



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
AZTEC DISTRICT OFFICE



GARY E. JOHNSON  
GOVERNOR

JENNIFER A. SALISBURY  
CABINET SECRETARY

1000 RIO BRAZOS ROAD  
AZTEC, NEW MEXICO 87410  
(505) 334-6178 FAX: (505) 334-6170

Date: Nov. 9, 1995

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

RE: Proposed MC \_\_\_\_\_ Proposed DHC X \_\_\_\_\_  
Proposed NSL \_\_\_\_\_ Proposed SWD \_\_\_\_\_  
Proposed WFX \_\_\_\_\_ Proposed PMX \_\_\_\_\_  
Proposed NSP \_\_\_\_\_ Proposed DD \_\_\_\_\_

Gentlemen:

I have examined the application received on Nov. 6, 1995  
for the Almoro Tracts B #3A  
OPERATOR LEASE & WELL NO.

0-20-29N-8W and my recommendations are as follows:  
UL-S-T-R

Approve  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours truly,

3-7-8



Southern

Rockies

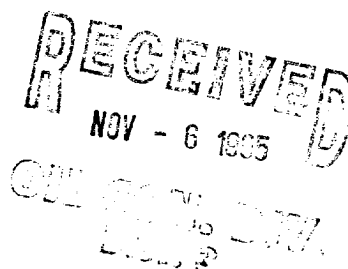
Business

Unit

November 2, 1995

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**  
**Hughes B #3A Well**  
**800' FSL & 1700' FEL, Unit O Section 20-T29N-R8W**  
**Blanco Mesaverde and Blanco Pictured Cliffs Pools**  
**San Juan County, New Mexico**



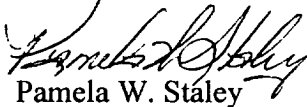
Amoco Production Company hereby requests administrative approval to downhole commingle production from the Blanco Mesaverde and Blanco Pictured Cliffs Pools in the Hughes B #3A well referenced above. The Hughes B #3A is currently a dual completion in the Mesaverde and Pictured Cliffs formations. We plan to complete the well with both the Mesaverde and Pictured Cliffs formations being downhole commingled in the wellbore. The Pictured Cliffs zone has been producing against line pressure while the Mesaverde has been on compression. This commingling will allow both the Mesaverde and the Pictured Cliffs formations to be produced through the compressor and should result in additional Pictured Cliffs production. The two zones are expected to produce at a total commingled rate of about 650 MCFD with a small amount of condensate from the Mesaverde formation. The ownership (WI, RI, ORI) of these pools is 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 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. Since the Mesaverde formation has been producing on compression for some time and the Pictured Cliffs formation has not, we recommend that once total commingled production rates are established that the Pictured Cliffs be allocated the percent difference between the stabilized Mesaverde producing rate and total stabilized commingled production. The Mesaverde is currently producing 320 MCFD. The allocation percentages would then be set as a percentage of the total rate attributing 320 MCFD as the rate from the Mesaverde and the rest to the Pictured Cliffs. We would notify your Aztec District office when the testing was complete and report the allocation percentages for gas at that time for approval. The Pictured Cliffs has produced negligible amounts of condensate in the past and has not produced any condensate since 1991. Therefore we recommend allocating 100% of

condensate production to the Mesaverde formation. 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-078046) 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: Stan Kolodzie  
Lois Raeburn

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: Hughes B
- Well Number: 3A
- Well Location: 800' FSL & 1700' FEL  
Unit O Section 20-T29N-R8W  
San Juan County, New Mexico
- Pools Commingled: Blanco Mesaverde Pool  
Blanco Pictured Cliffs Pool
- (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 320 MCFD and 1 BCPD. The Blanco Pictured Cliffs zone produced at an average rate of about 32 MCFD and 0 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 569 PSI while the estimated bottomhole pressure in the Mesaverde is 631 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, when combined, would 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:

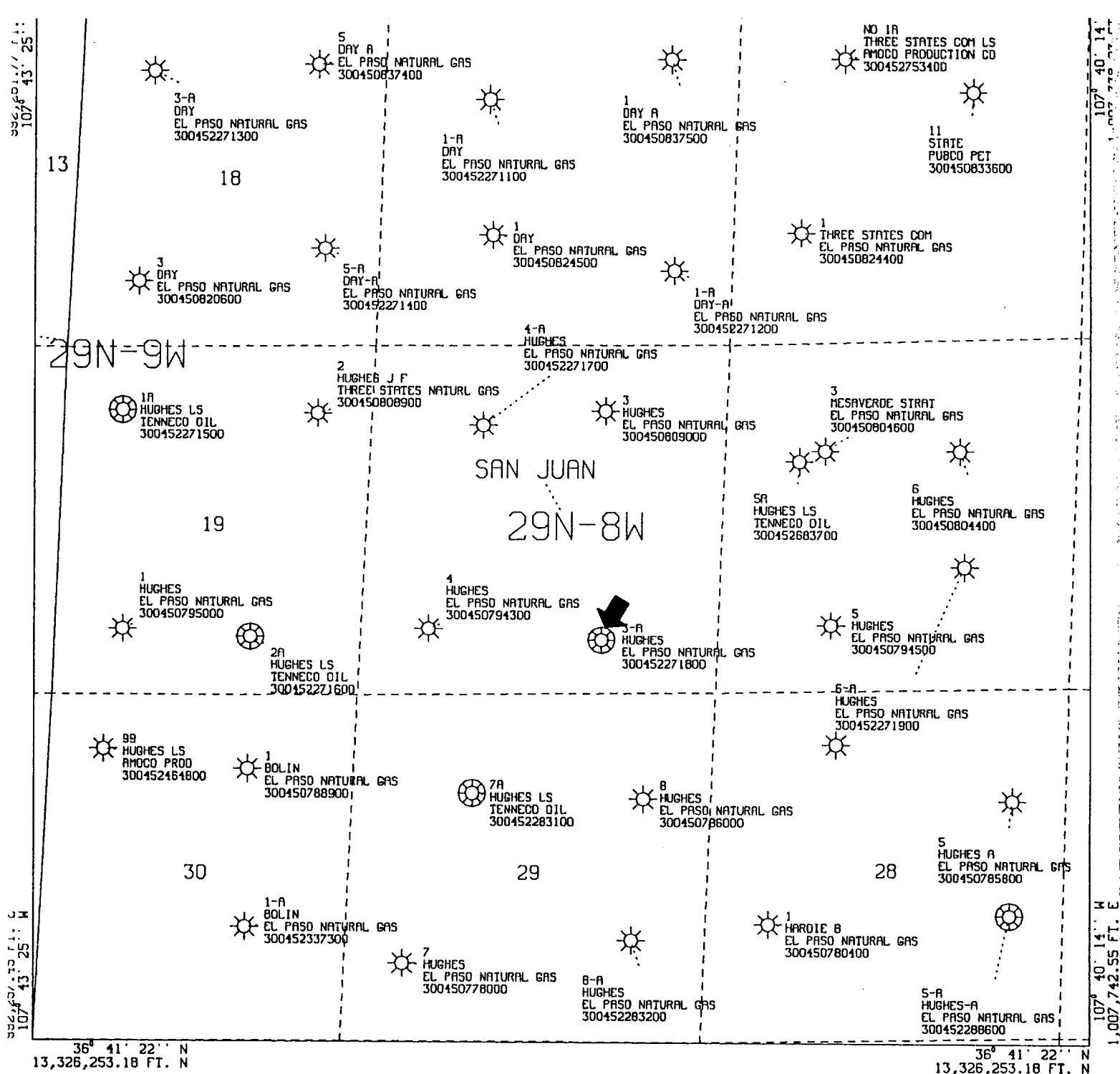
Since the BTU content of the produced gasses are very similar, we would expect the commingled production to have a similar value as the sum of the individual streams.

- (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. Since the Mesaverde formation has been producing on compression for some time and the Pictured Cliffs formation has not, we recommend that once total commingled production rates are established that the Pictured Cliffs be allocated the percent difference between the stabilized Mesaverde producing rate and total stabilized commingled production. The Mesaverde is currently producing 320 MCFD. The allocation percentages would then be set as a percentage of the total rate attributing 320 MCFD as the rate from the Mesaverde and the rest to the Pictured Cliffs. We would notify your Aztec District office when the testing was complete and report the allocation percentages for gas at that time for approval. The Pictured Cliffs has produced negligible amounts of condensate in the past and has not produced any condensate since 1991. Therefore we recommend allocating 100% of condensate production to the Mesaverde formation. 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.

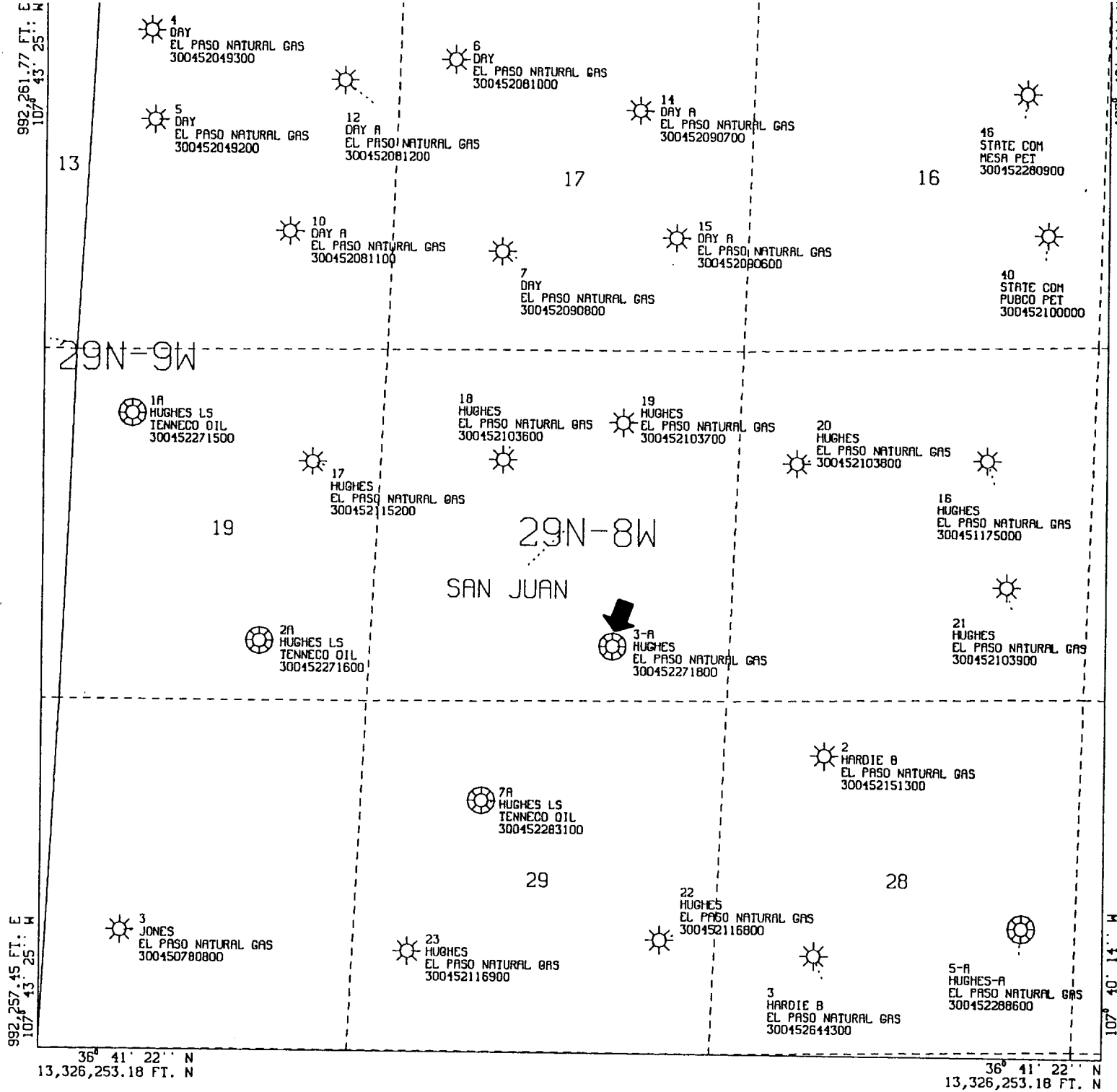
BLM will receive a copy of this application by certified mail. The offsetting operators listed on the attached sheet will receive a copy of this application by certified mail.



All geological and geophysical data, including the interpretation thereof, appearing on this map is the private and confidential property of Amoco Production Company. The publication or reproduction thereof without the written permission of said Company is strictly prohibited.

AMOCO PRODUCTION COMPANY  
PLAT MAP  
Hughes B 3A  
Mesaverde  
SCALE 1 IN. = 2,000 FT. MAY 16, 1995

POLYCONIC CENTRAL MERIDIAN - 107° 41' 49" W LON  
SPHEROID - 6



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POLYCONIC CENTRAL MERIDIAN - 107° 41' 49" W LON  
SPHEROID - 6

AMOCO PRODUCTION COMPANY  
PLAT MAP  
Hughes B 3A  
Pictured Cliffs  
  
SCALE 1 IN. = 2,000 FT. MAY 16, 1995

## WELL LOCATION AND ACREAGE DEDICATION PLAT

Supersedes C-128  
Effective 1-1-65

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

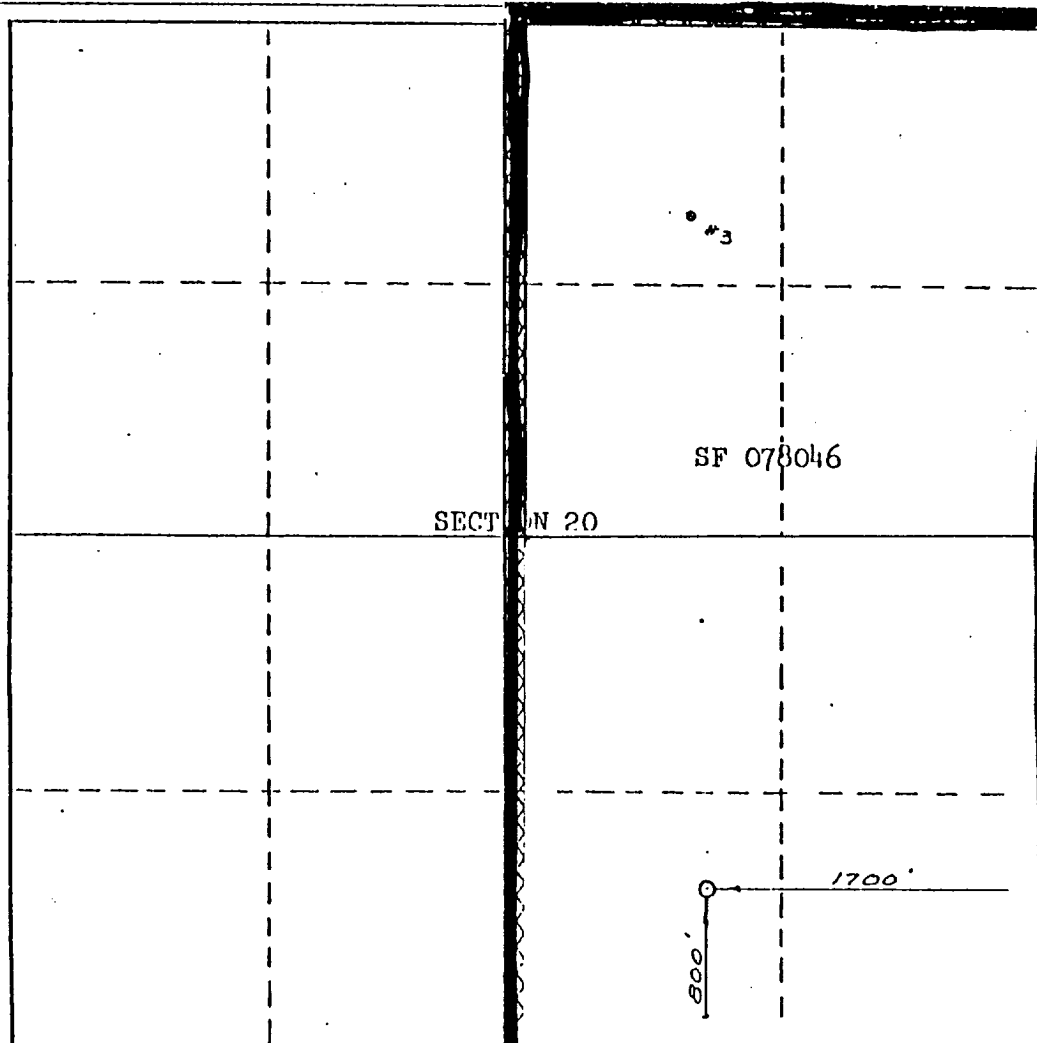
Operator <b>EL PASO NATURAL GAS COMPANY</b>			Lease <b>HUGHES (SF 078046)</b>		Well No. <b>3A</b>
Unit Letter <b>0</b>	Section <b>20</b>	Township <b>29-N</b>	Range <b>8-W</b>	County <b>SAN JUAN</b>	
Actual Footage Location of Well: <b>800</b> feet from the <b>SOUTH</b> line and <b>1700</b> feet from the <b>EAST</b> line					
Ground Level Elev. <b>6438</b>	Producing Formation <b>MESA VERDE</b>		Pool <b>BLANCO MESA VERDE</b>	Dedicated Acres <b>320.00</b> 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 \_\_\_\_\_

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

Name **D. G. Briscoe**Position **Drilling Clerk**Company **El Paso Natural Gas Co.**Date **August 31, 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

**JULY 20, 1977**Registered Professional Engineer  
and/or Land Surveyor

Certificate No.

**1760**



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

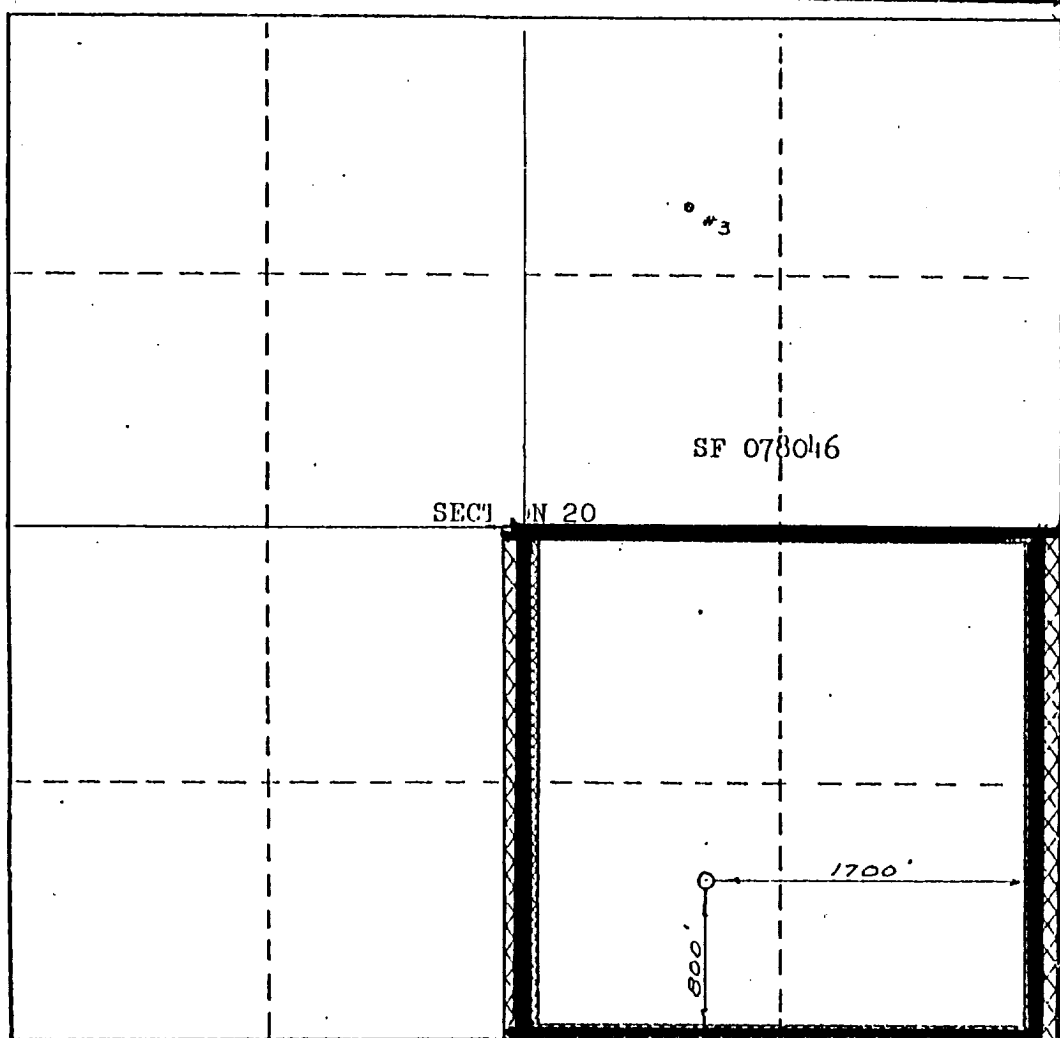
Operator EL PASO NATURAL GAS COMPANY			Lease HUGHES (SF 078046)		Well No. 3A
Unit Letter 0	Section 20	Township 29-N	Range 8-W	County SAN JUAN	
Actual Footage Location of Well: 800 feet from the SOUTH line and 1700 feet from the EAST line					
Ground Level Elev. 6438	Producing Formation PICTURED CLIFF		Pool BLANCO PICTURED CLIFFS	Dedicated Acreage: 160.00 & 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 \_\_\_\_\_

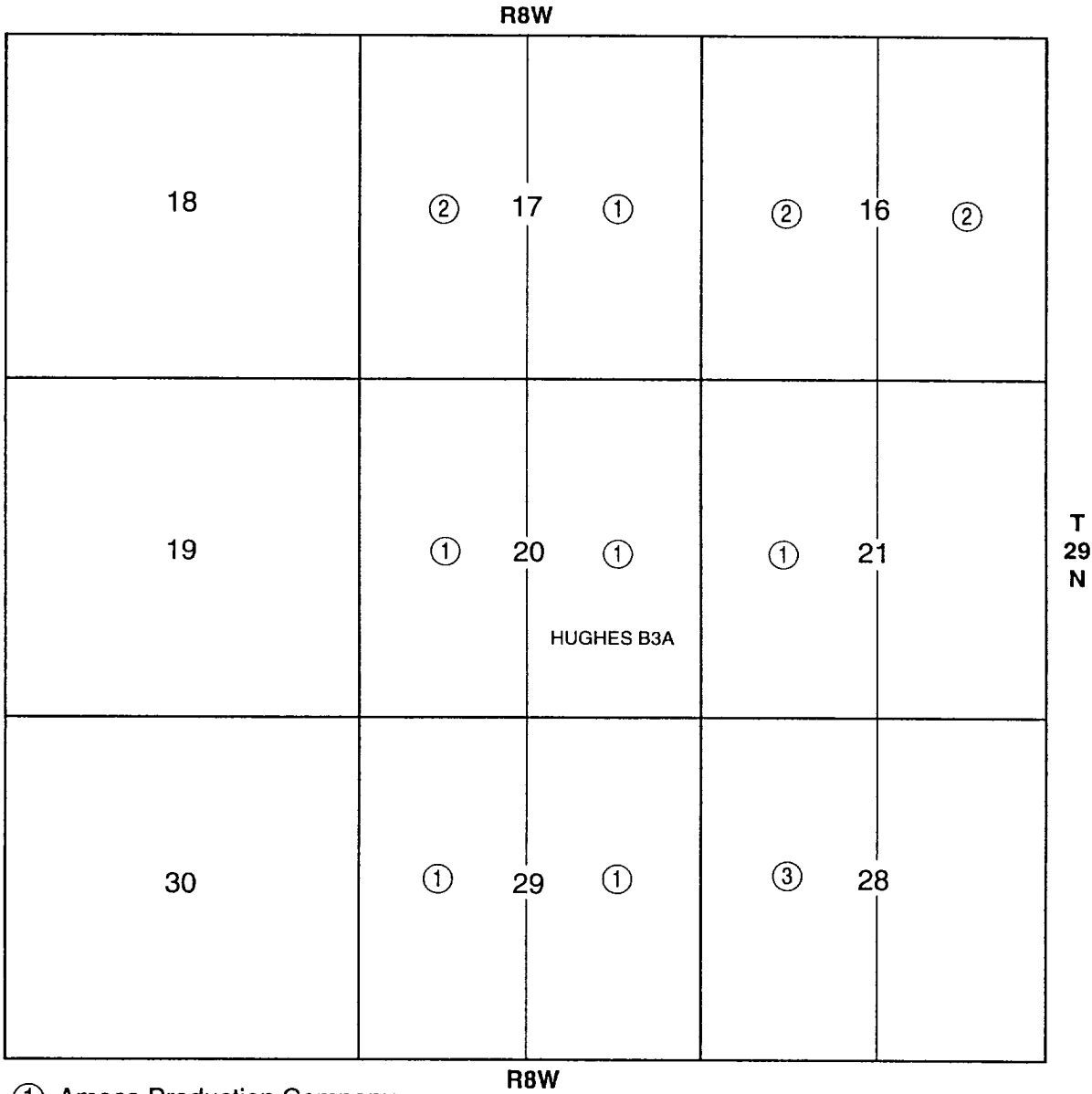
If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) \_\_\_\_\_

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.



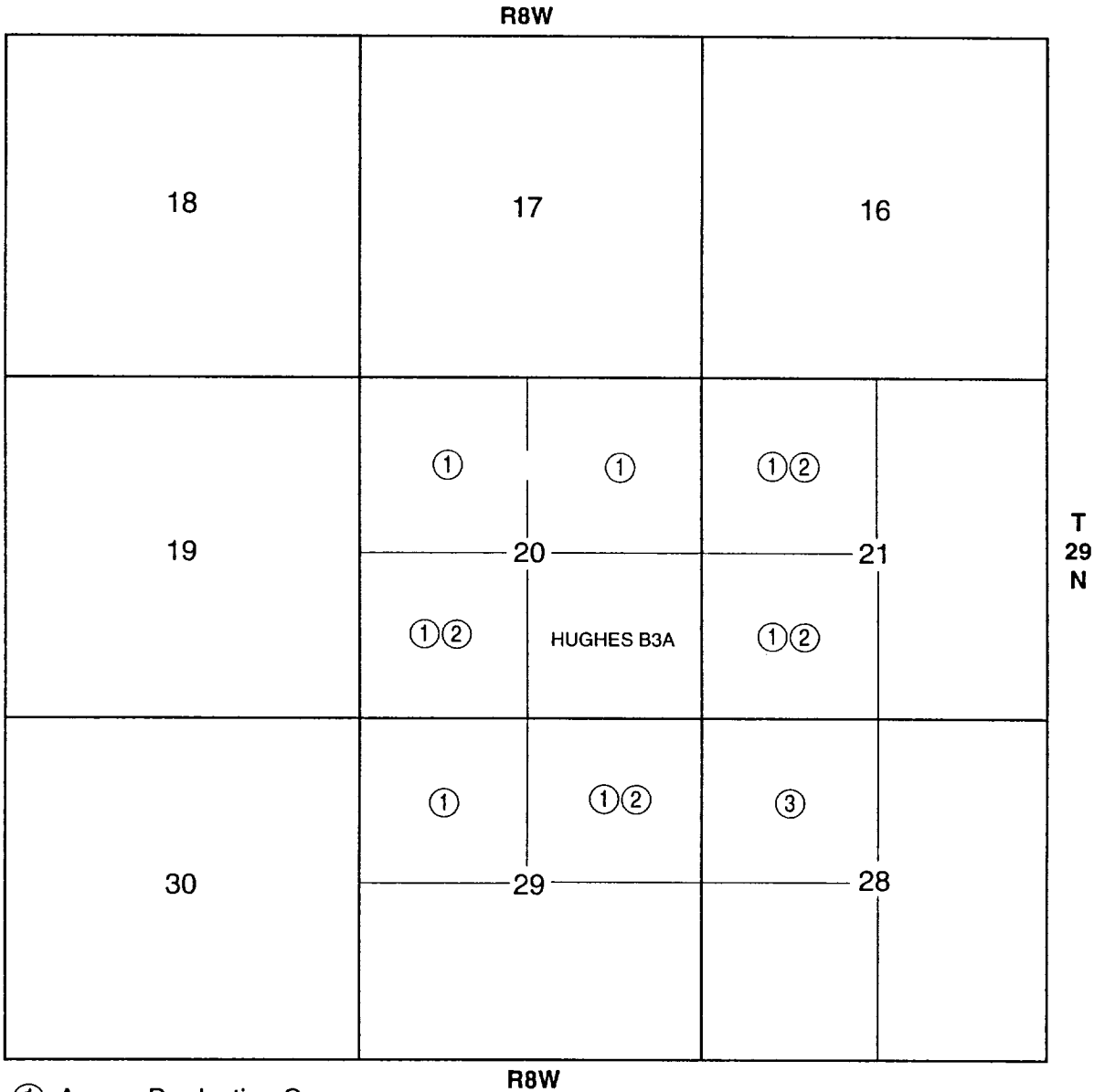
CERTIFICATION	
I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.	
Original Signed by D. G. Briscoe	
Name	Drilling Clerk
Position	El Paso Natural Gas Co.
Company	August 31, 1977
Date	
I hereby certify that the well location shown on this 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	JULY 20, 1977
Registered Professional Engineer and/or Land Surveyor <i>[Signature]</i>	
Certificate No.	1760

Amoco Production Company  
Offset Operator Plat  
Hughes B3A  
T29N-R8W Sec. 20  
Blanco Mesaverde Formation



- ① Amoco Production Company
- ② Conoco Inc.
- ③ Meridian Oil Production Inc.

Amoco Production Company  
Offset Operator Plat  
Hughes B3A  
T29N-R8W Sec. 20  
Pictured Cliffs Formation



- ① Amoco Production Company
- ② Conoco Inc.
- ③ Meridian Oil Production Inc.

**\_LIST OF ADDRESSES FOR OFFSET OPERATORS**  
**Hughes B # 3A**

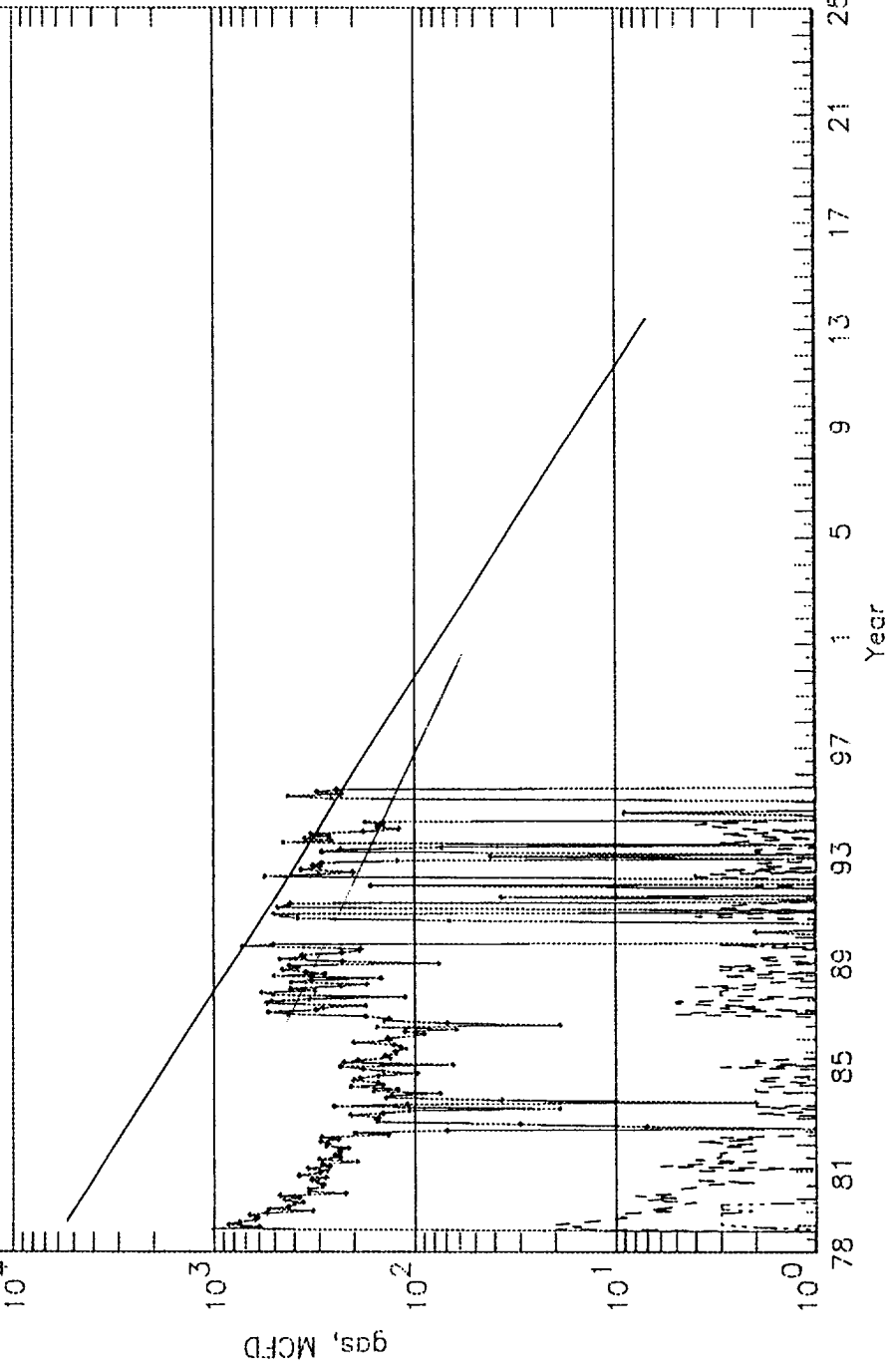
- 1 Meridian Oil, Inc.  
P.O. Box 4289  
Farmington, NM 87499
- 2 Conoco, Inc.  
10 Desta Drive West  
Midland, Texas 79705

For: zmr14  
Engr: zmr14

HUGHES B 3A      Operator- AMOCO PRODUCTION CO

300452271800MV      0202908-003AMV      APC\_WI -      0.50000000

10 <sup>5</sup>	CumG_70 -	0
	CumO_70 -	0
10 <sup>4</sup>	CumGAS -	1371283
	CumOIL -	13201



Reserves  
DCLN  
CurrQ  
RemRes  
EUR  
Fit\_date

For: zmr14  
Engr: zmr14

HUGHES B 3A  
300452271800PC 0202908-003APC  
Operator- AMOCO PRODUCTION CO  
APC\_WI - 0.50000000

CumG_70	-	0
CumO_70	-	0
CumGAS	-	399091
CumOIL	-	435

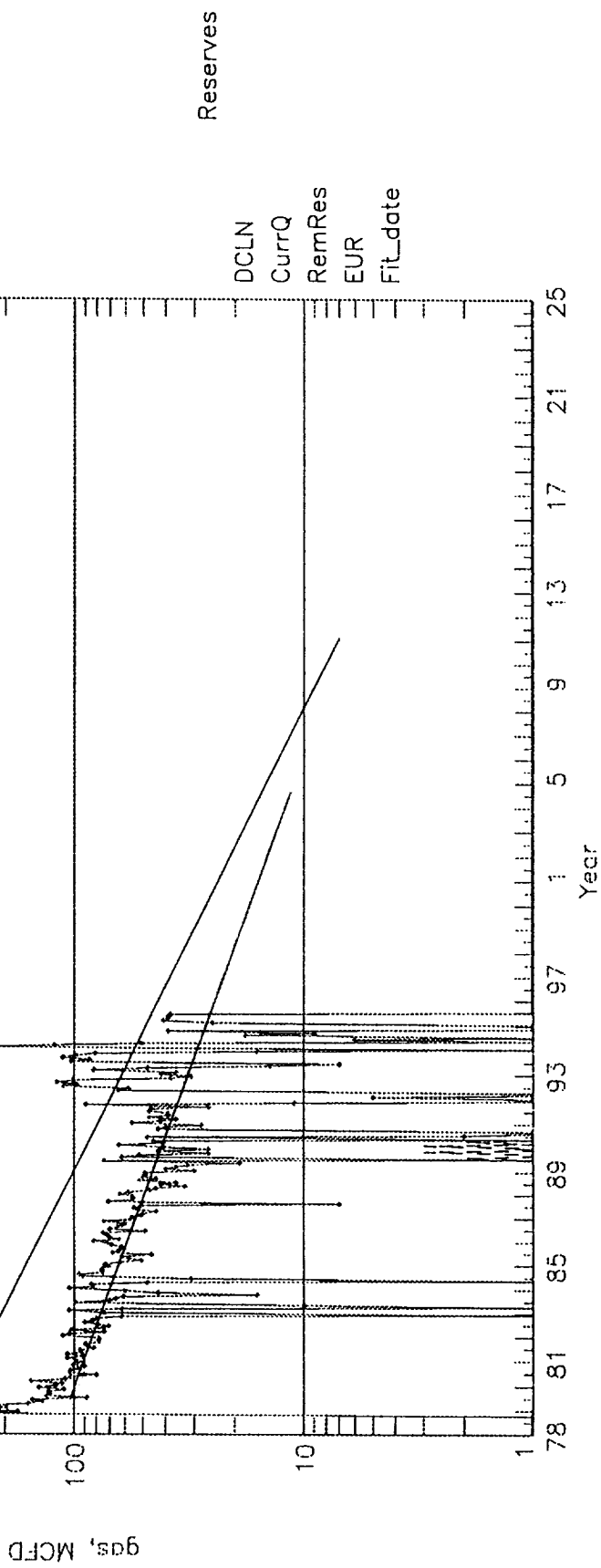


Chart1

Well: HUGHES B 003A-MV (97939102)

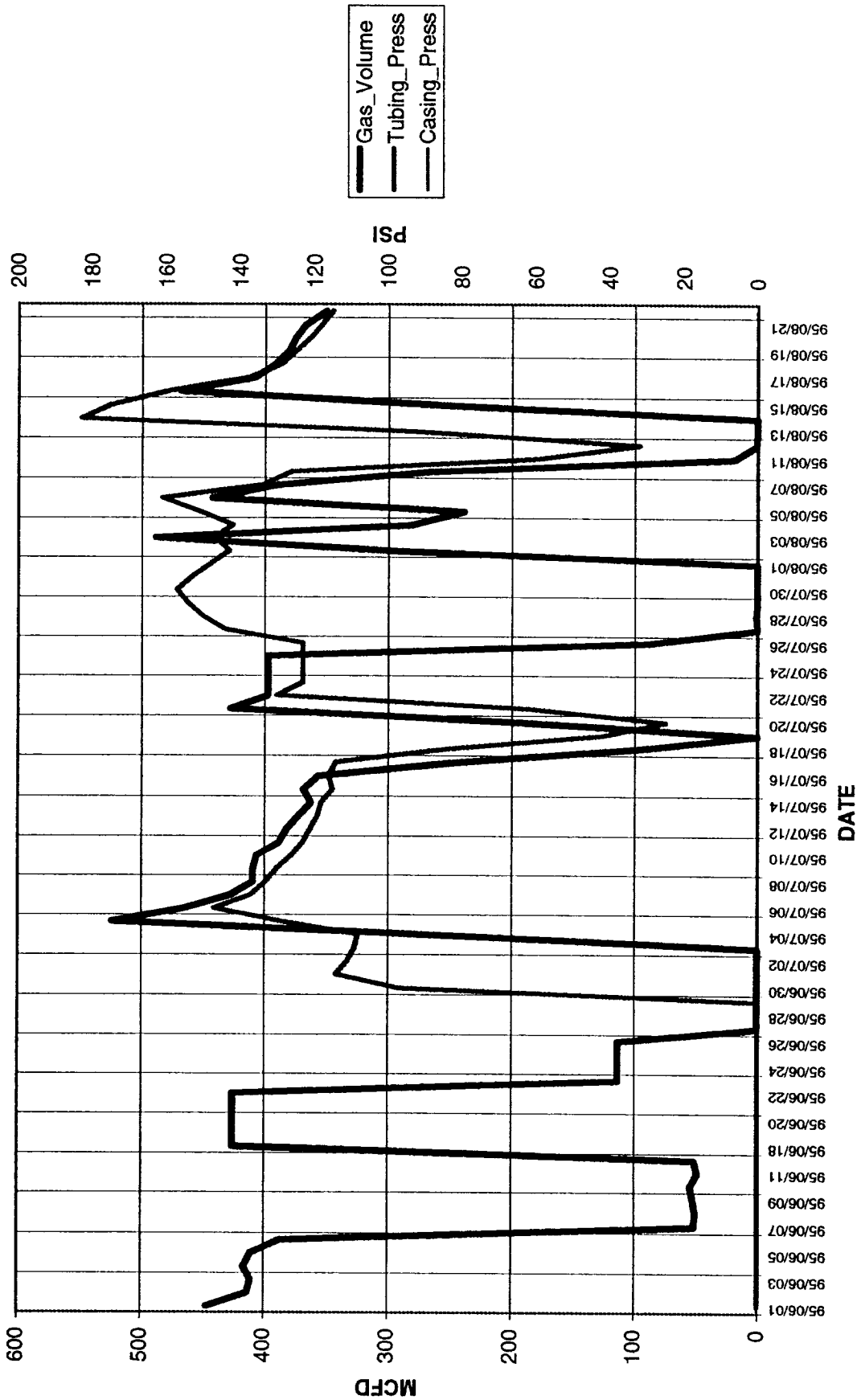
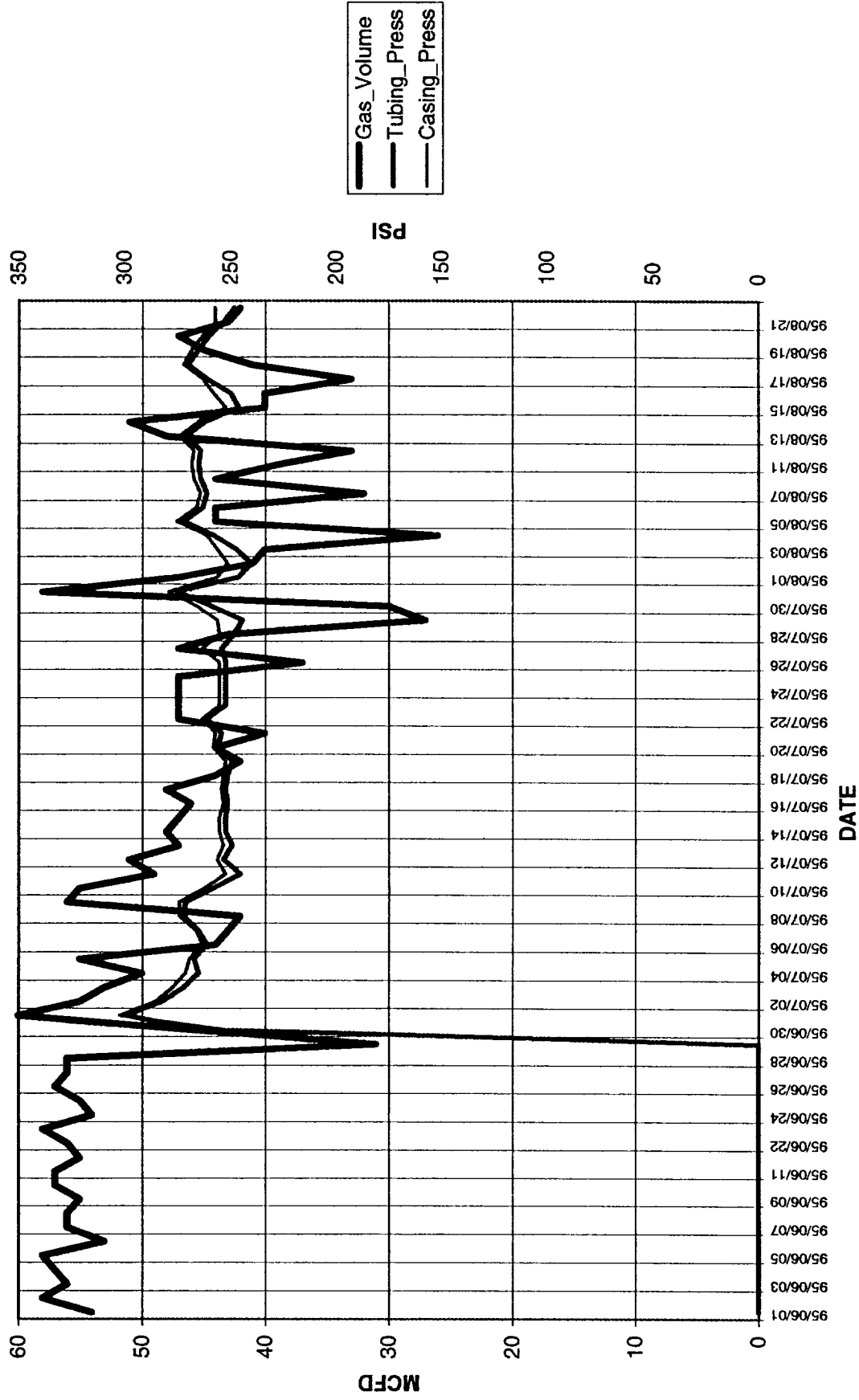


Chart1

Well: HUGHES B 003A-PC (97939101)





OIL CONSERVATION DIVISION  
NORTHWEST NEW MEXICO PACKER-LEAKAGE TEST

Operator: AMOCO PRODUCTION COMPANY    Lease/Well #:HUGHES B 003A  
Meter #:90215                                      RTU:1-052-11                                      County:SAN JUAN

	NAME RESERVOIR OR POOL	TYPE PROD	METHOD PROD	MEDIUM PROD
UPR COMP	HUGHES B 003A PC 90215	GAS	FLOW	TBG
LWR COMP	HUGHES B 003A MV 90216	GAS	FLOW	TBG

PRE-FLOW SHUT-IN PRESSURE DATA

	Hour/Date Shut-In	Length of Time Shut-In	SI Press. PSIG	Stabilized
UPR COMP	03/ <del>24</del> /95 21	72 hrs	328	yes
LWR COMP	03/ <del>24</del> /95 21	72 hrs	219	yes

FLOW TEST DATE NO.1

Commenced at (hour,date)*				Zone Producing (Upr/Lwr)	
TIME (hour, date)	LAPSED TIME SINCE*	PRESSURE		Prod Temp.	REMARKS
		Upper	Lower		
03/ <del>24</del> /95 21	Day 1	<del>271</del> 288	211		Both Zones SI
03/ <del>24</del> /95 22	Day 2	<del>327</del> 331	217		Both Zones SI
03/ <del>24</del> /95 23	Day 3	<del>328</del> 331	220		Both Zones SI
03/ <del>24</del> /95 24	Day 4	<del>328</del> 331	219		FLOW UPPER ZONE Turn on P.C.
03/ <del>24</del> /95 25	Day 5	<del>286</del> 293	220		" " "
03/ <del>24</del> /95 26	Day 6	<del>280</del> 282	221		" " "

Production rate during test  
Oil: \_\_\_\_\_ BOPD based on \_\_\_\_\_ BBLs in \_\_\_\_\_ Hrs \_\_\_\_\_ Grav \_\_\_\_\_ GOR \_\_\_\_\_  
Gas: \_\_\_\_\_ MFCPD:Tested thru (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)

MANZANARES - 45

***ESTIMATED BOTTOMHOLE PRESSURES BY FORMATION***  
Hughes B # 3A

MV Perforations at 4630 - 5672' midperf at 5151'  
PC Perforations at 3018'

8/95 shut in pressures --- MV = 219 PSIG  
PC = 328 PSIG

GRADIENT = 0.08 PSI/FT

PC BHP = 328 PSIG + 3018' X 0.08 PSIG  
= 569 PSIG

MV BHP = 219 psig + 5151' X 0.08 PSIG  
= 631 PSIG