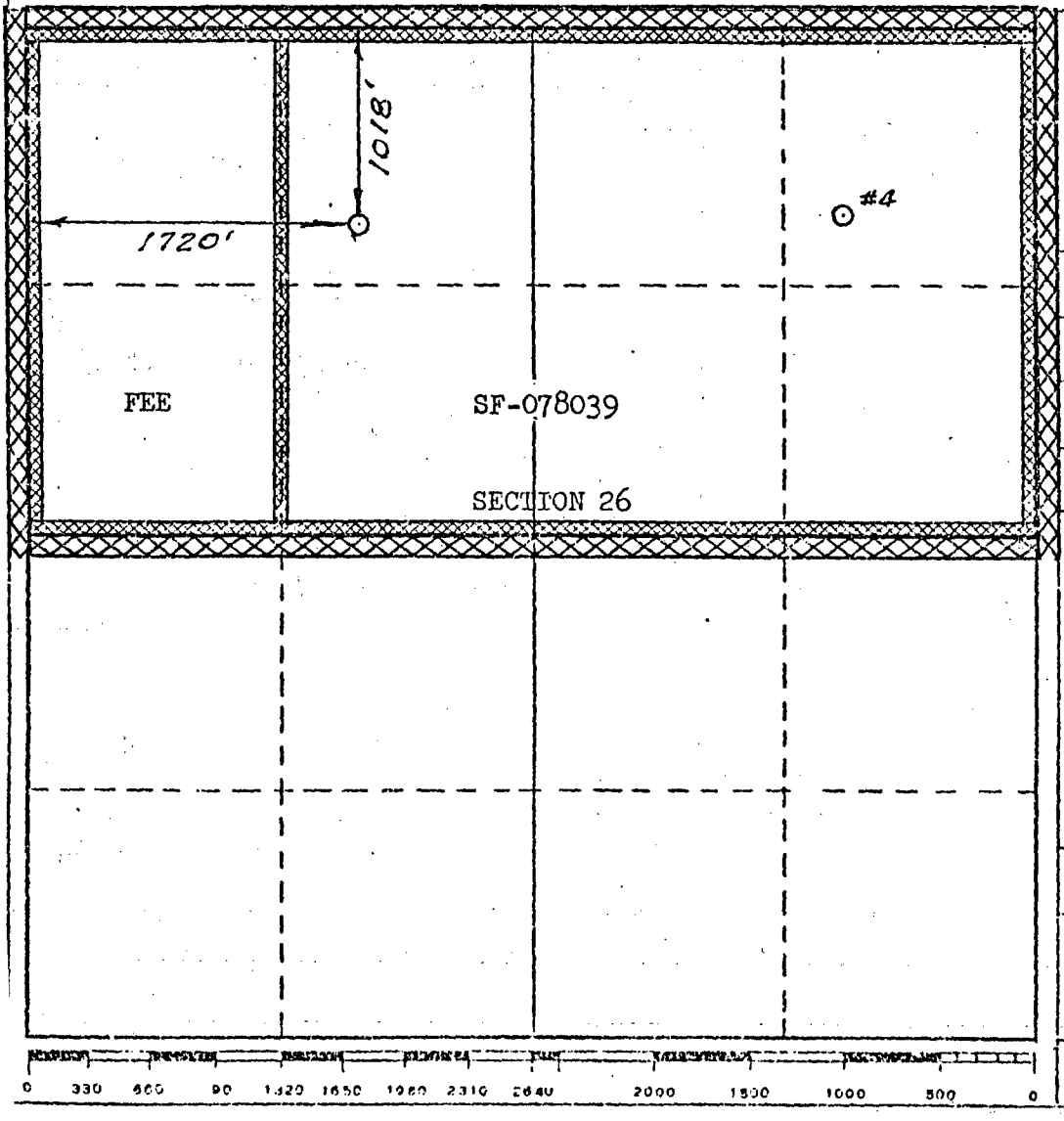
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling. etc?

☒ Yes ☐ No If answer is "yes," type of consolidation Communitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



CERTIFICATION

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

Original Signed by D. G. Brice

Name: Drilling Clerk

Position: El Paso Natural Gas

Company: March 17, 1977

Date:

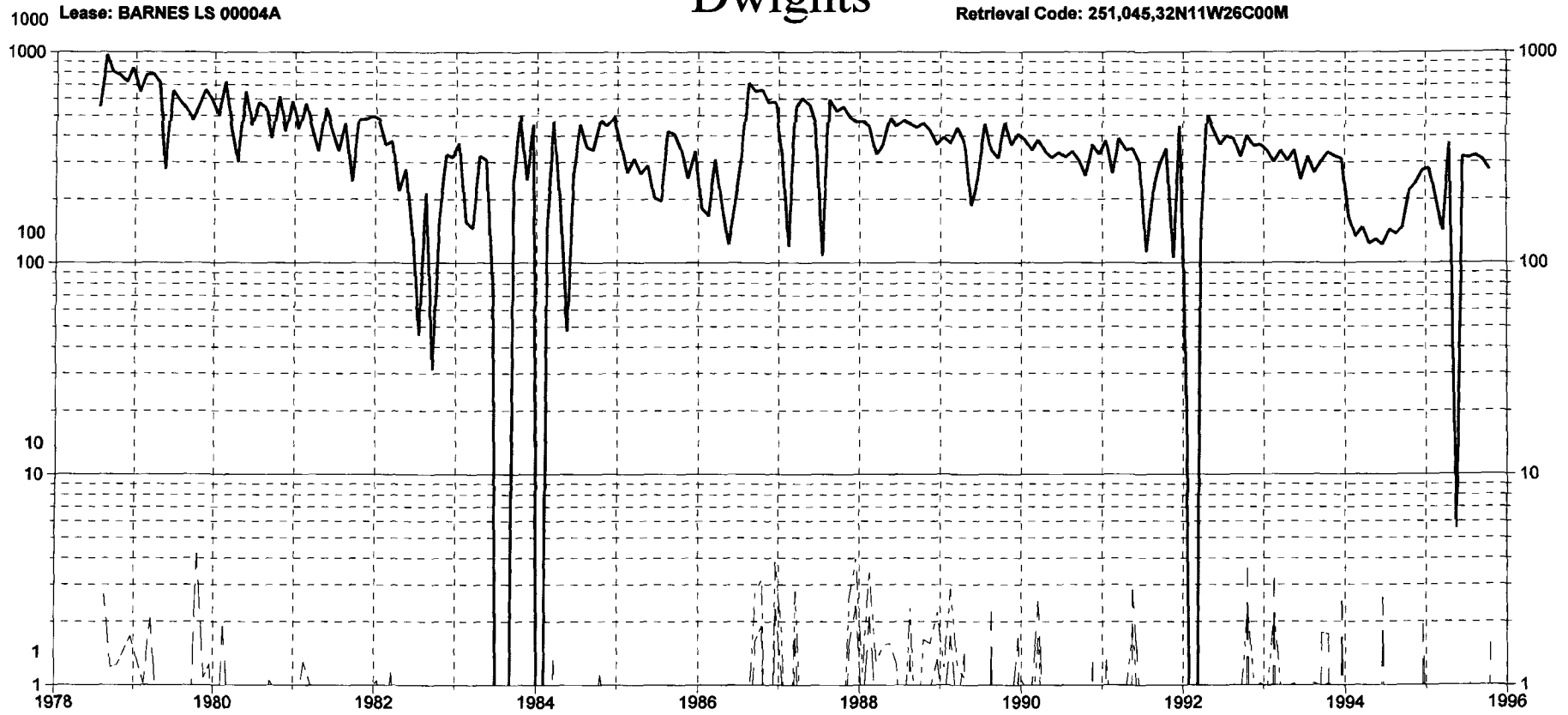
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed: FEBRUARY 28, 1977

Registered Professional Engineer and/or Land Surveyor

Certificate No. 1760

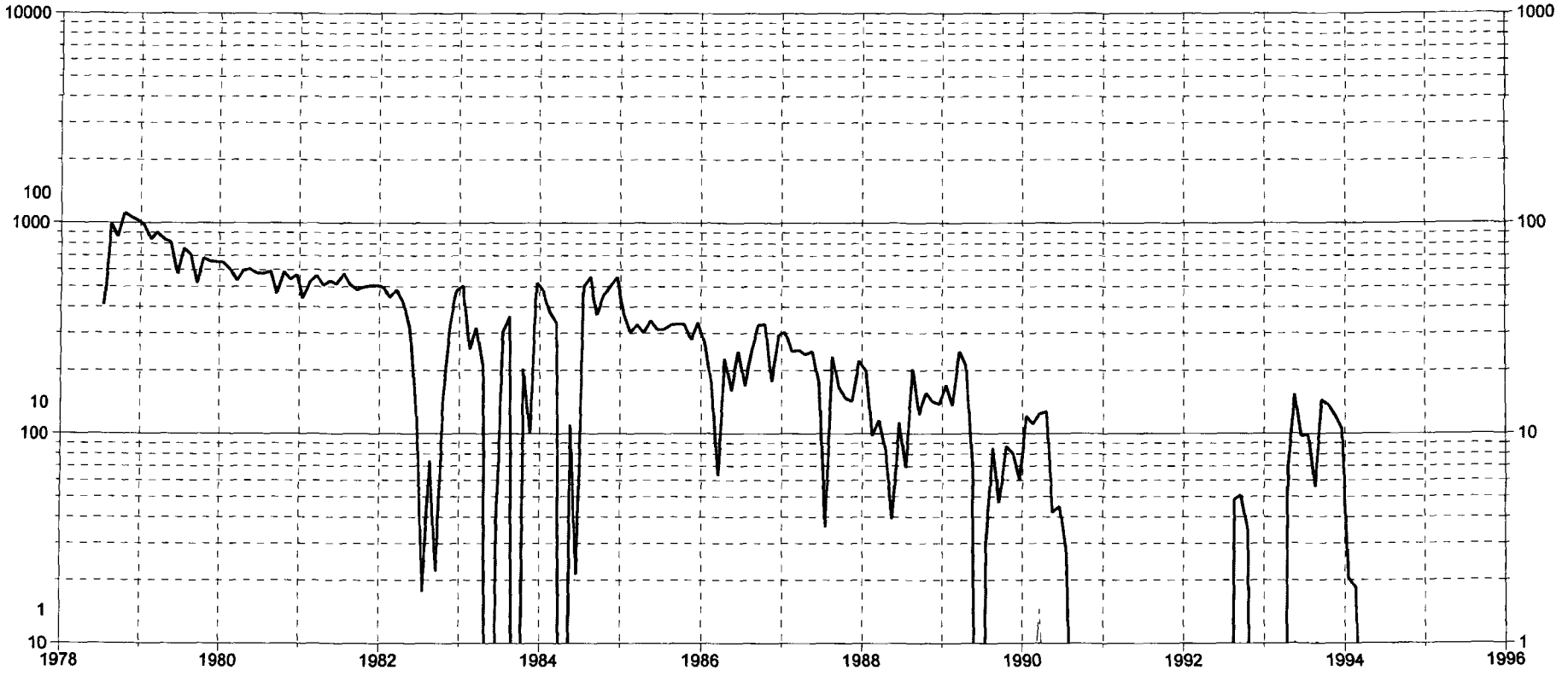
Dwights



County: SAN JUAN	**State: NM**	**F.P. Date: 07/78**		**Date: 03/12/96**
Field: BLANCO (MESAVERDE) MV	**Oil Cum: 4186 bbl**			
Reservoir: MESAVERDE	**Gas Cum: 2282 mmcf**	Water (bbl/day)	- - -	
Operator: AMOCO PRODUCTION CO	**Location: 26C 32N 11W**	Gas (mcf/day)	——	Oil (bbl/day) — — —

Dwights

Lease: BARNES LS 00004A **Retrieval Code: 251,045,32N11W26C00P**



County: SAN JUAN	**State: NM**	**F.P. Date: 07/78**	**Date: 03/12/96**
Field: BLANCO (PICTURED CLIFFS) PC	**Oil Cum: 84 bbl**		
Reservoir: PICTURED CLIFFS	**Gas Cum: 1555 mmcf**	Water (bbl/day)	
Operator: AMOCO PRODUCTION CO	**Location: 26C 32N 11W**	Gas (mcf/day)	Oil (bbl/day)

ESTIMATED BOTTOMHOLE PRESSURES

Barnes LS #4A

PC	PERFORATIONS		TOP	3256	BOTTOM	3290	MIDPERF	3273	
MV	PERFORATIONS		TOP	4769	BOTTOM	5141	MIDPERF	4955	
	Jun-94	SHUT-IN PRESSURES							
		PC	=	349	PSIG				
		MV	=	177	PSIG				
	GRADIENT	= 0.3 PSI/FT							
	PC	**BHP =**	349	PSIG +	3273	X 0.03 PSI/FT			
		=	447	PSI					
	MV	**BHP =**	177	PSIG +	4955	X 0.03 PSI/FT			
		=	326	PSI					

STATE OF NEW MEXICO
ENERGY and MINERALS DEPARTMENT

Location of Well: C263211 Page 1

C-26-32-11

OIL CONSERVATION DIVISION
NORTHWEST NEW MEXICO PACKER-LEAKAGE TEST

Operator: AMOCO PRODUCTION COMPANY Lease/Well #:BARNES LS 004A
Meter #:90112 RTU:2-046-05 County:SAN JUAN

	NAME RESERVOIR OR POOL	TYPE PROD	METHOD PROD	MEDIUM PROD
UPR COMP	BARNES LS 004A PC 90113	GAS	FLOW	TBG
LWR COMP	BARNES LS 004A MV 90112	GAS	FLOW	TBG

PRE-FLOW SHUT-IN PRESSURE DATA

	Hour/Date Shut-In	Length of Time Shut-In	SI Press. PSIG	Stabilzed
UPR COMP	06/15/94 12 900/am	121 HRS	C 349 T 342	yes
LWR COMP	06/15/94 12 9 am/pm	75 HRS	177	yes

FLOW TEST DATE NO.1

Commenced at (hour,date)* Zone Producing (Upr/Lwr)

TIME (hour, date)	LAPSED TIME SINCE*	PRESSURE Upper	PRESSURE Lower	Prod Temp.	REMARKS
06/15/94 12 9 am	Day 1	C 347/T 338	T 95		Both Zones SI
06/16/94 13 11 am	Day 2	C 349/T 338	T 160		Both Zones SI
06/17/94 14	Day 3	C 349/341	T 174		Both Zones SI
15 06/18/94 15	Day 4	C 349/T 341	T 177		ON @ 1 15 pm
45 06/19/94 16	Day 5	C 349/T 342	T 147		LOWER ZONE FLOWING
00 06/20/94 17	Day 6	C 349/T 342	T 142		LOWER ZONE FLOWING

Production rate during test
Oil: _____ BOPD based on _____ BBLs in _____ Hrs _____ Grav ___ GOR ___
Gas: _____ MFCPD:Tested theu (Orifice or Meter):METER

MID-TEST SHUT-IN PRESSURE DATA

	Hour,Date SI	Length of Time SI	SI Press. PSIG	Stabilized (yes/no)
UPR COMP				
LWR COMP				

(Continue on reverse side)

RECEIVED
AUG - 2 1994
OIL CON. DIV.
DIST. 3

FLOW TEST NO. 2

Commenced at (hour, date) **				Zone producing (Upper or Lower)	
TIME (hour, date)	LAPSED TIME SINCE **	PRESSURE		PROD. ZONE TEMP.	REMARKS
		Upper Completion	Lower Completion		

Production rate during test

Oil: _____ BOPD based on _____ Bbls. in _____ Hours. _____ Grav. _____ GOR _____

Gas: _____ MCFPD: Tested thru (Orifice or Meter): _____

Remarks: _____

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

Approved AUG - 2 1994 19___
New Mexico Oil Conservation Division

By Charles Gholson

Title DEPUTY OIL & GAS INSPECTOR, DIST. #3

Operator Amoco Prod.

By K Dallas

Title Field Tech

Date 7-18-94

NORTHWEST NEW MEXICO PACKER LEAKAGE TEST INSTRUCTIONS

1. A packer leakage test shall be commenced on each multiply completed well within seven days after actual completion of the well, and annually thereafter as prescribed by the order authorizing the multiple completion. Such tests shall also be commenced on all multiple completions within seven days following recompletion and/or chemical or fracture treatment, and whenever remedial work has been done on a well during which the packer or the tubing have been disturbed. Tests shall also be taken at any time that communication is suspected or when requested by the Division.

2. At least 72 hours prior to the commencement of any packer leakage test, the operator shall notify the Division in writing of the exact time the test is to be commenced. Offset operators shall also be so notified.

3. The packer leakage test shall commence when both zones of the dual completion are shut-in for pressure stabilization. Both zones shall remain shut-in until the well-head pressure in each has stabilized, provided however, that they need not remain shut-in more than seven days.

4. For Flow Test No. 1, one zone of the dual completion shall be produced at the normal rate of production while the other zone remains shut-in. Such test shall be continued for seven days in the case of a gas well and for 24 hours in the case of an oil well. Note: if, on an initial packer leakage test, a gas well is being flowed to the atmosphere due to the lack of a pipeline connection the flow period shall be three hours.

5. Following completion of Flow Test No. 1, the well shall again be shut-in, in accordance with Paragraph 3 above.

6. Flow Test No. 2 shall be conducted even though no leak was indicated during Flow Test No. 1. Procedure for Flow Test No. 2 is to be the same as for Flow Test No. 1 except that the previously produced zone shall remain shut-in while the zone which was previously shut-in is produced.

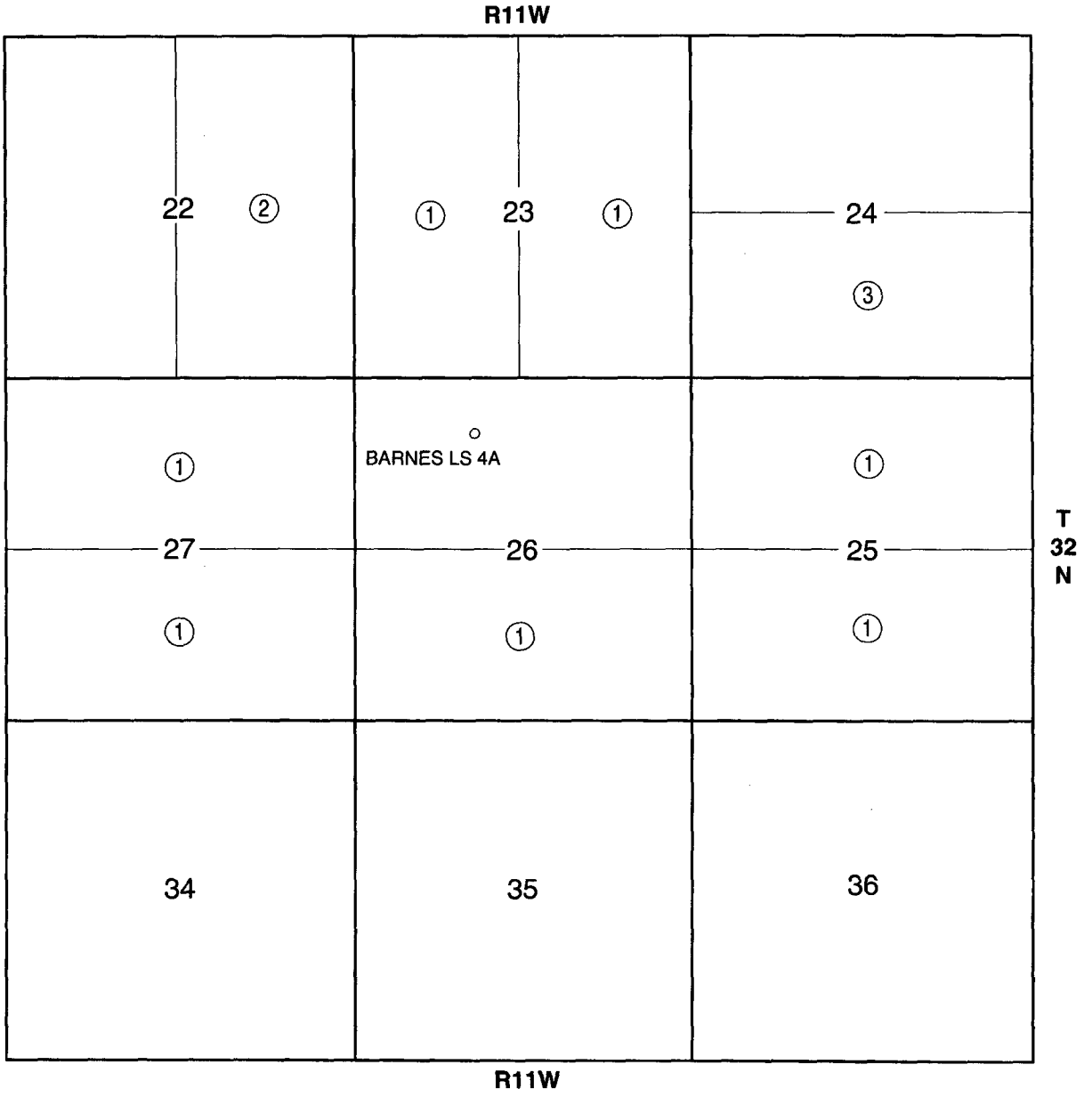
7. Pressures for gas-zone tests must be measured on each zone with a deadweight pressure gauge at time intervals as follows: 3 hours tests: immediately prior to the beginning of each flow-period, at fifteen-minute intervals during the first hour thereof, and at hourly intervals thereafter, including one pressure measurement immediately prior to the conclusion of each flow period. 7-day tests: immediately prior to the beginning of each flow period, at least one time during each flow period (at approximately the midway point) and immediately prior to the conclusion of each flow period. Other pressures may be taken as desired, or may be requested on wells which have previously shown questionable test data.

24-hour oil zone tests: all pressures, throughout the entire test, shall be continuously measured and recorded with recording pressure gauges the accuracy of which must be checked at least twice, once at the beginning and once at the end of each test, with a deadweight pressure gauge. If a well is a gas-oil or an oil-gas dual completion, the recording gauge shall be required on the oil zone only, with deadweight pressures as required above being taken on the gas zone.

8. The results of the above-described tests shall be filed in triplicate within 15 days after completion of the test. Tests shall be filed with the Aztec District Office of the New Mexico Oil Conservation Division on Northwest New Mexico Packer Leakage Test Form Revised 10-01-78 with all deadweight pressures indicated thereon as well as the flowing temperatures (gas zones only) and gravity and GOR (oil zones only).

Amoco Production Company

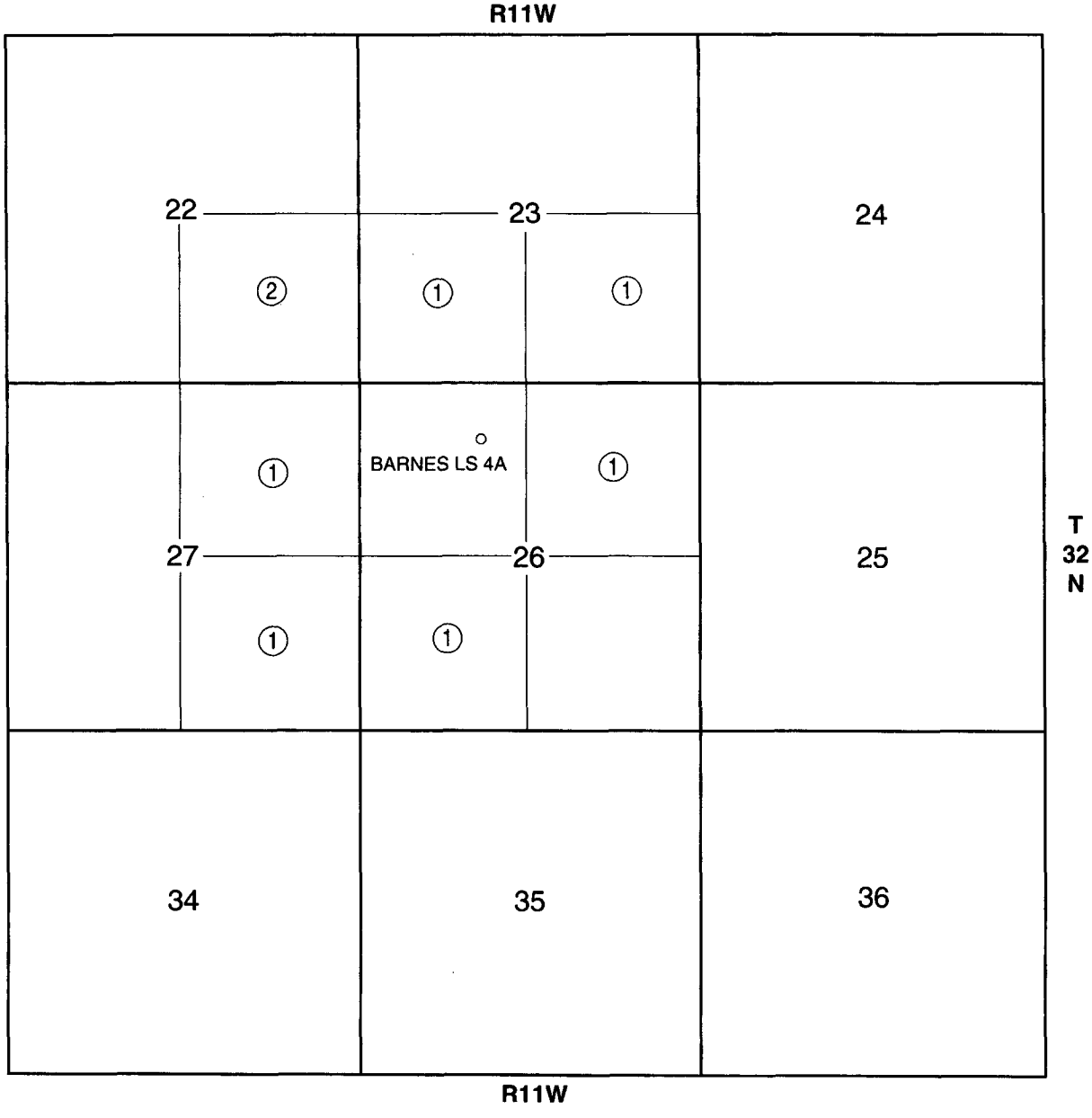
Offset Operator Plat
Barnes LS 4A
T32N-R11W Sec. 26
Blanco Mesaverde Formation



① Amoco Production Company
② Kimbark Oil & Gas Co.
③ Southland Royalty Company

Amoco Production Company

Offset Operator Plat
Barnes LS 4A
T32N-R11W Sec. 26
Blanco Pictured Cliffs Formation



① Amoco Production Company
② Kimbark Oil & Gas Co.

LIST OF ADDRESSES FOR OFFSET OPERATORS
Barnes LS #4A

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

2 Kimbark Oil and Gas Co.
1660 Lincoln Street, Suite 2700
Denver, CO 80202

69896600 00001 ZJAM63
617000 00
AMOCO PRODUCTION COMPANY
P O BOX 591
TULSA OK 74102-0591

69896600 00001 ZJAM63
682516 00
R E BEAMON III
SUITE 470
THREE RIVERWAY
HOUSTON TX 77056-1942

69906800 00001 ZJAM63
129567 00
BETSY BRYANT
2201 BROOKHOLLOW
ABILENE TX 79605-5507

69896600 00001 ZJAM63
924261 00
HARRIET BUCHENAU
P O BOX 867585
PLANO TX 75086-7585

69906800 00001 ZJAM63
926545 00
WILLIAM J CAREY
C/O COMERICA BANK TEXAS
P O BOX 650282
DALLAS TX 75265-0282

69896600 00001 ZJAM63
603416 25
CONOCO INC
P O BOX 951063
DALLAS TX 75395-1063

69896600 00001 ZJAM63
134698 00
CROSS TIMBERS OIL COMPANY
P O BOX 840287
DALLAS TX 75284-0287

69906800 00001 ZJAM63
129569 00
MITZI EASLEY
3900 DOMINION COVE
AUSTIN TX 78759-7300

69896600 00001 ZJAM63
923261 00
PAUL B AND SUSAN D HORTON
C/O MCCALL PARKHURST AND HORTON
900 MAXUS ENERGY TOWER
717 NORTH HARWOOD SUITE 900
DALLAS TX 75201-6587

69896600 00001 ZJAM63
686997 00
GLORIA WYNNE LANKFORD
248 SUGARBERRY CIRCLE
HOUSTON TX 77024-7246

69896600 00001 ZJAM63
680325 00
PATTIE BEAMON LUNDELL
1616 SOUTH VOSS #870
HOUSTON TX 77057-2626

69896600 00001 ZJAM63
927775 00
LINDA BROWN MCGIMSEY
221 TUCKER LANE
BAYFIELD CO 81122-9237

69896600 00001 ZJAM63
926364 00
SARAH S MIMS TRUST
WILLIAM L MADSEN AND SARAH S MIMS
COTRUSTEES
P O BOX 111846
CARROLLTON TX 75011-1846

69896600 00001 ZJAM63
710000 01
MINERALS MANAGEMENT SERVICE
ROYALTY MANAGEMENT PROGRAM
PO BOX 5810 TA
DENVER CO 80217-5810

69896600 00001 ZJAM63
929031 00
MOORE LOYAL TRUST
LEE WAYNE MOORE TRUSTEE
403 NORTH MARIENFIELD
MIDLAND TX 79701-4323

69906800 00001 ZJAM63
129568 00
SUSAN RITTER
P O BOX 162606
AUSTIN TX 78716-2606

69906800 00001 ZJAM63
133354 00
HENRIETTA E SCHULTZ TRUSTEE
LINCOLN PLAZA SUITE 2160 LB-1
500 NORTH AKARD
DALLAS TX 75201-3360

69906800 00001 ZJAM63
924869 00
MARTHA M TOW
BOX 87
THOREAU NM 87323-0087

69906800 00001 ZJAM63
615188 00
UNION OIL COMPANY OF CALIFORNIA
P O BOX 4531
HOUSTON TX 77210-4531

69906800 00001 ZJAM63
924274 00
CHARLINE SMITH WHITE
61 RD 5251
BLOOMFIELD NM 87413-9720