EXXON COMPANY, U.S.A.
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702-1600

PRODUCTION DEPARTMENT
SOUTHWEST/ROCKY MOUNTAIN DIVISION

J.K. LYTLE
SENIOR TECHNICAL ADVISOR
REGULATORY AFFAIRS



December 27, 1985

*Downhole Commingling Request*
*N.M. "V" State #1*
*Lea County, New Mexico*

*New Mexico Oil Conservation Division*
*P. O. Box 2088*
*Santa Fe, New Mexico 87501*

*ATTENTION: Mr. David Catanach*

*Gentlemen:*

*Exxon respectfully requests NMOCD approval to downhole commingle the Blinebry and Drinkard formations in the N.M. "V" State #1. Permission to dually complete this well was authorized by administrative order R-1264. If permission to downhole commingle is received, this well will be placed on sucker rod pump to effectively lift formation fluids from the wellbore resulting in increased flow rates, and increase ultimate recovery from these two oil zones.*

*The Blinebry quit flowing in 1977 and the Drinkard quit flowing in 1975. Both zones have 2000-3000' of fluid on the formation face. Downhole commingling will enable Exxon to place the well on sucker rod pump to remove the formation fluids at an economical rate. If downhole commingling is not approved, one of the zones will be squeezed and the other will be placed on sucker rod pump. It is doubtful that it would be economical to re-enter the squeezed zone in the future due to the low potential. Downhole commingling is being requested to prevent this waste.*

*The Blinebry and Drinkard zones currently satisfy the requirements necessary to apply for downhole commingling (see Attachment 1). The items Exxon must submit to the Commission to obtain approval are listed on Attachment 2, and subsequent attachments contain the data noted in Attachments 1 and 2.*

*Please contact J. W. Jordan (915) 523-3650 if any further information is required.*

*Yours truly,*

J. K. Lytle

*J. K. Lytle*

*JKL:djc*
*Attachments*

*c: Offset Operators (Certified Mail)*
*District I - NMOCD, Hobbs, NM*

*ATTACHMENT 1*

*N. M. "V" State #3 - Downhole Commingling - Requirements*

*The Blinebry and Drinkard formations in the above well satisfy the requirements necessary for downhole commingling as follows:*

1. *The total combined daily oil production from the oil zones before commingling does not exceed 40 BOPD. Currently neither zone is able to flow. 6658' is the depth of the bottom perforation in the Drinkard formation.*

2. *Oil zones require artificial lift, or, both zones are capable of flowing. Both zones now require artificial lift, which will be installed when the two zones are commingled.*

3. *Neither zone produces more than 40 BWPD. Neither zone is now able to flow.*

4. *The fluids from each zone are compatible with the fluids from the other, and combining the fluids will not result in the formation of precipitates which damage either reservoir. See attached data.*

5. *The total value of the crude will not be reduced by commingling. See attached data.*

6. *Ownership of the zones to be commingled is common (including working interest, royalty, and overriding royalty).*

7. *The commingling will not jeopardize the efficiency of present or future secondary recovery operations in either of the zones to be commingled. Current plans are to commingle these zones for waterflood in the proposed Blinebry-Drinkard Waterflood Unit.*

8. *The commingling is necessary to permit a zone or zones to be produced which would not otherwise be economically producible.*

9. *There will be no crossflow between zones to be commingled.*

10. *The bottomhole pressure of the lower pressure zone is not less than 50 percent of the bottomhole pressure of the higher pressure zone adjusted to a common datum. See attached data.*

*ATTACHMENT 2*

*N. M. "V" State #3 - Downhole Commingling - Data Required*

*To obtain approval for downhole commingling, we have enclosed the following data pursuant to Rule 303(C)(2)(a through j):*

1. *Exxon's name and address:*

   *Exxon Corporation*
   *1700 West Broadway*
   *Andrews, TX 79714*

2. *Lease name, well number, well location, and name of pools to be commingled:*

   *New Mexico "V" State No. 1, 660' FSL, 66o' FWL, Section 10, T-21-S, R-37-E, Lea County, New Mexico. Pools to be commingled: Blinebry and Drinkard. Authorization to dually complete-Order No. R-1264.*

3. *A plat of the area showing the acreage dedicated to the well and the ownership of all offsetting leases: Attached.*

4. *A 24-hour productivity test on Division Form C-116 showing the amount of oil, gas, and water produced from each zone: Attached.*

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: Attached.*

6. *A current bottomhole pressure for each zone capable of flowing:*

   *Estimated BHP - Blinebry 869# based on measured BHP in the N.M. "V" State #7, a direct offset. Estimated BHP - Drinkard 753#, based on arithmetic average of measured BHP']s in the N.M. "V" State #'s 3 and 6, offset wells. Common datum - mid perfs of Blinebry (5780').*

   *BHP Bomb data are attached.*

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

   *See attached hydrocarbon analysis. The Blinebry gas analysis is from the N.M. "V: State #7 and the Drinkard gas analysis is from the N.M. "V" State #6, both are offset wells. Exxon has commingled these fluids at the surface and has encountered no incompatibility problems.*

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: Attached.*

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 a formula:*

*Blinebry Pool:* *Oil Allocation* = $\left[\frac{5e^{-(0.0744)t}}{9e^{-(0.0838)t}} + 1\right]^{-1} = 0.6188$

*Gas Allocation* = $\left[\frac{62e^{-(0.2205)t}}{100e^{-(0.1540)t}} + 1\right]^{-1} = 0.7702$

*Where t = time between January 1, 1975 and January 1, 1986 = 11 years*

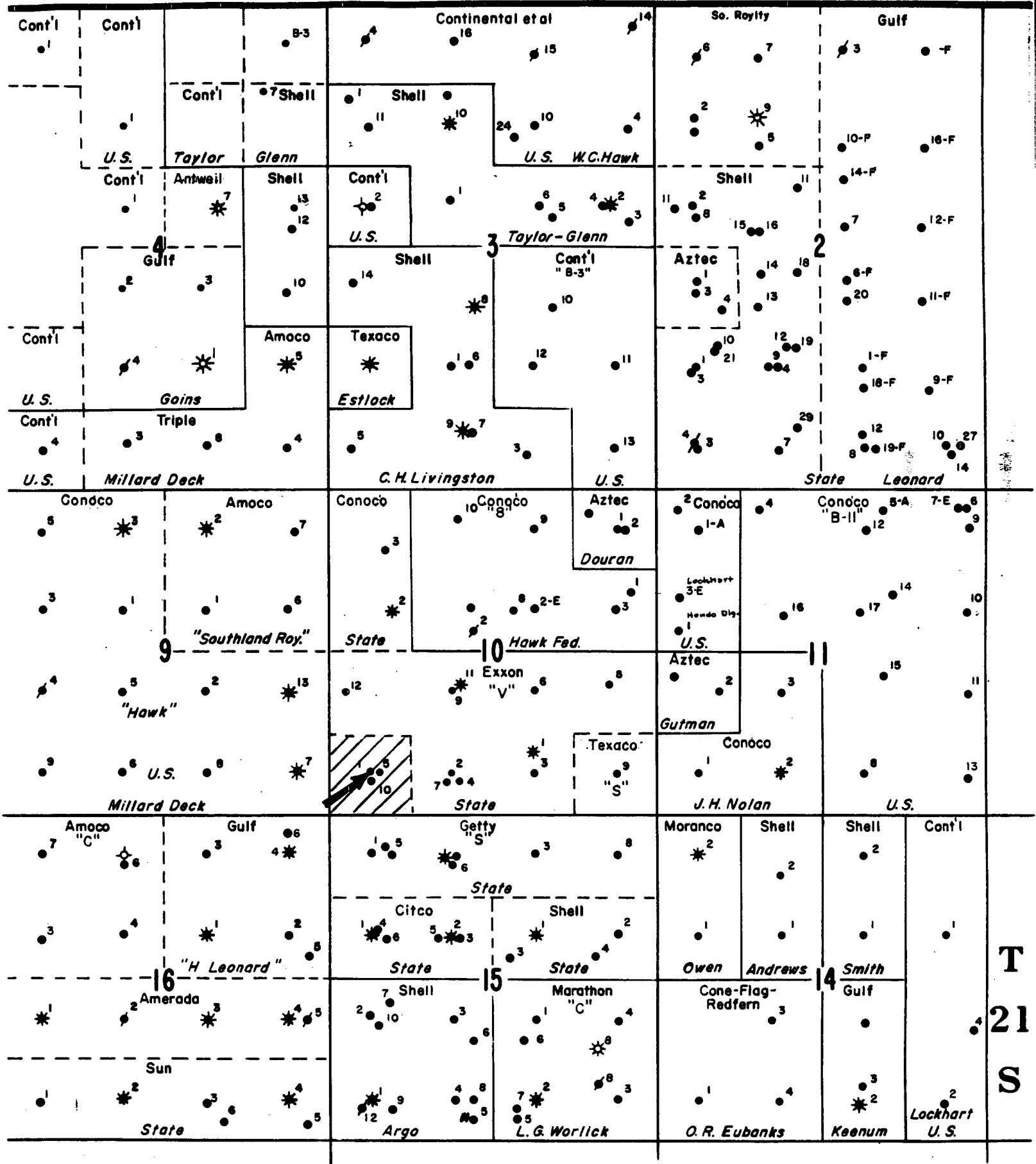
*Drinkard Pool:* *Oil Allocation = 1 - Blinebry Oil Allocation = 0.3812*
*Gas Allocation = 1 - Blinebry Gas Allocation = 0.2298*

*Computations of the production allocations to each zone are attached.*

10. *A statement that all offset operators and, in case of a well on Federal land, the United States Geological Survey, has been notified in writing of the proposed commingling:*

*All offset operators (list attached) have been notified by copy of this application.*

# R 37 E




## ACREAGE DEDICATED TO THE N.M. "V" STATE #1

116-0057E

# INDIVIDUAL WELL TEST REPORT

*DO NOT WRITE IN SHADED AREAS – DIVISION OFFICE USE ONLY*

DATE 8-31-85

LEASE N.M. "V" STATE

TYPE TEST G.O.R.

FIELD DRINKARD

METHOD OF PRODUCTION (CHECK ONE) ☐ PUMP ☒ FLOW ☐ GAS LIFT

WELL NO. 1

CAL DAY ALLOW.

SCHED. DAY ALLOW.

ARTIFICAL LIFT (CHECK ONE) ☐ CENT. ☐ ROD ☐ PLUNGER ☐ HYD. ☐ KOBE ☐ OTHER

PRIME MOVER (CHECK ONE) ☐ GAS ENG. ☐ ELEC. ☐ OTHER

## FORS TAG INFORMATION

| KP ONLY | RCD TYPE | BATT. | SUB BATT. | ITEM | ZONE | ITEM | COMPLETION NUMBER SEQ. CODE | COMPLETION NUMBER WELL NO. | ITEM | DSC | ITEM | TEST DATE MO | TEST DATE DAY | TEST DATE YR | ITEM | ELAPSED TEST TIME HRS | ELAPSED TEST TIME MIN | ITEM | STATUS | METHOD | TYPE TEST | ITEM | ALLOW TYPE | ITEM | DAYS OFF PROD. | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 4 5 | 6 7 8 | 9 10 | | 11 12 | | 13 14 | 15 16 17 18 | | 19 | | 20 21 | 22 23 | 24 25 | | 26 27 | 28 29 | | 30 | 31 | 32 33 | | 34 35 | | 36 37 38 | |
| A 0 1 | 1 6 | | | | | | | | | | + 00 | 8 | 31 | 85 | + 01 | | | + 02 | | | | + 03 | | + 04 | | + 05 |

## PUMPING WELLS ONLY

| LENGTH OF STROKE | ITEM | STROKES PER MINUTE | ITEM | PUMP SIZE INCHES | ITEM | TIME PUMPED DURING TEST HRS | TIME PUMPED DURING TEST MIN | ITEM |
|---|---|---|---|---|---|---|---|---|
| 39 40 41 42 43 | | 44 45 46 47 | | 48 49 50 51 | | 52 53 | 54 55 | |
| | + 06 | . | + 07 | . | + 08 | | | + 09 |

## OIL OR GAS WELL PRODUCTION

| KP ONLY | TEST OIL OR CONDENSATE (BBLS) | ITEM | TOTAL FLUID (BBLS) | ITEM | TEST WATER (BBLS) | ITEM | OIL OR COND. GRAV. | ITEM | OIL OR COND. TEMP. | ITEM | FLUID CHOKE SIZE | ITEM | TUBING PRESSURE | ITEM | BEGINNING CASING PRESSURE | ITEM | ENDING CASING PRESSURE | ITEM | TRAP PRESSURE | ITEM | SHUT-IN WELLHEAD PRESSURE | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 30 31 | | 32 33 34 35 36 37 | | 38 39 40 41 42 43 | | 44 45 46 | | 47 48 49 50 | | 51 52 53 54 | | 55 56 57 58 59 | | 60 61 62 63 64 | | 65 66 67 68 69 | | 70 71 72 73 74 | | 75 76 77 78 79 80 | |
| A 0 2 | . | + 10 | . | + 11 | . | + 12 | . | + 13 | | + 14 | | + 15 | | + 16 | | + 17 | | + 18 | | + 19 | | + 20 |

## OUTPUT GAS OR GAS WELL DATA

*ENTER EITHER ITEM 30 THRU ITEM 35 OR ITEM 36 & 37*

| KP ONLY | LINE SIZE | ITEM | PLATE SIZE | ITEM | SPRING SIZE | ITEM | DIFF. RANGE | ITEM | AVG. RED (DIFF) | ITEM | AVG. BLUE (STAT) | ITEM | OUTPUT GAS VOLUME (MCF) | ITEM | GAS GRAV. | ITEM | ART. LIFT | ITEM | PRIME MOVER | ITEM | HIS COM-MENTS | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 | | 30 31 32 33 | | 34 35 36 37 | | 38 39 40 41 | | 42 43 | | 44 45 | | 46 47 48 49 50 | | 51 52 53 | | 54 | | 55 | | 56 57 | |
| A 0 3 | . | + 30 | . | + 31 | | + 32 | | + 33 | . | + 34 | . | + 35 | . | + 36 | . | + 37 | | + 38 | | + 39 | | + 40 |

This zone Dead

## INPUT GAS LIFT DATA

*GAS LIFT CHOKE DATA*

*ENTER EITHER ITEM 54 THRU 59 OR ITEM 60*

| KP ONLY* | INTER-MITTER TIME HRS | INTER-MITTER TIME MIN | ITEM | INTER-MITTER INTERVAL HRS | INTER-MITTER INTERVAL MIN | ITEM | INPUT LINE PRESSURE | ITEM | CHOKE SIZE | ITEM | LINE SIZE | ITEM | PLATE SIZE | ITEM | SPRING SIZE | ITEM | DIFF. RANGE | ITEM | AVG. RED (DIFF) | ITEM | AVG. BLUE (STAT) | ITEM | GAS LIFT VOLUME (MCF) | ITEM | CONTROL TOTAL OR | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 | | | 30 31 32 33 | | | 34 35 36 37 38 | | 39 40 41 42 | | 43 44 45 46 | | 47 48 49 50 | | 51 52 53 54 | | 55 56 57 58 59 | | 60 61 | | 62 63 | | 64 65 66 67 68 | | 69 70 71 72 73 74 75 76 77 | |
| A 0 4 | | + 50 | | | | + 51 | | + 52 | | + 53 | . | + 54 | . | + 55 | | + 56 | | + 57 | . | + 58 | . | + 59 | | + 60 | | + |

*FOR DISTRICT USE ONLY*

### HIS COMMENTS

CODES – 1-20 (LOOK AT FOR IMMEDIATE ACTION)
1 - Well going to water
2 - Well going high GOR
3 - Well flows and dies
4 - Rapid decrease in production
5 - Need to raise allowable
6 - Suspected well response
7 - Suspected tubing or casing leak
8 - Pump not operating properly
9 - Production restricted by surface facilities.

CODES – 21-40 INFORMATION
21 - Well shut in; tested for information
22 - Flows by heads
23 - Flowing on intermitter
24 - Well pumps down
25 - High fluid level
26 - FRW test after workover
27 - Test after well work
28 - Test after hot oil treatment
29 - Suspected non-representative test

### TYPE TEST

CODES –

| OIL | GAS |
|---|---|
| 1 - Scheduled GO-2 | 50 - Initial G-2 |
| 2 - Special GO-2 | 51 - Routine G-2 |
| 3 - Routine GO-2 | 52 - Special G-2 |
| 4 - Potential or Repotential | 53 - Routine G-3 |
| 5 - Allocation | 54 - Special G-3 |
| 6 - Information | 55 - Routine G-4 |
| 7 - Monthly GO-2 | 56 - Special G-4 |
| | 57 - Information |

### ALLOWABLE TYPE

CODES –
1 - Prorated
2 - Exempt
3 - Marginal
5 - Discovery

### CHOKES

CODES –
7 - P
8 - X

### METHOD OF PROD

CODES –
1 - Flow
2 - Pump
3 - Gas Lift
4 - Gas Well-Wet
5 - Gas Well-Dry

### ARTIFICIAL LIFT

CODES –
1 - Centrifical
2 - Rod Pump
3 - Plunger
4 - Hydraulic
5 - Kobe
6 - Other

### PRIME MOVER

CODES –
1 - Gas Engine
2 - Electric Motor
3 - Other

SIGNATURE Ed Cellar

116-0057E

# INDIVIDUAL WELL TEST REPORT

*DO NOT WRITE IN SHADED AREAS – DIVISION OFFICE USE ONLY*

DATE 8-31-85

LEASE: N.M. "J" STATE

TYPE TEST: G.O.R.

FIELD: Blinebry Oil

METHOD OF PRODUCTION (CHECK ONE): ☐ PUMP ☑ FLOW ☐ GAS LIFT

WELL NO.: 1

CAL DAY ALLOW.:

SCHED. DAY ALLOW.:

ARTIFICAL LIFT (CHECK ONE): ☐ CENT. ☐ ROD ☐ PLUNGER ☐ HYD. ☐ KOBE ☐ OTHER

PRIME MOVER (CHECK ONE): ☐ GAS ENG. ☐ ELEC. ☐ OTHER

## FORS TAG INFORMATION

## PUMPING WELLS ONLY

| KP ONLY | RCD TYPE | BATT. | SUB BATT. | ITEM | ZONE | ITEM | COMPLETION NUMBER: SEQ. CODE | COMPLETION NUMBER: WELL NO. | ITEM | DSC | ITEM | TEST DATE: MO | TEST DATE: DAY | TEST DATE: YR | ITEM | ELAPSED TEST TIME: HRS | ELAPSED TEST TIME: MIN | ITEM | STATUS | METHOD | TYPE TEST | ITEM | ALLOW TYPE | ITEM | DAYS OFF PROD. | ITEM | LENGTH OF STROKE | ITEM | STROKES PER MINUTE | ITEM | PUMP SIZE: INCHES | ITEM | TIME PUMPED DURING TEST: HRS | TIME PUMPED DURING TEST: MIN | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 4 5 | 6 7 8 | 9 10 | | 11 12 | | 13 14 15 | 16 17 18 | | 19 | | 20 21 | 22 23 | 24 25 | | 26 27 | 28 29 | | 30 | 31 | 32 33 | | 34 35 | | 36 37 38 | | 39 40 41 42 43 | | 44 45 46 47 | | 48 49 50 51 | | 52 53 | 54 55 | |
| A 0 1 | 1 6 | | | – | | – | | | + | | + 00 | 8 | 31 | 85 | + 01 | | | + 02 | | | | + 03 | | + 04 | | + 05 | + 06 | | + 07 | | + 08 | | + 09 |

## OIL OR GAS WELL PRODUCTION

| KP ONLY | TEST OIL OR CONDENSATE (BBLS) | ITEM | TOTAL FLUID (BBLS) | ITEM | TEST WATER (BBLS) | ITEM | OIL OR COND. GRAV. | ITEM | OIL OR COND. TEMP. | ITEM | FLUID CHOKE SIZE | ITEM | TUBING PRESSURE | ITEM | BEGINNING CASING PRESSURE | ITEM | ENDING CASING PRESSURE | ITEM | TRAP PRESSURE | ITEM | SHUT-IN WELLHEAD PRESSURE | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 30 31 | | 32 33 34 35 36 37 | | 38 39 40 41 42 43 | | 44 45 46 | | 47 48 49 50 | | 51 52 53 54 | | 55 56 57 58 59 | | 60 61 62 63 64 | | 65 66 67 68 69 | | 70 71 72 73 74 | | 75 76 77 78 79 80 | |
| A 0 2 | . | + 10 | . | + 11 | . | + 12 | . | + 13 | | + 14 | | + 15 | | + 16 | | + 17 | | + 18 | | + 19 | | + 20 |

## OUTPUT GAS OR GAS WELL DATA

*ENTER EITHER ITEM 30 THRU ITEM 35 OR ITEM 36 & 37*

| KP ONLY | LINE SIZE | ITEM | PLATE SIZE | ITEM | SPRING SIZE | ITEM | DIFF. RANGE | ITEM | AVG. RED (DIFF) | ITEM | AVG. BLUE (STAT) | ITEM | OUTPUT GAS VOLUME (MCF) | ITEM | GAS GRAV. | ITEM | ART. LIFT | ITEM | PRIME MOVER | ITEM | HIS COM-MENTS | ITEM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 | | 30 31 32 33 | | 34 35 36 37 | | 38 39 40 41 | | 42 43 | | 44 45 | | 46 47 48 49 50 | | 51 52 53 | | 54 | | 55 | | 56 57 | |
| A 0 3 | . | + 30 | . | + 31 | | + 32 | | + 33 | . | + 34 | . | + 35 | | + 36 | . | + 37 | | + 38 | | + 39 | | + 40 |

This zone Dead

## INPUT GAS LIFT DATA

*GAS LIFT CHOKE DATA*

*ENTER EITHER ITEM 54 THRU 59 OR ITEM 60*

| KP ONLY | INTER-MITTER TIME: HRS | INTER-MITTER TIME: MIN | ITEM | INTER-MITTER INTERVAL: HRS | INTER-MITTER INTERVAL: MIN | ITEM | INPUT LINE PRESSURE | ITEM | CHOKE SIZE | ITEM | LINE SIZE | ITEM | PLATE SIZE | ITEM | SPRING SIZE | ITEM | DIFF. RANGE | ITEM | AVG. RED (DIFF) | ITEM | AVG. BLUE (STAT) | ITEM | GAS LIFT VOLUME (MCF) | ITEM | CONTROL TOTAL | + OR – |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 | 26 27 28 29 | | | 30 31 32 33 | | | 34 35 36 37 38 | | 39 40 41 42 | | 43 44 45 46 | | 47 48 49 50 | | 51 52 53 54 | | 55 56 57 58 59 | | 60 61 | | 62 63 | | 64 65 66 67 68 | | 69 70 71 72 73 74 75 76 77 | |
| A 0 4 | | | + 50 | | | + 51 | | + 52 | | + 53 | . | + 54 | . | + 55 | | + 56 | | + 57 | . | + 58 | . | + 59 | | + 60 | | |

FOR DISTRICT USE ONLY

### HIS COMMENTS

CODES – 1-20 (LOOK AT FOR IMMEDIATE ACTION)
1 - Well going to water
2 - Well going high GOR
3 - Well flows and dies
4 - Rapid decrease in production
5 - Need to raise allowable
6 - Suspected well response
7 - Suspected tubing or casing leak
8 - Pump not operating properly
9 - Production restricted by surface facilities

CODES – 21-40 INFORMATION
21 - Well shut in, tested for information
22 - Flows by heads
23 - Flowing on intermitter
24 - Well pumps down
25 - High fluid level
26 - FRW test after workover
27 - Test after well work
28 - Test after hot oil treatment
29 - Suspected non-representative test

### TYPE TEST

CODES –

| OIL | | GAS | |
|---|---|---|---|
| 1 - Scheduled | GO-2 | 50 - Initial | G-2 |
| 2 - Special | GO-2 | 51 - Routine | G-2 |
| 3 - Routine | GO-2 | 52 - Special | G-2 |
| 4 - Potential or Repotential | | 53 - Routine | G-3 |
| | | 54 - Special | G-3 |
| 5 - Allocation | | 55 - Routine | G-4 |
| 6 - Information | | 56 - Special | G-4 |
| 7 - Monthly | GO-2 | 57 - Information | |

### ALLOWABLE TYPE

CODES –
1 - Prorated
2 - Exempt
3 - Marginal
5 - Discovery

### CHOKES

CODES –
7 - P
8 - X

### METHOD OF PROD.

CODES –
1 - Flow
2 - Pump
3 - Gas Lift
4 - Gas Well-Wet
5 - Gas Well-Dry

### ARTIFICIAL LIFT

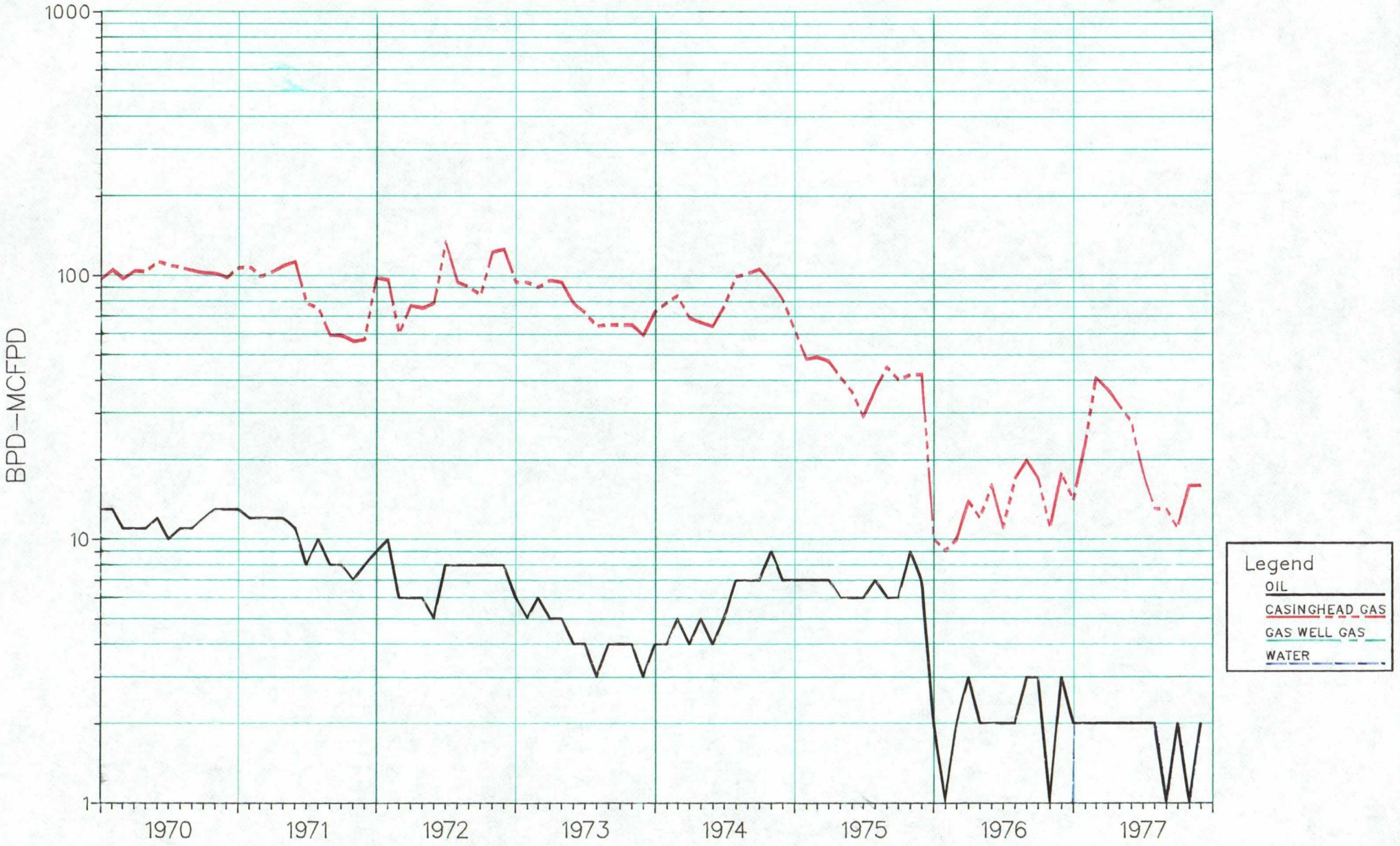
CODES –
1 - Centrifical
2 - Rod Pump
3 - Plunger
4 - Hydraulic
5 - Kobe
6 - Other

### PRIME MOVER

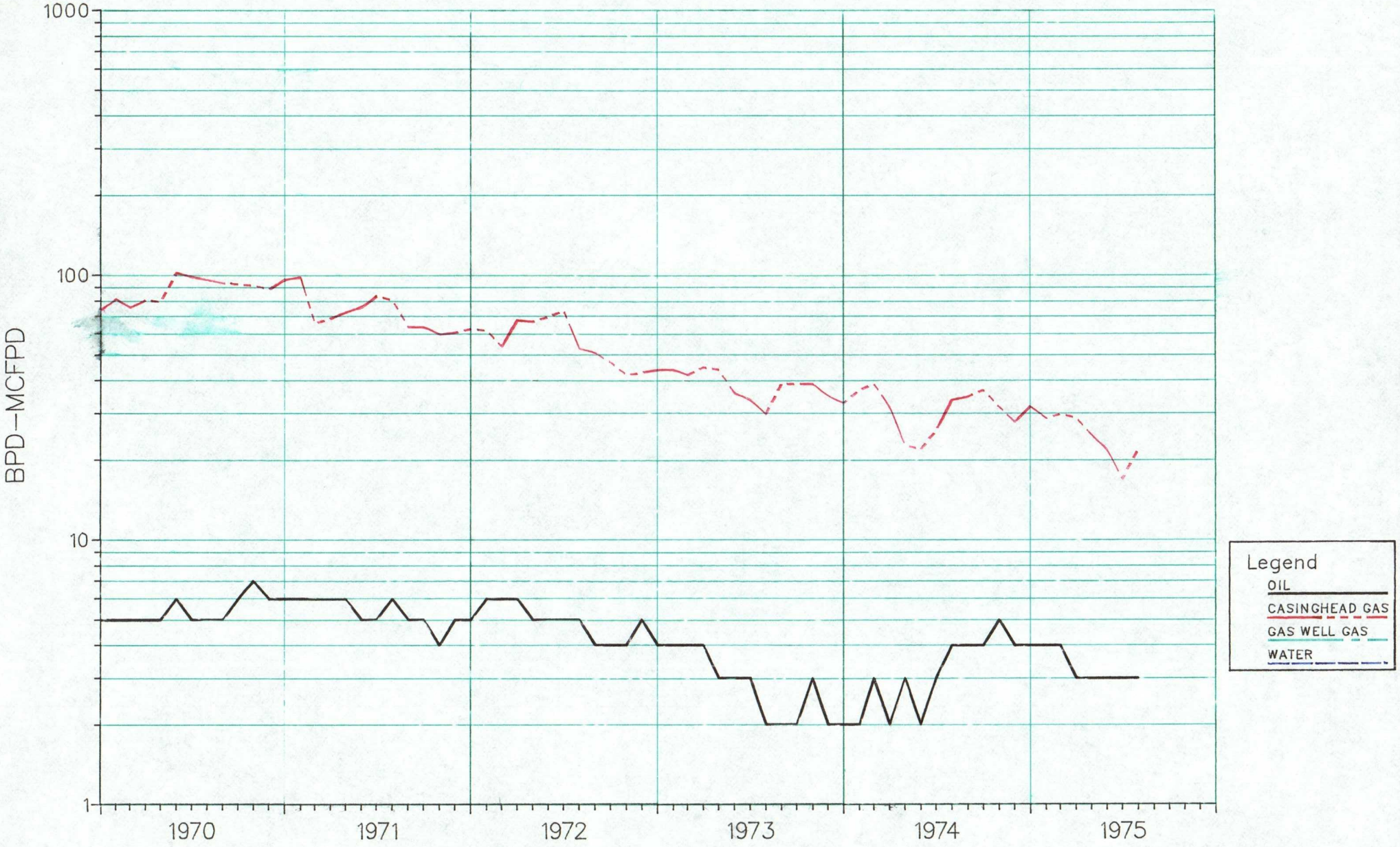
CODES –
1 - Gas Engine
2 - Electric Motor
3 - Other

SIGNATURE Ed Kellam

# V STATE #1 BLINEBRY



# V STATE #1 DRINKARD



# JARREL SERVICES, INC.

POST OFFICE BOX 1654 PHONES 505 393-5396 — 393-8274

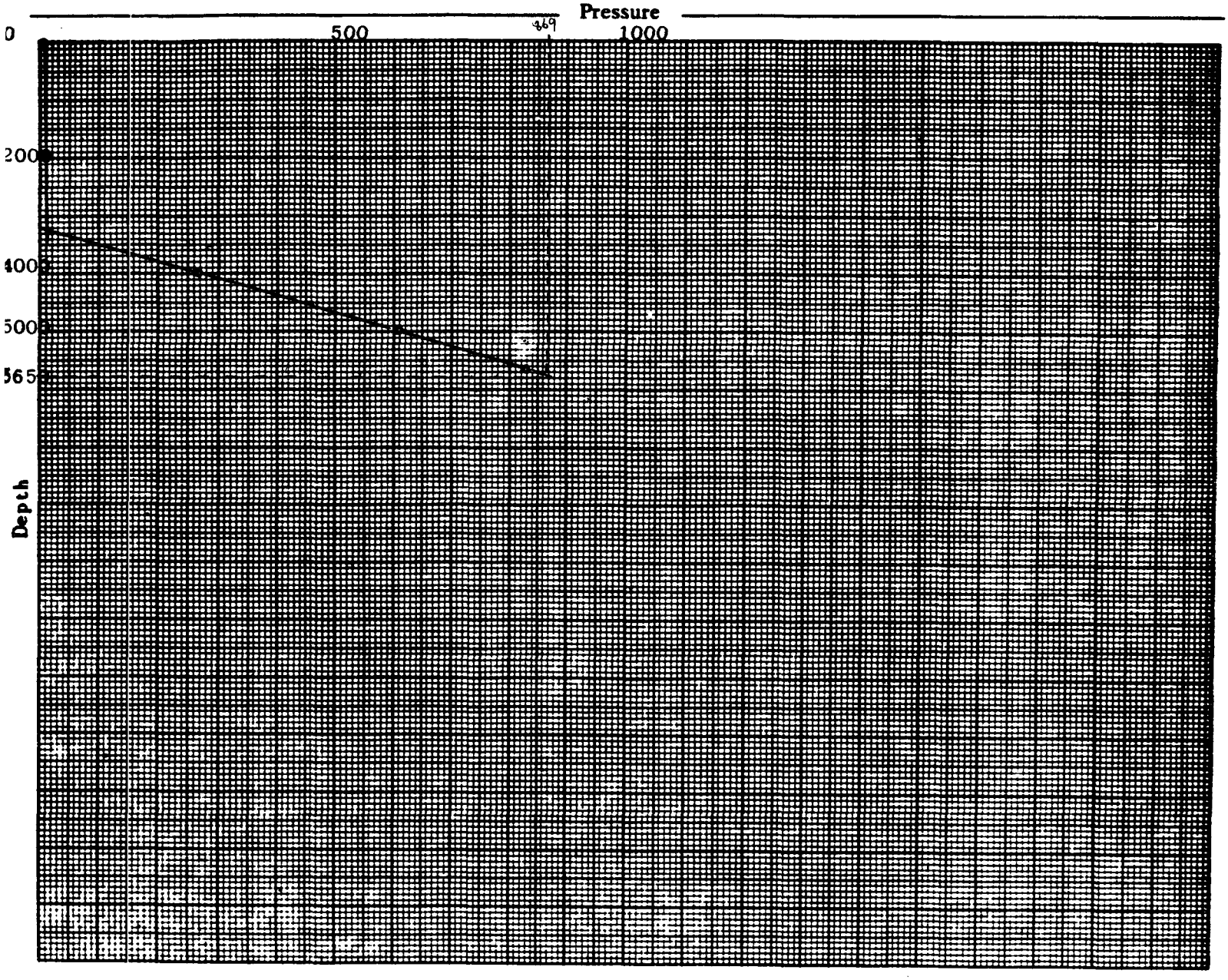
HOBBS, NEW MEXICO 88240

OPERATOR Exxon Company USA
FIELD B-D-T
FORMATION Blinebry
LEASE New Mexico V State WELL No. 7
COUNTY Lea STATE New Mexico
DATE 8/13/85 TIME 4:00 PM
Status Shut in
Test Depth 5650'
Time S. I. 7 days Last test date -
Tub Pres. 7 BHP last test -
Cas. Pres. PKR BHP change -
Elev. 3469 'RDB Fluid top 3245'
Datum (-2334)** Water top None
Temp. @ - Run by JSI #13
Cal. No. 42254 Chart No. 4

## BOTTOM HOLE PRESSURE RECORD

| Depth | | Pressure | Gradient |
|---|---|---|---|
| 0 | | 7 | - |
| 2000 | | 9 | .001 |
| 4000 | | 267 | .129 |
| 5000 | | 607 | .340 |
| 5650 | | 824 | .334 |
| 5803 | (-2334) | 875 * ** | (.334) |

* EXTRAPOLATED PRESSURE
** MIDPOINT OF CASING PERFORATIONS



# JARREL SERVICES, INC.

POST OFFICE BOX 1654 PHONES 505 393-5396 — 393-8274

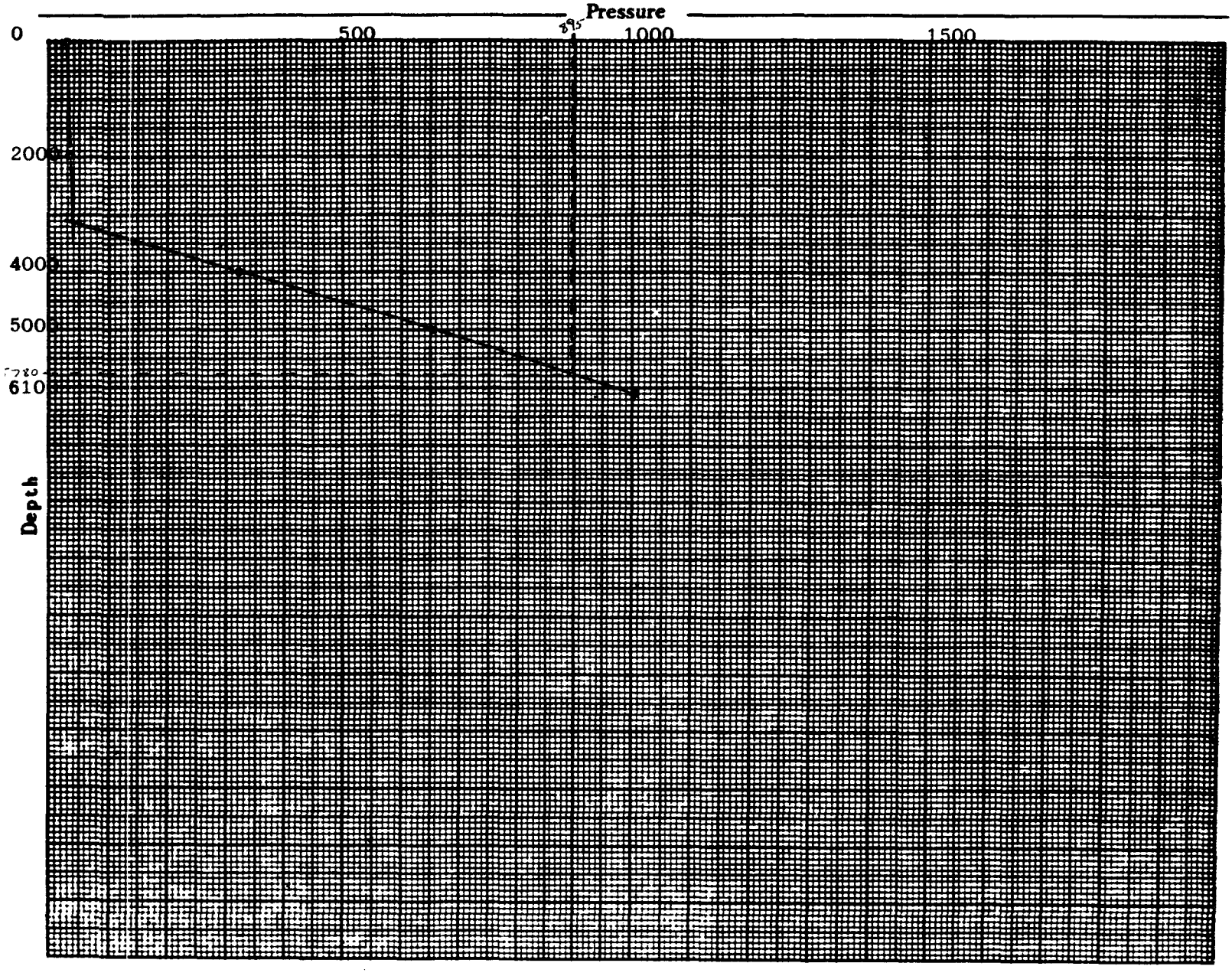
HOBBS, NEW MEXICO 88240

OPERATOR Exxon Company USA
FIELD B-D-T
FORMATION Drinkard
LEASE New Mexico V State WELL No. 3
COUNTY Lea STATE New Mexico
DATE 8/14/85 TIME 11:00 AM
Status Shut in
Test Depth 6100'
Time S. I. 7 days Last test date -
Tub Pres. 29 BHP last test -
Cas. Pres. Dual BHP change -
Elev. 3463'DF Fluid top 3136'
Datum (-3026)* Water top None
Temp. @ - Run by JSI #13
Cal. No. 42254 Chart No. 6

## BOTTOM HOLE PRESSURE RECORD

| Depth | | Pressure | Gradient |
|---|---|---|---|
| 0 | | 29 | - |
| 2000 | | 33 | .002 |
| 4000 | | 322 | .145 |
| 5000 | | 654 | .332 |
| 6100 | | 1002 | .316 |
| 6489 | (-3026) | 1125 * ** | (.316) |

* EXTRAPOLATED PRESSURE
** MIDPOINT OF CASING PERFORATIONS



# JARREL SERVICES, INC.

POST OFFICE BOX 1654 PHONES 505 393-5396 — 393-8274

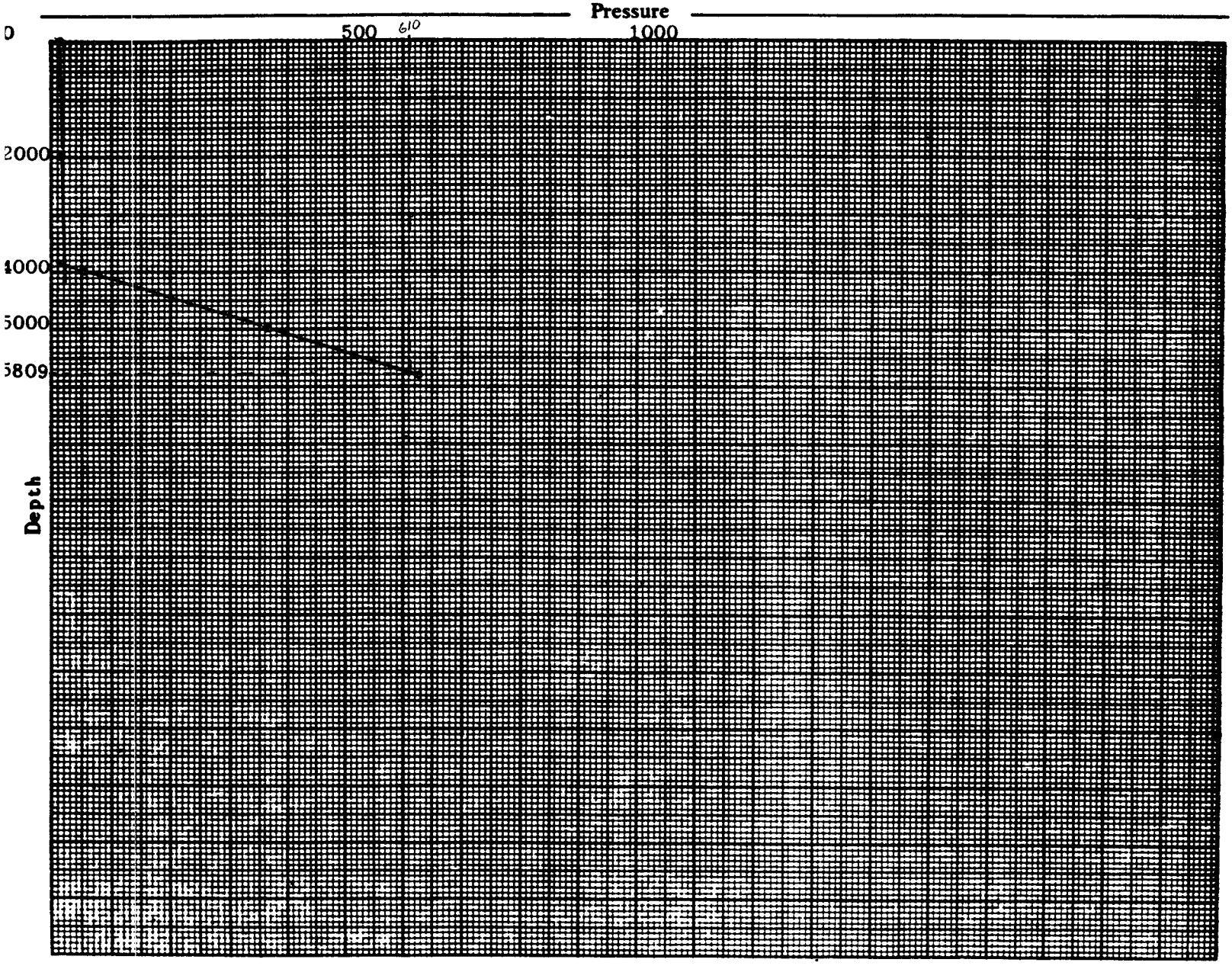
HOBBS, NEW MEXICO 88240

OPERATOR Exxon Company USA
FIELD B-D-T
FORMATION Drinkard
LEASE New Mexico V State WELL No. 6
COUNTY Lea STATE New Mexico
DATE 8/13/85 TIME 12:00 N
Status Shut in
Test Depth 5809' +
Time S. I. 7 days Last test date -
Tub Pres. 13 BHP last test -
Cas. Pres. Dual BHP change -
Elev. 3465'RDB Fluid top 3868'
Datum (-3133)** Water top None
Temp. @ - Run by JSI #13
Cal. No. 42254 Chart No. 3

## BOTTOM HOLE PRESSURE RECORD

| Depth | Pressure | Gradient |
|---|---|---|
| 0 | 13 | - |
| 2000 | 16 | .002 |
| 4000 | 51 | .018 |
| 5000 | 364 | .313 |
| 5809 + | 627 | .325 |
| 6598 (-3133) | 883 * ** | (.325) |

\+ HIT OBSTRUCTION
* EXTRAPOLATED PRESSURE
** MIDPOINT OF CASING PERFORMATIONS



NEW-TEX LAB

PHONE 505/393-3561 • P. O. BOX 1161 • 611 W. SNYDER • HOBBS, NEW MEXICO 88240

# ANALYSIS CERTIFICATE

CLIENT: EXXON COMPANY USA
ADDRESS: 1700 W BROADWAY
CITY, STATE: ANDREWS, TX 79714

ANALYSIS NUMBER: 7810
DATE OF RUN: 8 12 85
DATE SECURED: 8 12 85

SAMPLE IDENT: "V" STATE #7 - BLINEBRY ZONE
SAMPLING PRESS:20 PSIG SAMPLING TEMP:93 DEG F

REMARKS: WELL SHUT IN INDEFINITE TIME;

REMARKS: H2S - NONE DETECTED

********* GAS ANALYSIS *********

| | MOLE PERCENT | GAL/ MCF |
|---|---|---|
| NITROGEN | 0.979 | |
| CARBON DIOXIDE | 0.000 | |
| METHANE | 84.547 | |
| ETHANE | 8.174 | 2.180 |
| PROPANE | 3.417 | 0.938 |
| ISO-BUTANE | 0.381 | 0.124 |
| NORMAL BUTANE | 0.972 | 0.306 |
| ISO-PENTANE | 0.286 | 0.105 |
| NORMAL PENTANE | 0.329 | 0.119 |
| HEXANES | 0.915 | 0.375 |
| TOTAL | 100.000 | 4.147 |

PROPANE GPM: 0.94 BUTANES GPM: 0.43
ETHANE GPM: 2.18 PENTANES PLUS GPM: 0.60

SPECIFIC GRAV (CALC): 0.6853
MOLE WEIGHT: 19.85

| HHV-BTU/CU FT PRESSURE (PSIA) | WET | DRY |
|---|---|---|
| 14.696 | 1177 | 1198 |
| 14.650 | 1173 | 1194 |
| 14.730 | 1180 | 1201 |
| 14.735 | 1180 | 1201 |

DEANE SIMPSON

NEW-TEX LAB

PHONE 505/393-3561 • P. O. BOX 1161 • 611 W. SNYDER • HOBBS, NEW MEXICO 88240

# ANALYSIS CERTIFICATE

CLIENT: EXXON COMPNY USA
ADDRESS: 1700 W BROADWAY
CITY, STATE: ANDREWS, TX 79714

ANALYSIS NUMBER: 7807
DATE OF RUN: 8 12 85
DATE SECURED: 8 12 85

SAMPLE IDENT: "V" STATE #6 - DRINKARD ZONE
SAMPLING PRESS:25 PSIG SAMPLING TEMP:93 DEG F

REMARKS: WELL SHUT IN INDEFINITE TIME; BLINEBRY
REMARKS: ZONE - NO CONNECTION
REMARKS: H2S - NONE DETECTED

********** GAS ANALYSIS **********

| | MOLE PERCENT | GAL/ MCF |
|---|---|---|
| NITROGEN | 1.030 | |
| CARBON DIOXIDE | 0.069 | |
| METHANE | 85.818 | |
| ETHANE | 8.500 | 2.267 |
| PROPANE | 2.949 | 0.810 |
| ISO-BUTANE | 0.264 | 0.086 |
| NORMAL BUTANE | 0.745 | 0.234 |
| ISO-PENTANE | 0.138 | 0.051 |
| NORMAL PENTANE | 0.176 | 0.064 |
| HEXANES | 0.311 | 0.128 |
| TOTAL | 100.000 | 3.640 |

PROPANE GPM: 0.81 BUTANES GPM: 0.32
ETHANE GPM: 2.27 PENTANES PLUS GPM: 0.24

SPECIFIC GRAV (CALC): 0.6572
MOLE WEIGHT: 19.03

| HHV-BTU/CU FT PRESSURE (PSIA) | WET | DRY |
|---|---|---|
| 14.696 | 1132 | 1152 |
| 14.650 | 1128 | 1148 |
| 14.730 | 1135 | 1155 |
| 14.735 | 1135 | 1155 |

DEANE SIMPSON

*Estimated Effects on the Value of*
*Total Production from Proposed*
*Down Hole Commingling*[1]

*New Mexico "V" State #1*

*Before Down Hole Commingling*

| | BPD Oil Volume | Oil Price | MCF/Day Gas Volume | Gas Price | Daily Oil and Gas Value |
|---|---|---|---|---|---|
| Blinbry | 0 | N/A | 0 | N/A | 0 |
| Drinkard | 0 | N/A | 0 | N/A | 0 |
| | | | | | $0 |

*After Down Hole Commingling*

| BPD Oil Volume | Oil Price | MCF/Day Gas Volume | Gas[2] Price | Daily Oil And Gas Value | Difference in Daily Value |
|---|---|---|---|---|---|
| 45 | 27.86 | 600 | .84 | 1757.70 | |
| | | | | $1757.70 | $1757.70 |

1. *Production volumes and prices based on September 1985 data*

2. *If gas split between two purchasers-assumed lower price prevails after commingling.*

## Allocation of Oil Production To Each Zone

Equations Used:

Decline Rates (1) $q = q_i e^{-at}$

(2) $a_n = \frac{\ln (q_i/q)}{t}$

$a_n$ = nominal decline, per yr.
$q_i$ = initial rate, kcf/Day
$q$ = later rates, kcf/Day
$t$ = time between rates, yrs.

Decline Rate Computaions:

Blinebry Zone

$q_i$ = 9 BOPD
$q$ = 7 BOPD
$t$ = 3 years

$a_n = \frac{\ln (9/7)}{3}$

$a_n$ (Blinebry) = 0.0838/yr

Drinkard Zone

$q_i$ = 5 BOPD
$q$ = 4 BOPD
$t$ = 3 years

$a_n = \frac{\ln (5/4)}{3}$

$a_n$ (Drinkard) = 0.0744/yr

Actual Allocations:

$x_b$ = Blinebry Allocation, fraction.
$x_d$ = Drinkard Allocation, fraction.
$q_b$ = Blinebry rate, BOPD.
$q_d$ = Drinkard rate, BOPD.
$q_{bi}$ = Blinebry initial rate, BOPD.
$q_{di}$ = Drinkard initial rate, BOPD.

$$x_b = \frac{q_b}{q_d + q_b}$$

Substituting eq. (1)

$$x_b = \frac{q_{bi}e^{-a_b t}}{q_{di}e^{-a_d t} + q_{bi}e^{-a_b t}} = \left[\frac{q_{di}e^{-a_d t}}{q_{bi}e^{-a_b t}} + 1\right]^{-1}$$

$q_{bi}$ = 9 BOPD
$a_n$ (Blinebry) = 0.0838/yr.

$q_{di}$ = 5 BOPD
$a_n$ (Drinkard) = 0.0744/yr.

$$x_b = \left[\frac{5e^{-(0.0744)t}}{9e^{-(0.0838)t}} + 1\right]^{-1}$$

$$x_d = 1 - x_b$$

Where $t$ = time between January, 1975 and current date, years.

## Allocation Of Gas Production To Each Zone

Decline rate computations:

### Blinebry Zone

$q_i$ = 100 kcf/Day
$q$ = 63 kcf/Day
$t$ = 3 years

$$a_n = \frac{\ln (100/63)}{3}$$

$a_n$ (Blinebry) = 0.1540/yr.

### Drinkard Zone

$q_i$ = 62 kcf/Day
$q$ = 32 kcf/Day
$t$ = 3 years

$$a_n = \frac{\ln (62/32)}{3}$$

$a_n$ (Drinkard) = 0.2205/yr.

Actual Allocation:

$q_{bi}$ = 100 kCF/Day
$a_n$ (Blinebry) = 0.1540/yr.

$q_{di}$ = 62 kCF/Day
$a_n$ = 0.2205/yr.

$$x_b = \left[\frac{q_{di}e^{-a_d t}}{q_{bi}e^{-a_b t}} + 1\right]^{-1}$$

$$x_b = \left[\frac{62e^{-(0.2205)t}}{100e^{-(0.1540)t}} + 1\right]^{-1}$$

$$x_d = 1 - x_b$$

Where $t$ = time between January 1, 1975 and current date, years.

OFFSET OPERATORS
TO EXXON'S N.M. "V" STATE LEASE
LEA COUNTY, NEW MEXICO

Conoco
P. O. Box 1959
Midland, Texas 79702

Aztec Energy Corp.
1206 E. 20th St.
Farmington, New Mexico 87401

Bravo Energy Inc.
P. O. Box 2160
Hobbs, New Mexico 88240

Texaco Producing Inc.
P. O. Box 3000
Tulsa, Oklahoma 74101

Chevron U.S.A., Inc.
Attn: J. C. Prindle
P. O. Box 670
Hobbs, New Mexico 88240

Amoco
P. O. Box 3092
Houston, Texas 77253

STATE OF NEW MEXICO

# ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

December 31, 1985

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88240
(505) 393-6161

RECEIVED
JAN 03 1986
OIL CONSERVATION DIVISION
SANTA FE

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:
MC_____
DHC X
NSL_____
NSP_____
SWD_____
WFX_____
PMX_____

Gentlemen:

I have examined the application for the:

| Exxon Corp. | New Mexico V State | No. 1-M | 10-21-37 |
|---|---|---|---|
| Operator | Lease & Well No. | Unit | S-T-R |

and my recommendations are as follows:

I don't think allocation factors should be set on data 10 yrs. old. I would recommend one zone be tested then the allocation factor set----J.S.

Yours very truly,

Jerry Sexton
Supervisor, District 1

/mc