| DATE IN 8/30/99 | SUSPENSE 9/20/99 | ENGINEER DC | LOGGED BY KV | TYPE DHC |
|---|---|---|---|---|

ABOVE THIS LINE FOR DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**
- Engineering Bureau -
2040 South Pacheco, Santa Fe, NM 87505

24165

# ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATION FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Application Acronyms:**

**[NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]**
**[DD-Directional Drilling] [SD-Simultaneous Dedication]**
**[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]**
**[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]**
**[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]**
**[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]**
**[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]**

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[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Directional Drilling
❑ NSL ❑ NSP ❑ DD ❑ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☒ DHC ❑ CTB ❑ PLC ❑ PC ❑ OLS ❑ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
❑ WFX ❑ PMX ❑ SWD ❑ IPI ❑ EOR ❑ PPR

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ❑ Does Not Apply

[A] ❑ Working, Royalty or Overriding Royalty Interest Owners

[B] ❑ Offset Operators, Leaseholders or Surface Owner

[C] ❑ Application is One Which Requires Published Legal Notice

[D] ❑ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ❑ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ❑ Waivers are Attached

[3] **INFORMATION / DATA SUBMITTED IS COMPLETE** - Certification

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. ***I understand that any omission of data (including API numbers, pool codes, etc.), pertinent information and any required notification is cause to have the application package returned with no action taken.***

**Note: Statement must be completed by an individual with managerial and/or supervisory capacity.**

| Mark Stodola | Mark Stodola | Reservoir Engr. | 8/27/99 |
|---|---|---|---|
| Print or Type Name | Signature | Title | Date |

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980
DISTRICT II
811 South First St., Artesia, NM 88210-2835
DISTRICT III
1000 Rio Brazos Rd, Aztec, NM 87410-1693

State of New Mexico
Energy, Minerals and Natural Resources Department

# OIL CONSERVATION DIVISION

2040 S. Pacheco
Santa Fe, New Mexico 87505-6429

Form C-107-A
New 3-12-96

APPROVAL PROCESS:
X Administrative __ Hearing

EXISTING WELLBORE
X YES __ NO

## APPLICATION FOR DOWNHOLE COMMINGLING

Phillips Petroleum Company — Operator
5525 Hwy 64, Farmington, NM 87401 — Address

San Juan 29-6 Unit — Lease
33 — Well No.
B Sec. 13, T29N, R6W — Unit Ltr. - Sec - Twp - Rge
Rio Arriba — County

OGRID NO. 017654 Property Code 009257 API NO. 30-039-07636 Spacing Unit Lease Types: (check 1 or more) Federal X, State ___, (and/or) Fee ___

| The following facts are submitted in support of downhole commingling: | Upper Zone | Intermediate Zone | Lower Zone |
|---|---|---|---|
| 1. Pool Name and Pool Code | 72319 Blanco Mesaverde | | 71599 Basin Dakota |
| 2. Top and Bottom of Pay Section (Perforations) | 5355' - 5804' | | 7844' - 7948' |
| 3. Type of production (Oil or Gas) | Gas | | Gas |
| 4. Method of Production (Flowing or Artificial Lift) | Flowing | | Flowing |
| 5. Bottomhole Pressure<br>Oil Zones - Artificial Lift: Estimated Current<br>Gas & Oil - Flowing: Measured Current<br>All Gas Zones: Estimated Or Measured Original | a. (Current) 600 psi (est.) | a. | a. 438 psi (24 hr SI) |
| | b. (Original) 1280 psi | b. | b. 3130 psi |
| 6. Oil Gravity (°API) or Gas BTU Content | 1160 btu/scf | | 1012 btu/scf |
| 7. Producing or Shut-In? | Producing | | Producing |
| Production Marginal? (yes or no) | Yes | | Yes |
| • If Shut-In, give date and oil/gas/ water rates of last production<br>Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data | Date:<br>Rates: | Date:<br>Rates: | Date:<br>Rates: |
| • If Producing, give date andoil/gas/ water rates of recent test (within 60 days) | Date: 6/31/99<br>Rates: 79 mcfd | Date:<br>Rates: | Date: 5/31/99<br>Rates: 122 mcfd |
| 8. Fixed Percentage Allocation Formula -% for each zone | Oil: % Gas: % | Oil: % Gas: % | Oil: % Gas: % |

9. If allocation formula is based upon something other than current or past production, or is based upon some other method, submit attachments with supporting data and/or explaining method and providing rate projections or other required data.

10. Are all working, overriding, and royalty interests identical in all commingled zones? ___ Yes X No
If not, have all working, overriding, and royalty interests been notified by certified mail? ___ Yes ___ No
Have all offset operators been given written notice of the proposed downhole commingling? ___ Yes ___ No

11. Will cross-flow occur? X Yes ___ No If yes, are fluids compatible, will the formations not be damaged, will any cross-flowed production be recovered, and will the allocation formula be reliable. X Yes ___ No (If No, attach explanation)

12. Are all produced fluids from all commingled zones compatible with each other? X Yes ___ No

13. Will the value of production be decreased by commingling? ___ Yes X No (If Yes, attach explanation)

14. If this well is on, or communitized with, state or federal lands, either the Commissioner of Public Lands or the United States Bureau of Land Management has been notified in writing of this application. ___Yes ___ No

15. NMOCD Reference Cases for Rule 303(D) Exceptions: ORDER NO(S). R-11187

16. ATTACHMENTS:
* C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
* Production curve for each zone for at least one year. (If not available, attach explanation.)
* For zones with no production history, estimated production rates and supporting data.
* Data to support allocation method or formula.
* Notification list of all offset operators.
* Notification list of working, overriding, and royalty interests for uncommon interest cases.
* Any additional statements, data, or documents required to support commingling.

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

SIGNATURE Mark Stodola TITLE Reservoir Engr. DATE 8/27/99

TYPE OR PRINT NAME Mark Stodola TELEPHONE NO. ( 505 ) 599-3455

**PHILLIPS PETROLEUM COMPANY**
FARMINGTON, NEW MEXICO 87401
5525 HWY. 64 NBU 3004

August 27, 1999

New Mexico Oil & Gas Conservation Div.
2040 South Pacheco
Santa Fe, New Mexico 87505-6429

Downhole Commingling Allocation Method
on the San Juan 29-6 Unit #33

Dear Sirs:

Phillips is proposing to utilize the subtraction method on the subject well for approximately twelve months after actual commingling occurs. After the twelve month period we will convert to the ratio method as indicated in our commingling application. We believe this will be a more accurate method of allocating production considering that the Dakota interval has been producing for years and that the production will not be stabilized on the Mesaverde for several months.

Dakota Production Forecast

| | | | |
|---|---|---|---|
| September 1999 | 3,721 | October 1999 | 3,825 |
| November 1999 | 3,805 | December 1999 | 3,419 |
| January 2000 | 3,767 | February 2000 | 3,626 |
| March 2000 | 3,728 | April 2000 | 3,589 |
| May 2000 | 3,690 | June 2000 | 3,671 |
| July 2000 | 3,534 | August | 3,633 |

For example, if the total volume for September 1999 were 8,221 mcf, then the Dakota would be allocated 3,721 mcf and the Mesaverde 4,500 mcf. And subsequently, the Dakota would be allocated (3,721/8,221) or 45.26%, and Mesaverde would be allocated (4,500/ 8,221) or 54.74%.

Sincerely,

PHILLIPS PETROLEUM COMPANY

Mark W. Stodola

Mark W. Stodola
Reservoir Engineer

MS/pc

cc: OCD – Aztec
BLM- Farmington
NM Commissioner of Public Lands – Santa Fe

Form C-128 (6-57)

EW MEXICO OIL CONSERVATION CO[illegible]ION

Well Location and Acreage Dedication Plat

Section A.

Date JULY 22, 1959

Operator EL PASO NATURAL GAS COMPANY Lease SAN JUAN 29-6 UNIT SF 078278

Well No. 33-13(MD) Unit Letter I Section 13 Township 29-N Range 6-W NMPM

Located 800 Feet From NORTH Line, 1145 Feet From EAST Line

County RIO ARRIBA G. L. Elevation 6593 Dedicated Acreage 275.94 & 275.94 Acres

Name of Producing Formation MESA VERDE AND DAKOTA Pool BLANCO MV & WILDCAT DAKOTA Basin

1. Is the Operator the only owner in the dedicated acreage outlined on the plat below?
   Yes X No
2. 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 ____
3. If the answer to question two is "no", list all the owners and their respective interests below:

| Owner | Land Description |
|---|---|
| | |
| | |
| | |

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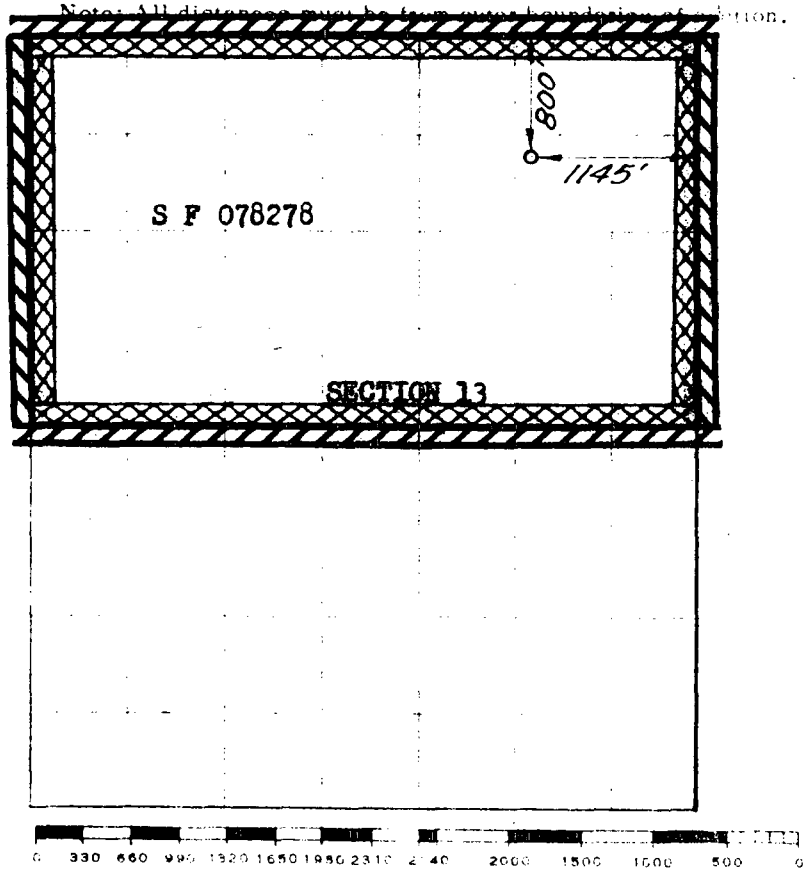
JAN 11 1961
OIL CON. COM.
DIST. 3

Section B.

This is to certify that the information in Section A above is true and complete to the best of my knowledge and belief.

El Paso Natural Gas Company
(Operator)
Original Signed By: D.H. Oheim
(Representative)
Box 990
(Address)
Farmington, New Mexico

Note: All distances must be from outer boundaries of section.




Scale 4 inches equal 1 mile

NOTE:
THIS PLAT IS REISSUED TO REFLECT A CHANGE IN DEDICATION. 1-6-61

(Seal)

REGISTERED LAND SURVEYOR STATE OF NEW MEXICO No 1463 JAMES P. LEESE

Farmington, New Mexico

This is to certify that the above plat was prepared from field notes of actual surveys made by me or under my supervision and that the same are true and correct to the best of my knowledge and belief.

Date Surveyed AUGUST 30, 1955

James P. Leese
Registered Professional Engineer and/or Land Surveyor

# 29-6 Unit #33 Dakota Forecast

| | | |
|---|---|---|
| *Initial Production Rate* | = | *125 MCFD* |
| *Hyperbolic Exponent* | = | *0.33* |
| *Decline Rate* | = | *6.24 %* |

| | Month | ***Monthly MCF*** |
|---|---|---|
| **1999** | Aug | ***3,865*** |
| | Sep | ***3,721*** |
| | Oct | ***3,825*** |
| | Nov | ***3,805*** |
| | Dec | ***3,419*** |
| **2000** | Jan | ***3,767*** |
| | Feb | ***3,626*** |
| | Mar | ***3,728*** |
| | Apr | ***3,589*** |
| | May | ***3,690*** |
| | Jun | ***3,671*** |
| | Jul | ***3,534*** |
| | Aug | ***3,633*** |
| | Sep | ***3,498*** |
| | Oct | ***3,597*** |
| | Nov | ***3,578*** |
| | Dec | ***3,216*** |
| **2001** | Jan | ***3,543*** |

Use subtraction method for +/- 12 months based on this Dakota forecast.

| | 4/97-1/99 | 2/99-LIFE | ASSOC. | Current Cums |
|---|---|---|---|---|
| INITIAL PROD / DAY | : 141.2 | 125.6 | 0.0 | 391320. MCF GAS |
| REMAINING LIFE | : 1.83 | 40.47 | | |
| HYPR(0.33) DECL % | : 6.49 | 6.24 | | 512. BBL WTR |
| CUM PRODUCTION | : 89991. | 776239. | 0. | |
| FINAL PROD / DAY | : 150.2 | 20.0 | | |


LEASE- 650325 : SAN JUAN 29-6 UNIT #33 DK NON-CO
RESVR- 076 : BASIN DAKOTA
WELL - 000033 CUM MMCF= 2049.

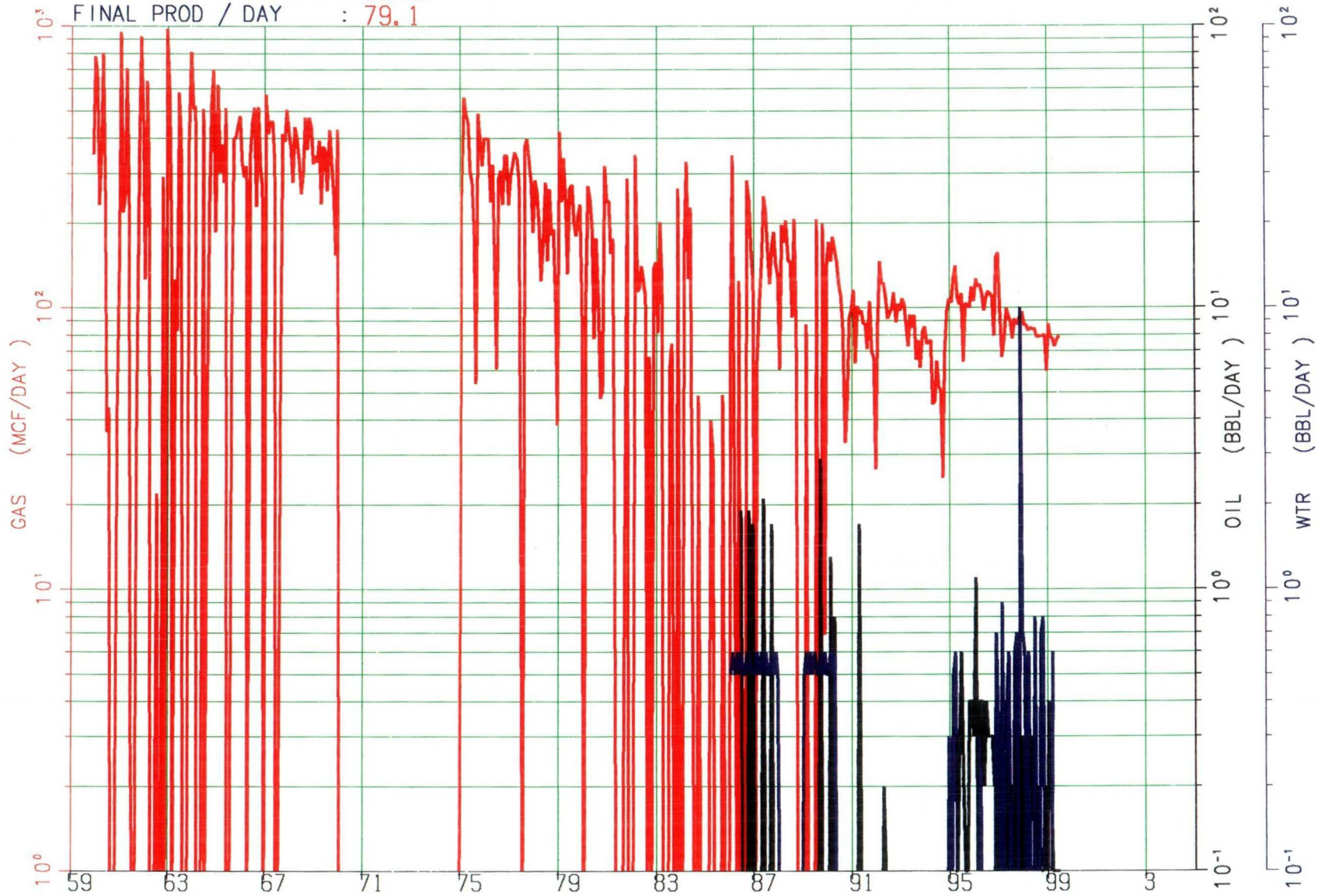
F029002
ZONE-650325076000033 F029002
API-30039076360000 THRU 99/06



MWST 1999/08/18 17:32

11/59-1/99 Current Cums

| | | | |
|---|---|---|---|
| INITIAL PROD / DAY | : 622.0 | 2237. | MMCF GAS |
| REMAINING LIFE | : 39.25 | 854. | BBL OIL |
| HYPR(0.33) DECL % | : 7.45 | 1282. | BBL WTR |
| CUM PRODUCTN-MUNITS | : 2225. | | |
| FINAL PROD / DAY | : 79.1 | | |




LEASE- 650112 : SAN JUAN 29-6 MESA VERDE
RESVR- 002 : BLANCO MESAVERDE
WELL - 000033 CUM MMCF= 2239.

F029001
ZONE-650112002000033 F029001
API-30039076360000 THRU 99/06



MWST 1999/08/18 17:34

PHILLIPS PETROLEUM COMPANY
5525 HWY 64 NBU 3004
FARMINGTON, NEW MEXICO 87401

DATE: AUGUST 23, 1999

WELL NAME: SAN JUAN 29-6 # 33
FORMATION: DAKOTA

TYPE TEST: STATIC GRADIENT

COUNTY: RIO ARRIBA
STATE: NEW MEXICO

TOTAL DEPTH: 8032'
PERFS: MP 7896'
TUBING SIZE: 2 3/8 TO 7927'
CASING SIZE:
PACKER:
OTHER: SN @ 7891'
**ENGAGED @ 17:00**

CASING PRESSURE:
TUBING PRESSURE: 360
OIL LEVEL:
WATER LEVEL:
TEMPERATURE:
ELEMENT NO.
ELEMENT RANGE 0 TO 3500

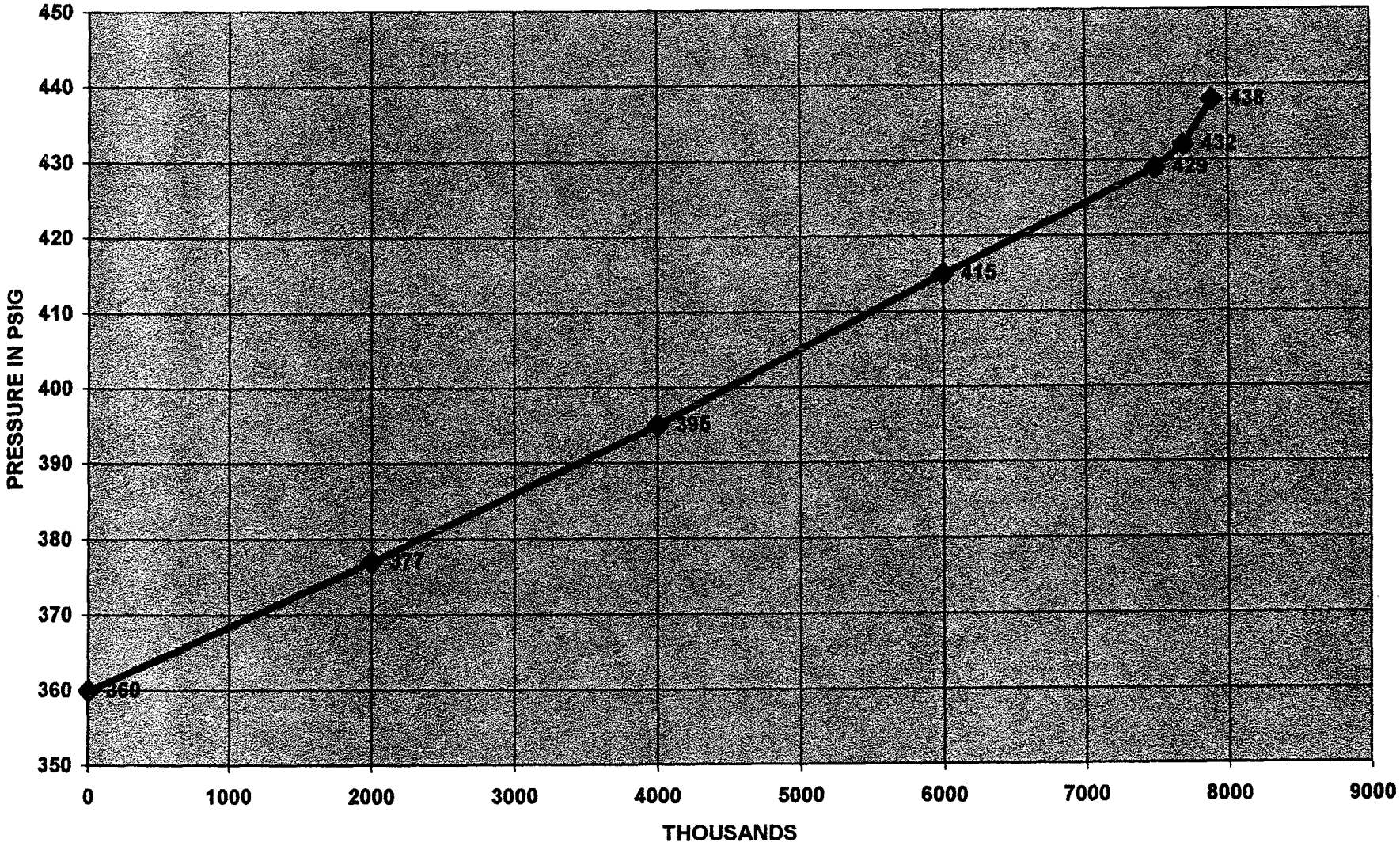
WELL STATUS: SHUT IN

| DEPTH IN FEET | PRESSURE PSIG | GRADIENT PSI/FOOT |
|---|---|---|
| 0 | 360 | |
| 2000 | 377 | 0.008 |
| 4000 | 395 | 0.009 |
| 6000 | 415 | 0.010 |
| 7491 | 429 | 0.009 |
| 7691 | 432 | 0.015 |
| 7891 | 438 | 0.030 |

**HAS BULL PLUG ON BTM OF TUBING**

H & H WIRELINE SERVICE INC.
P. O. BOX 899
FLORA VISTA, NEW MEXICO 87415
OPERATOR: STEVEN HODGES
UNIT NO. T-1O

PHILLIPS PETROLEUM SAN JUAN 29-6 # 33
DATE: AUGUST 23, 1999



a) the average estimated Mesaverde and Dakota ultimate recoverable gas reserves within the San Juan 29-6 Unit on a per well basis are approximately .74 BCFG and 1.23 BCFG, respectively;

b) the average initial producing rate for a Mesaverde and Dakota gas well (either newly drilled or recompleted) is approximately 363 MCFGD and 277 MCFGD, respectively; and

c) the estimated ultimate gas recoveries and initial producing rates from the Mesaverde and Dakota formations within the San Juan 29-6 Unit are insufficient to justify drilling stand alone wells and/or dually completed wells to recover such gas reserves.

(9) The evidence and testimony presented by the applicant indicates that the Blanco-Mesaverde and Basin-Dakota Gas Pools within the San Juan 29-6 Unit should be properly classified as "marginal".

(10) In support of its request to except pressure criteria within the Mesaverde and Dakota formations within the San Juan 29-6 Unit, the applicant presented engineering evidence and testimony indicating that:

a) the average shut-in bottomhole pressure within the Mesaverde and Dakota formations at the time of initial development was approximately 1,280 psi and 3,130 psi, respectively; and

b) the average current shut-in bottomhole pressure within the Mesaverde and Dakota formations is approximately 500 psi and 844 psi, respectively.

(11) Testimony by the applicant indicates that the pressure data described above was obtained from seven (7) Mesaverde and five (5) Dakota wells within the San Juan 29-6 Unit.

(12) The applicant presented insufficient pressure data within the San Juan 29-6 Unit area to except pressure criteria.

(13) The applicant testified that various allocation methods would be utilized for downhole commingled wells within the San Juan 29-6 Unit depending on the circumstances. Some of the methods and circumstances are described as follows:

a) in those instances where a newly completed zone is commingled with an existing producing interval with an established decline, the subtraction method will be utilized for a period of +/- 12 months. Subsequent to that time, and assuming that the production rate has stabilized, a fixed allocation will be determined and utilized; and

# Production Allocation Methodology

- Adding New Zone to Existing Zone - Initially Subtraction Method followed by Fixed Allocation Method
  - Subtraction Method (+/- 1st 12 months)
    - Forecast production rate by month for existing zone utilizing established decline curve for zone
    - Subtract forecasted rate from commingled rate to define new zone rate
    - Utilize subtraction method for +/- 12 months until new zone rate stabilizes, then utilize fixed allocation method with current rates
  - Fixed Allocation Method (after Subtraction Method)
    - Utilize forecasted rate from established decline curve for lower zone
    - Calculate upper zone rate by subtracting lower zone rate from commingled rate
    - Lower zone allocation = $\frac{\text{Lower zone rate}}{\text{Commingled rate}}$
    - Upper zone allocation = (Commingled rate - Lower zone rate) / Commingled rate

Attachment

OCD Form C-107A (3/12/96)

Item No. 12 - additional explanation:

Based on water analysis from the Mesaverde and Dakota zones and discussions with the chemical treating/analysis company the water from these two zones are compatible. Lab analysis of the individual waters from both the Mesaverde and Dakota formations resulted in positive scaling indices for barium sulfate. There was a slight increase in the barium sulfate scaling index of the combined waters relative to the scaling index of the individual waters.

None of the waters, combined or individual, had meaningful scaling tendencies and combined with the fact that typical water production from either of these zones in San Juan 30-5 are 0-1 BWPD and no barium sulfate scale has been detected to date, no negative impacts to the formations are anticipated.