DHC 3-25-96



Southern Rockies Business Unit

February 27, 1996

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**
**Jicarilla 155 #28 Well**
**920' FWL & 1080' FNL, Unit D Section 31-T26N-R5W**
**Blanco Mesaverde (Pool IDN 72319) and Otero Chacra Ext. (Pool IDN 82329) Pools**
**Rio Arriba County, New Mexico**

Amoco Production Company hereby requests administrative approval to downhole commingle production from the Blanco Mesaverde and Otero Chacra Extension Pools in the Jicarilla 155 #28 Well referenced above. The Jicarilla 155 #28 well was originally a dual completion in the Mesaverde and Chacra formations. This well has a marginal Chacra formation which is being produced dually with a marginal Mesaverde. If this well is left as a dual completion, the marginal zones will not be economic much longer. We plan to complete the well with both the Mesaverde and Chacra formations being downhole commingled in the wellbore. The two zones are expected to produce at a total commingled rate of about 266 MCFD with 2.16 BCPD due to the increased efficiencies of lifting liquids. The ownership (WI, RI,ORI) of these pools is identical 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 these formations have been producing for some time, we have a good historical representation of the production by formation. Based on historical production we recommend that the allocation for gas production be 78% from the Mesaverde formation and 22% from the Chacra formation. The Chacra has historically produced a very small amount of liquids in this well. Based on that fact, we propose to allocate 99% of the liquid production to the Mesaverde formation and 1% of liquid production to the Chacra. 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

formations, a historical production plot, recent production information and a C-102 for each formation. This spacing unit is on a federal lease (Jicarilla Contract 155) and a copy of the application will be sent to the BLM as required.

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

Sincerely,

Pamela W. Staley

Enclosures

cc: Steve Smethie
Patty Haefele
Wellfile
Proration Files

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

Robert Kent
Bureau of Land Management
435 Montano NE
Albuquerque, NM 87107

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: | Jicarilla 155 |
| Well Number: | 28 |
| Well Location: | 920' FWL & 1080' FNL<br>Unit D Section 31-T26N-R5W<br>Rio Arriba County, New Mexico |
| Pools Commingled: | Otero Chacra Extension<br>Blanco Mesaverde |

(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 Mesaverde produced an average stabilized rate of 91 MCFD and 1.65 BCPD. The Chacra zone produced at an average rate of about 25 MCFD and 0.01 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.

| | |
|---|---|
| Otero Chacra Extension 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 OCD Packer Leakage Tests. Shut-in bottomhole pressure in the Chacra formation is calculated to be 553 PSIG while estimated bottomhole pressure in the Mesaverde formation is 656 PSIG. Therefore these pressures meet the pressure differential rule under article 303-C (b)(vi). See attached calculation and packer leakage test results.

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

The fluids in the Mesaverde have no abnormal components that would prohibit commingling, or promote the creation of emulsions or scale when commingled with the Chacra formation.

(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:

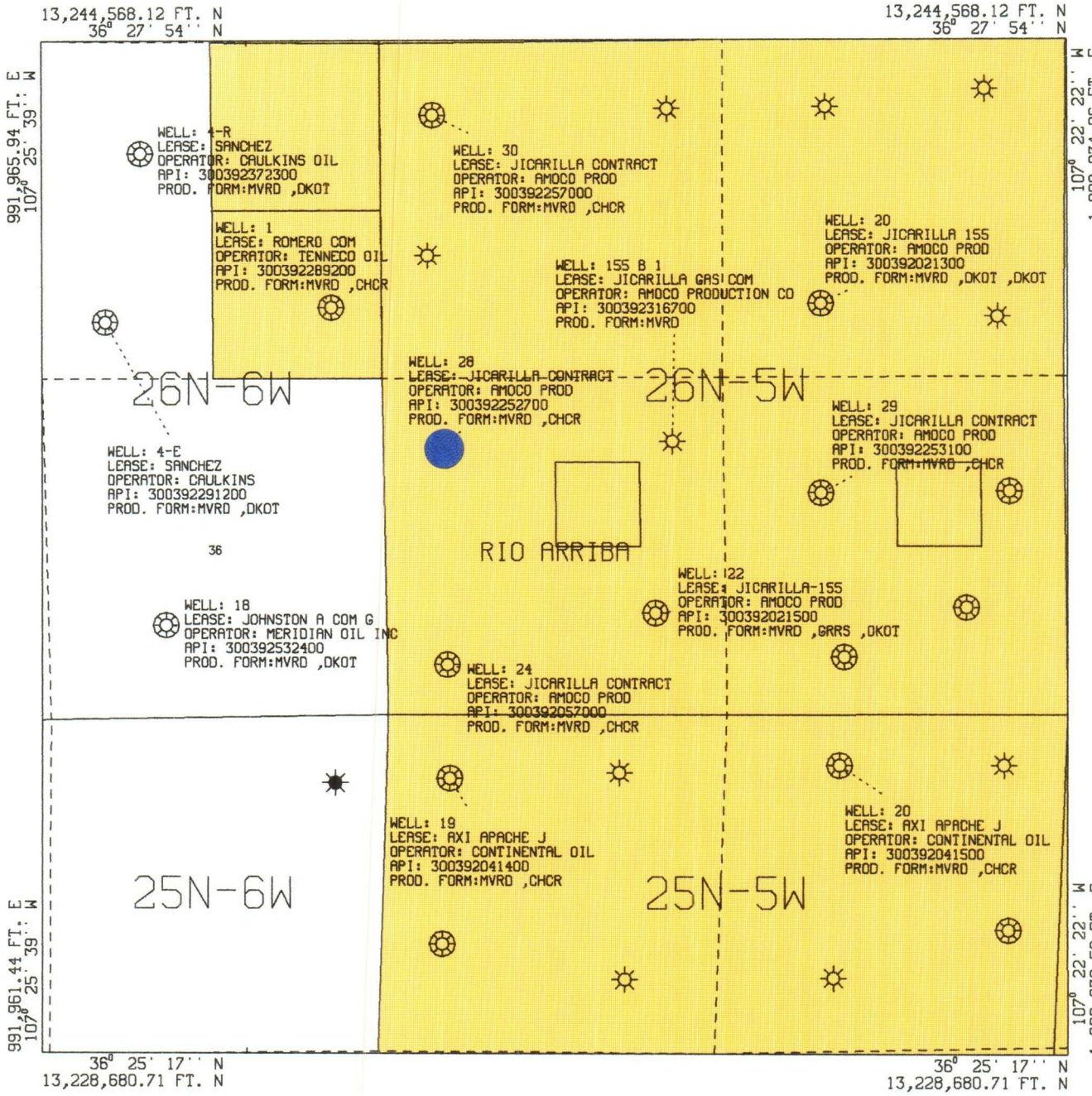
The BTU content of the produced streams are very similar and as such, we would expect the commingled production to have the same value as the sum of the individual streams.

(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 allocation method that we plan to use for this commingled well is as follows. Since these formations have been producing for some time, we have a good historical representation of the production by formation. Based on historical production we recommend that the allocation for gas production be 78% from the Mesaverde formation and 22% from the Chacra formation. The Chacra has historically produced a very small amount of liquids in this well. Based on that fact, we propose to allocate 99% of the liquid production to the Mesaverde formation and 1% of liquid production to the Chacra. 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.





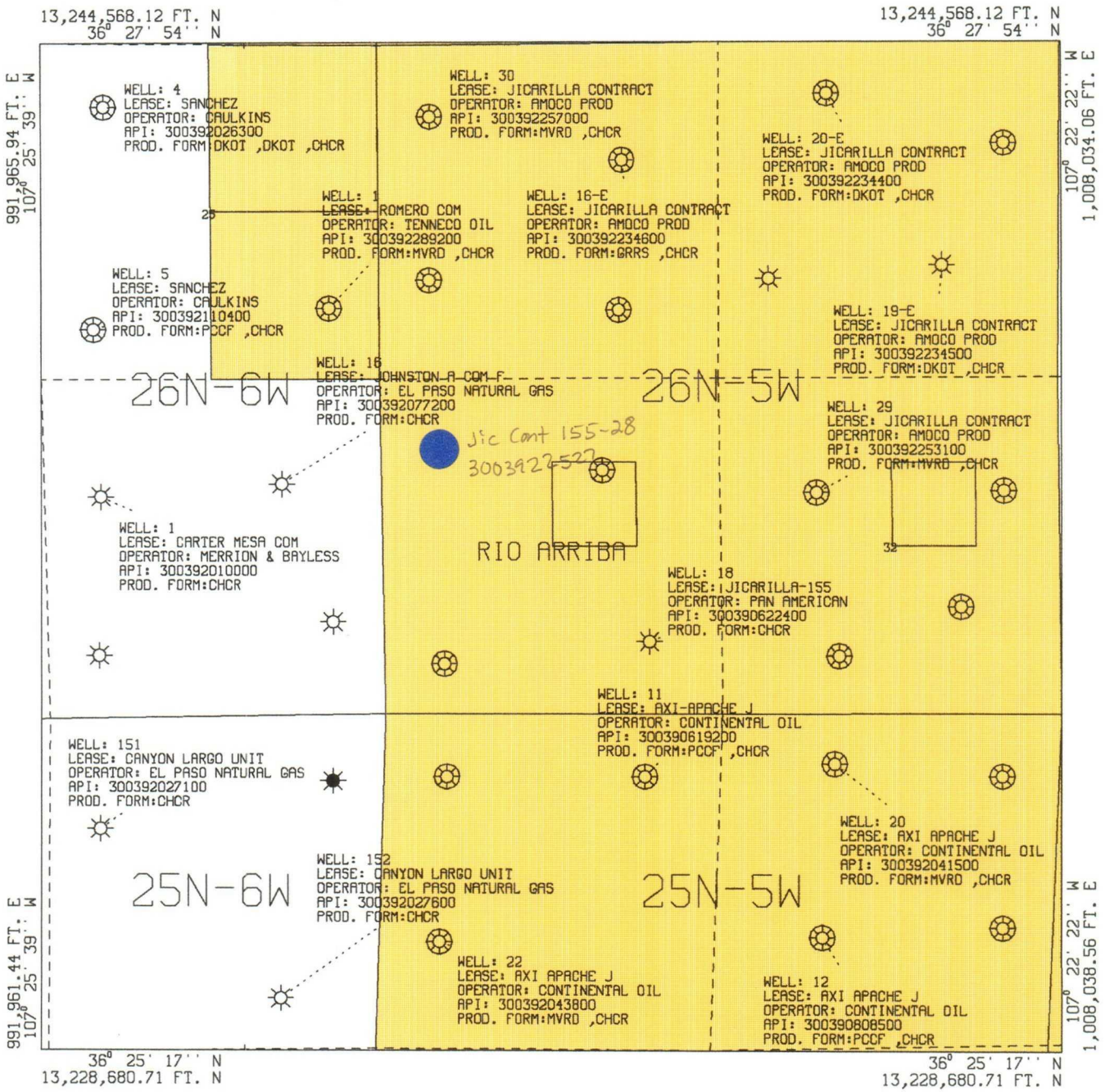

# AMOCO PRODUCTION COMPANY
## PLAT MAP
## Jicarilla Contract 155-28 Sec 31-T26N-R05W MV
## Rio Arriba New Mexico

SCALE 1 IN. = 2,500 FT. NOV 3, 1995

HORIZONTAL DATUM NAD27

PLOT 1 08.11.09 FRI 3 NOV, 1995 JOB-P1415202, ISSCO DISSPLA 10.0

HAB14152--RUN#95307072634






# AMOCO PRODUCTION COMPANY
## PLAT MAP
## Jicarilla Contract 155-28 Sec 31-T26N-R05W CK
## Rio Arriba New Mexico

SCALE 1 IN. = 2,500 FT. NOV 4, 1995

HORIZONTAL DATUM NAD27

PLOT 1 06.49.03 SAT 4 NOV, 1995 JOB-P10153D2, ISSCO DISSPLA 10.0

HAB10153--RUN#9530806214?

OIL CONSERVATION DIVISION

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

Form C-107
Revised 10-1-7

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

| Operator | Lease | Well No. |
|---|---|---|
| AMOCO PRODUCTION COMPANY | JICARILLA CONTRACT 155 | 28 |

| Unit Letter | Section | Township | Range | County |
|---|---|---|---|---|
| D | 31 | 26N | 5W | Rio Arriba |

Actual Footage Location of Well:
1080 feet from the North line and 920 feet from the West line

| Ground Level Elev: | Producing Formation | Pool | Dedicated Acreage: |
|---|---|---|---|
| 6594 | Chacra/ Mesaverde | Otero Chacra/Gonzales Mesaverde | 160 Acres |

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

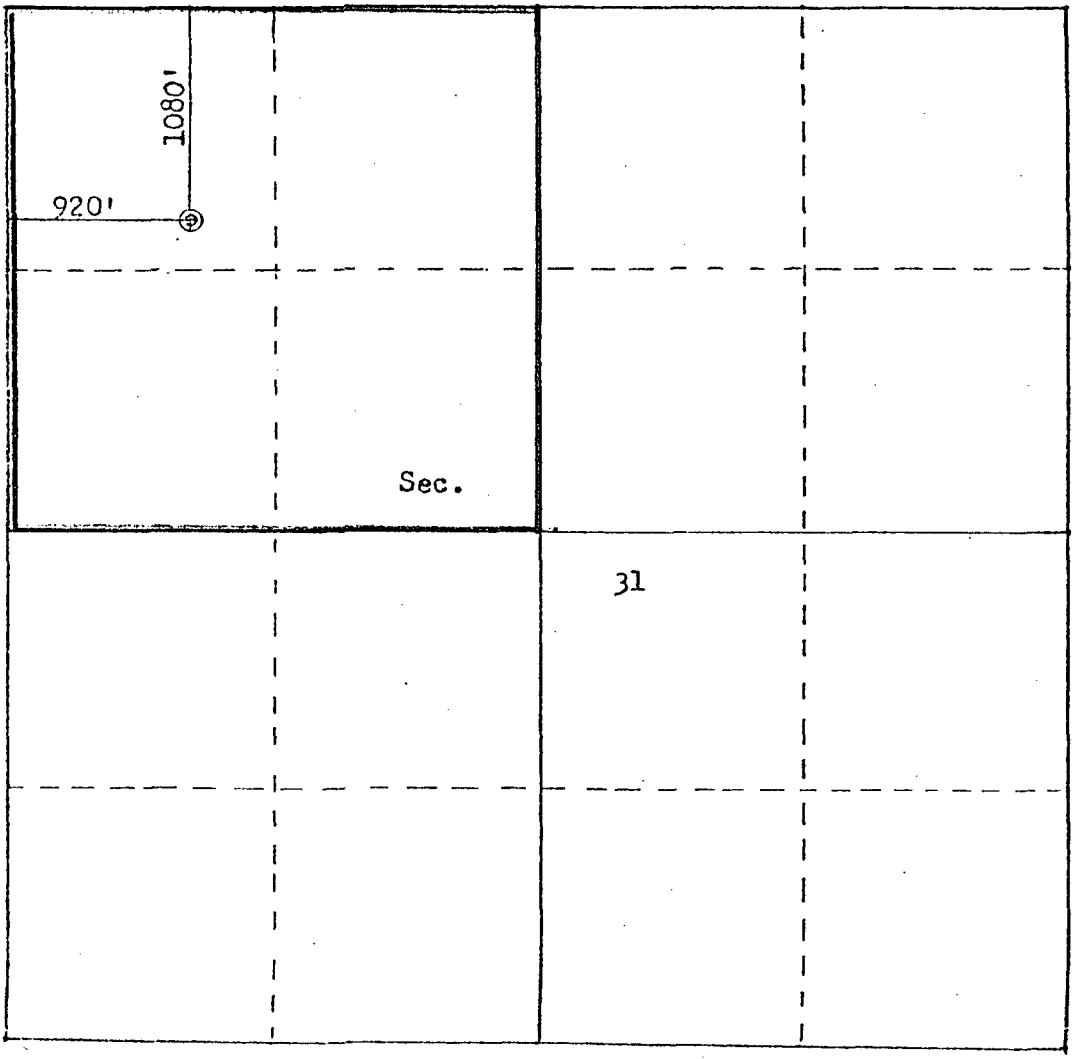
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.




Scale: 1"=1000'

CERTIFICATION

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

R.A. Downey

Name
R.A. DOWNEY

Position
DISTRICT ENGINEER

Company
AMOCO PRODUCTION COMPANY

Date
SEPTEMBER 8, 1980

*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 27, 1980

Registered Professional Engineer and Land Surveyor

Fred B. Kerr Jr.

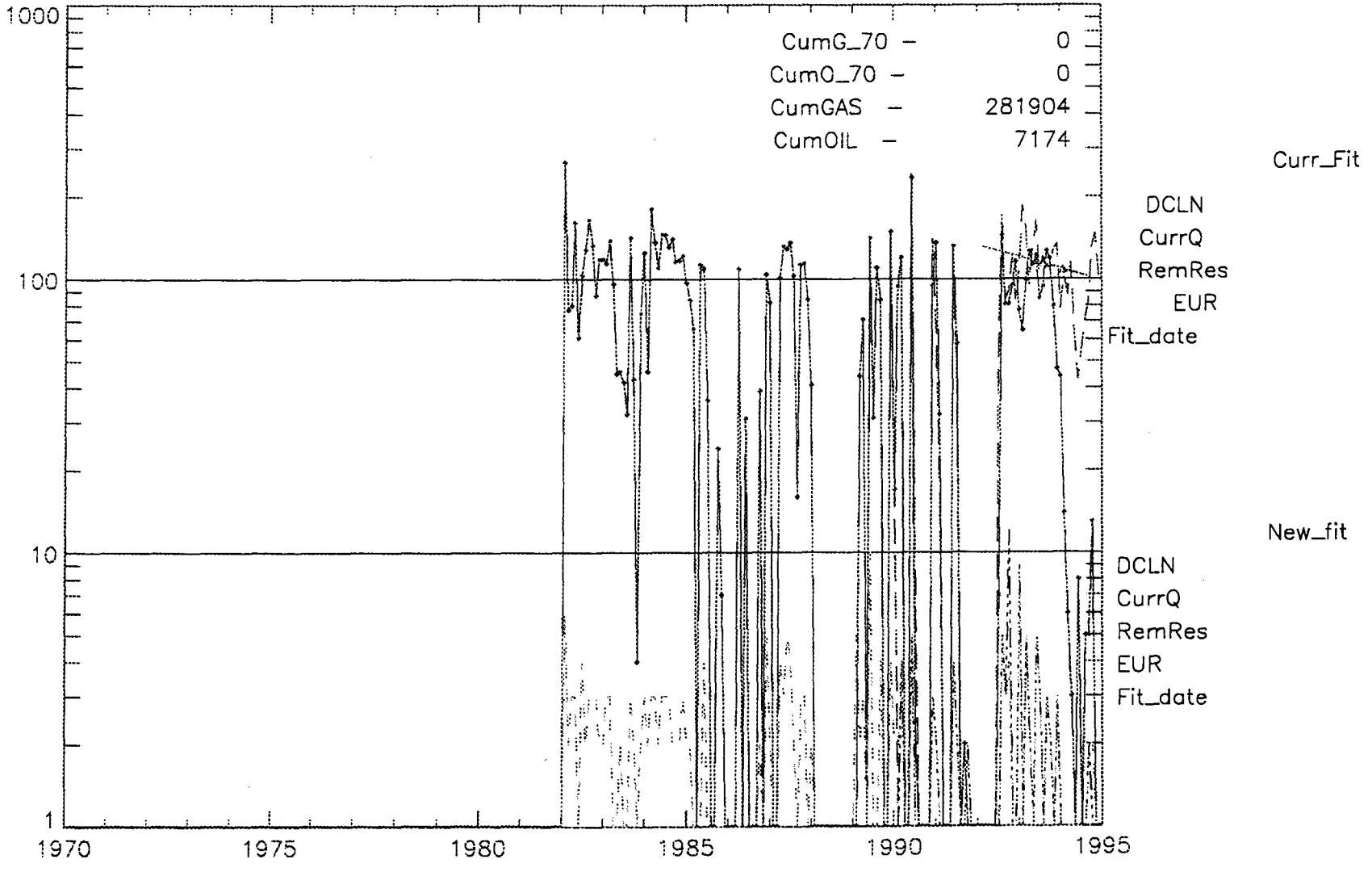
Certificate No.
3950

Engr: zhab0b

JICARILLA CONTRACT 155 28

Operator– AMOCO PRODUCTION CO

300392252700MV D312605–028 MV APC_WI – 1.0000000



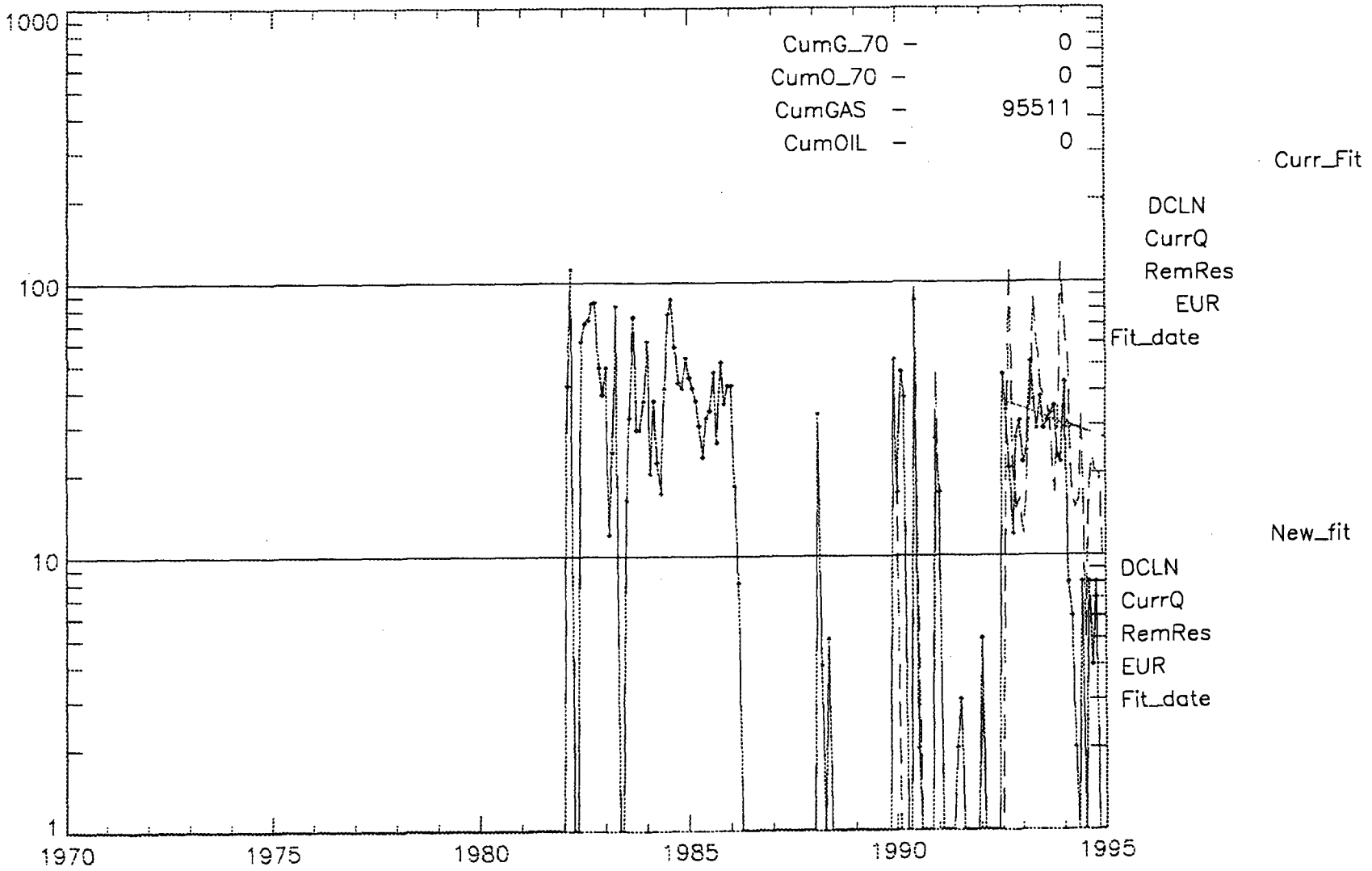
Engr: zhab0b

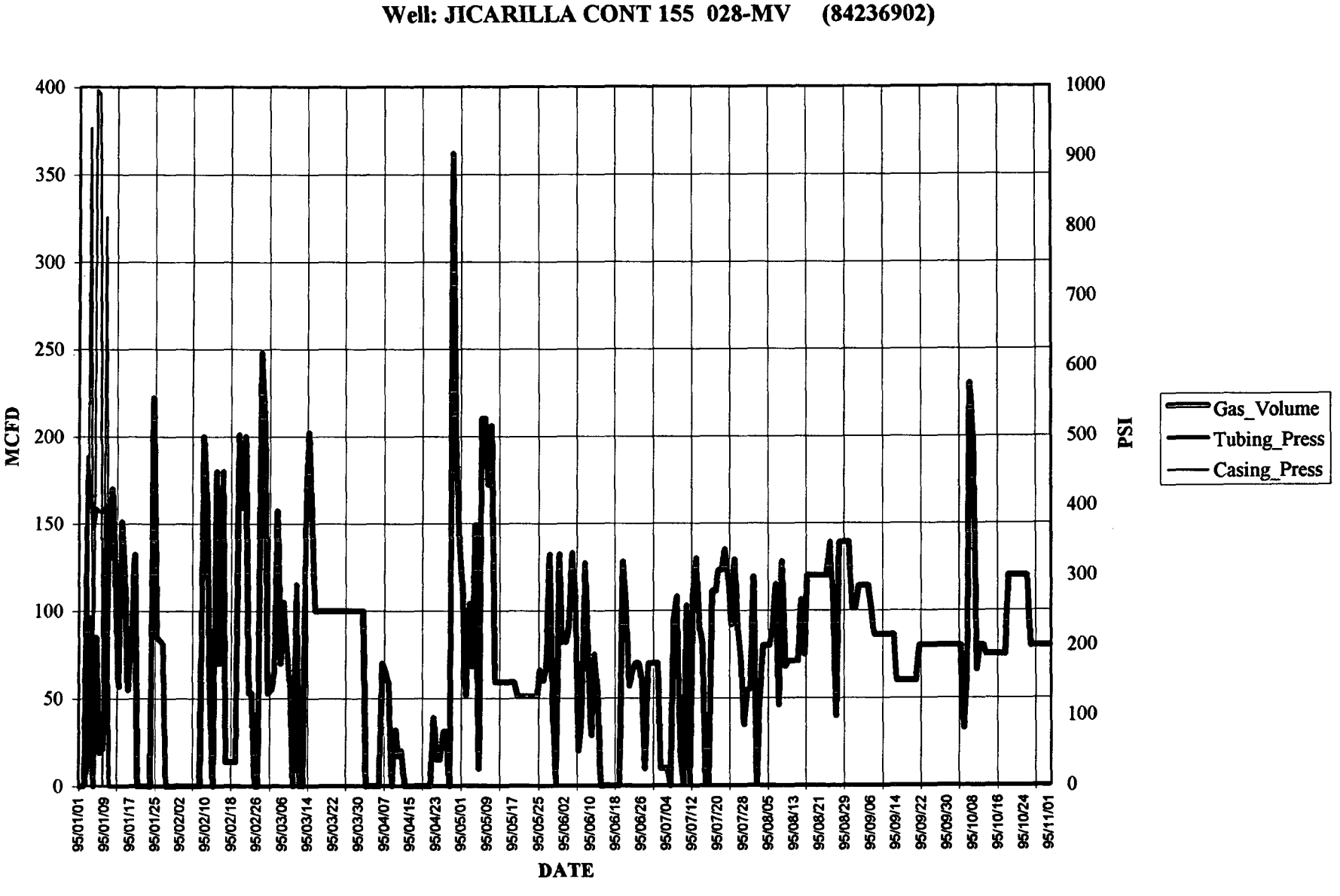
JICARILLA CONTRACT 155 28

Operator- AMOCO PRODUCTION CO

300392252700CK D312605-028 CK

APC_WI - 1.0000000




Well: JICARILLA CONT 155 028-MV (84236902)
MCFD
PSI
DATE
Gas_Volume
Tubing_Press
Casing_Press
0
50
100
150
200
250
300
350
400
100
200
300
400
500
600
700
800
900
1000
95/01/01
95/01/09
95/01/17
95/01/25
95/02/02
95/02/10
95/02/18
95/02/26
95/03/06
95/03/14
95/03/22
95/03/30
95/04/07
95/04/15
95/04/23
95/05/01
95/05/09
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95/06/02
95/06/10
95/06/18
95/06/26
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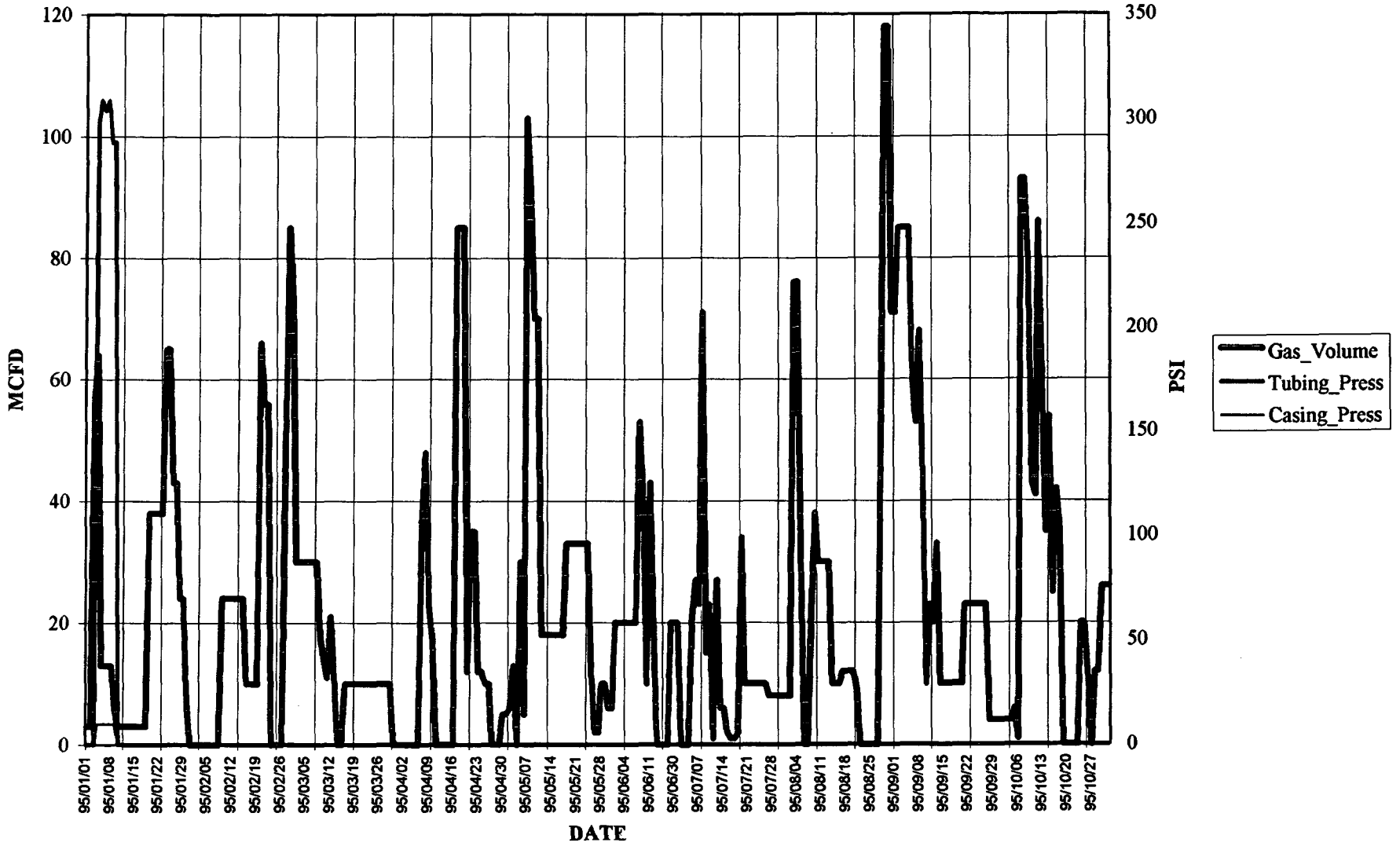
95/08/21
95/08/29
95/09/06
95/09/14
95/09/22
95/09/30
95/10/08
95/10/16
95/10/24
95/11/01

## Well: JICARILLA CONT 155 028-CK (84236901)



## ESTIMATED BOTTOMHOLE PRESSURES

### Jicarilla Contract #155-28

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **CK** | PERFORATIONS | | TOP | 3761 | BOTTOM | 3876 | MIDPERF | 3819 | |
| **MV** | PERFORATIONS | | TOP | 5100 | BOTTOM | 5248 | MIDPERF | 5174 | |
| | Sep-93 | SHUT-IN PRESSURES | | | | | | | |
| | | **CK** | = | 248 | PSIG | | | | |
| | | **MV** | = | 242 | PSIG | | | | |
| | GRADIENT | = 0.8 PSI/FT | | | | | | | |
| | **CK** | **BHP =** | 248 | PSIG + | 3819 | X 0.08 PSIG | | | |
| | | = | 553 | PSI | | | | | |
| | **MV** | **BHP =** | 242 | PSIG + | 5174 | X 0.08 PSIG | | | |
| | | = | 656 | PSI | | | | | |

STATE OF NEW MEXICO
ENERGY and MINERALS DEPARTMENT

Location of Well: D312605 Page 1

# OIL CONSERVATION DIVISION
## NORTHWEST NEW MEXICO PACKER-LEAKAGE TEST

Operator: AMOCO PRODUCTION COMPANY Lease/Well Jic Cont. 155-28 JIC CONTRACT 155 28
Meter [redacted] 85534 RTU:1-171-01 County:RIO ARRIBA

| | NAME RESERVOIR OR POOL | TYPE PROD | METHOD PROD | MEDIUM PROD |
|---|---|---|---|---|
| UPR COMP | JIC CONTRACT 155 28 OCH 85533 1-172-1 ✓ | GAS | FLOW | TBG |
| LWR COMP | JIC CONTRACT 155 28 BMV 85534 1-171-1 | GAS | FLOW | TBG |

PRE-FLOW SHUT-IN PRESSURE DATA

| | Hour/Date Shut-In | Length of Time Shut-In | SI Press. PSIG | Stabilzed |
|---|---|---|---|---|
| UPR COMP | 09/01/93 | | | |
| LWR COMP | 09/01/93 | | | |

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 |
|---|---|---|---|---|---|
| 09/01/93 | Day 1 | 250 T. 250 C. | 225 T. 325 C. | | Both Zones SI |
| 09/02/93 | Day 2 | 250 T. 330 C. | 233 T. 330 C. | | Both Zones SI |
| 09/03/93 | Day 3 | 248 T. 340 C. | 242 T. 340 C. | | Both Zones SI |
| 09/04/93 | Day 4 | 245 T 350 C | 250 T 350 C | | TURN ON Lower Zone |
| 09/05/93 | Day 5 | 250 T. | 240 T. 331 C. | | |
| 09/06/93 | Day 6 | 220 T. | 320 T. 332 C. | | |

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 | | | | |

RECEIVED
OCT 21 1993
OIL CON. DIV.
DIST. 3

(Continue on reverse side)

## OFFSET OPERATORS AND LIST OF ADDRESSES

Jicarilla 155 #28 Well

### CHACRA OFFSET OPERATORS

NE SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
SE SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
SW SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
NE SEC 36-T26N-R6W - MERIDIAN OIL, INC.
SE SEC 36-T26N-R6W - MERIDIAN OIL, INC.
SE SEC 25-T26N-R6W - AMOCO PRODUCTION COMPANY
SE SEC 30-T26N-R5W - AMOCO PRODUCTION COMPANY
SW SEC 30-T26N-R5W - AMOCO PRODUCTION COMPANY

### MESAVERDE OFFSET OPERATORS

NE SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
SE SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
SW SEC 31-T26N-R5W - AMOCO PRODUCTION COMPANY
NE SEC 36-T26N-R6W - NO MESAVERDE WELL
SE SEC 36-T26N-R6W - NO MESAVERDE WELL
SE SEC 25-T26N-R6W - AMOCO PRODUCTION COMPANY
SE SEC 30-T26N-R5W - AMOCO PRODUCTION COMPANY
SW SEC 30-T26N-R5W - AMOCO PRODUCTION COMPANY

### ADDRESSES

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