



NEW MEXICO ENERGY, MINERALS  
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505  
(505) 827-7131

December 15, 1997

Conoco Inc.  
10 Desta Drive, Suite 100W  
Midland, TX 79705-4500  
Attention: Jerry Hoover

Administrative Order TX-278

Dear Mr. Hoover:

Reference is made to your request for an exception to the tubing setting requirements as contained in Division Rule 107 (j) for the below-named well.

Pursuant to the authority granted me by Rule 107 (d) (4), you are hereby authorized to make a tubingless completion and utilize a casing plunger system in the following well:

Well Name, Number and Location:

Ohio Well No. 1, API No. 30-045-07375, Unit C, Section 22, Township 28 North, Range 11 West, NMPM, San Juan County, New Mexico.

The Division reserves the right to rescind this authority in the event that waste appears to be resulting therefrom.

Sincerely,

A handwritten signature in black ink, appearing to read "William J. LeMay", written over a horizontal line.

William J. LeMay  
Director

WJL/RJ/kv

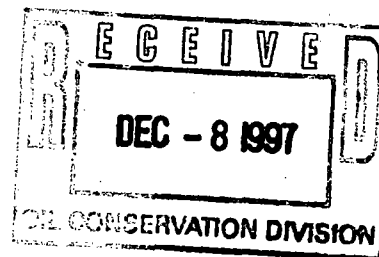
cc: Oil Conservation Division - Aztec

PV2V2005731151



Where's the Return  
Address - Cheap\*!?!/!

December 4, 1997



3-15-97

Mr. Roy Johnson  
New Mexico Oil Conservation Division  
2040 S. Pacheco  
Santa Fe, New Mexico 87505

Re: Application for Tubingless Exception to Rule 107  
for the Ohio No. 1 Basin Dakota Well  
API #30-045-7375, 790' FNL & 1700' FWL, Sec. 22  
Township 28N, Range 11W, San Juan County *Just C*

Dear Mr. Johnson:

An exception to Rule 107, requiring this well to be produced with tubing, is requested, in order to increase producing rate efficiency and maximize recovery from this well. The purpose for removing the tubing from this well is to allow the use of a new innovative casing plunger that allows continuous gas flow while at the same time automatically lifting produced oil and water volumes.

Whereas requests and applications for tubingless completions have typically been for newer, high rate gas wells in an effort to reduce the flow restrictions of tubing, this well is a marginal low rate producer whose production has been restricted by fluid loading. In 1996 this well averaged only 86 mcfgpd due to fluid loading and down time. The well produces about .25 BW and 2 BO per day which is sufficient to cause fluid loading and interrupt gas flow. It was producing through 1.66 " tubing in a 4 1/2" casing string in an attempt to overcome this. Traditional operating strategy for this well would have been to install a tubing plunger and 2 3/8 " tubing to keep the produced fluids pumped off.

However, the discovery of a new innovative casing plunger that was developed and successfully used in the State of Ohio appeared to offer a more efficient producing solution for this well. This tool, which is new to the San Juan Basin, and its potential benefits were discussed with Frank Chavez and Ernie Busch of the Aztec OCD District Office with a request to remove the tubing and initiate a test of this casing plunger in the Ohio No. 1. Verbal approval to begin the experimental testing of a casing plunger in this well was granted.

The casing plunger works much the same as a tubing plunger to lift fluid from gas wells. However, casing plungers can lift more fluid with less differential pressure due to their increased surface area. They can also travel back to the bottom of the wellbore against continuous gas flow through an internal bypass valve. The traditional tubing plunger requires a shut-in period while the plunger returns to the bottom and waits for sufficient pressure to build

up to allow the plunger to travel to the surface again with a smaller load of fluid. Therefore casing plungers should provide more efficient flow than tubing plungers by lifting more fluid with less energy and not requiring shut-in periods.

The installation and testing of the casing plunger in this well has resulted in an increase in gas production to 170 mcfgpd. This successful test shows great promise for application in the San Juan Gas Basin to fully optimize and economically produce the many mature and depleted gas wells beyond what is possible with current available methods.

A complete well history, two wellbore schematics, production curves, produced volumes for the last two years, and pressure data are attached. Production curves include only data prior to installation of the casing plunger while all other history and diagrams reflect its installation. A photograph of the casing plunger compared to a tubing plunger (shown on the tailgate of a pickup) and a close-up of the plunger are included for your viewing.

To configure the wellbore for use with the casing plunger the production tubing was removed and the casing pressure tested for leaks. The casing was in good shape and no leaks were found. The plunger would not operate if there had been any leaks or bad sections in the casing. The casing was then checked for drift, a casing scraper run to clean out the interior casing surface, and then re-pressure tested.

Downhole a collar stop and casing plunger catcher was installed in the first collar above the top perforation (refer to the first wellbore schematic). At the surface, the wellhead was configured with a plunger catcher and a bypass with an automated controller as shown in the third attached photograph. The plunger is automatically dropped when a fluid loading problem is detected by the surface controller while allowing continuous gas flow through its internal bypass valve.

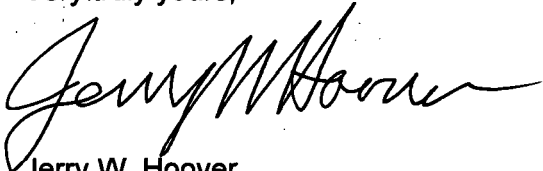
When the plunger bumps the bottom collar stop, the internal bypass valve is closed allowing building gas pressure below the plunger to lift it and the accumulated fluid to the surface. The plunger consists of two rubber cups which swab the casing and a metal body including the internal bypass valve (See close-up photograph). However, there should be no detectable casing wear since there is no metal to metal contact between the tool and the casing.

Historically Dakota completions across the basin have not experienced significant corrosion of casing or other downhole equipment which is expected to be the case in this well. If a casing string withstands the cleanout operations required to run a casing plunger and still passes a pressure test, it should be expected to maintain integrity through the life of casing plunger operations. In any event, if corrosion or a casing leak were to occur, it would quickly be evident from the operation (or lack of operation) of the plunger. A smooth, clean wellbore is required for its proper operation.

The successful test of this new innovative approach (at least to San Juan) for increasing the producing efficiency and ultimate recovery of mature depleted gas wells has been done under the authority and encouragement of the Aztec OCD District Office. We are now requesting an exception to Rule 107 to allow this tubingless operation to continue on a permanent basis.

If there are any further questions concerning this application, please contact either Mr. Busch or myself at (915) 686-6548.

Very truly yours,

A handwritten signature in black ink, appearing to read "Jerry W. Hoover". The signature is fluid and cursive, with a long horizontal stroke at the end.

Jerry W. Hoover  
Sr. Conservation Coordinator

cc: Mr. Ernie Busch, Aztec District OCD Office

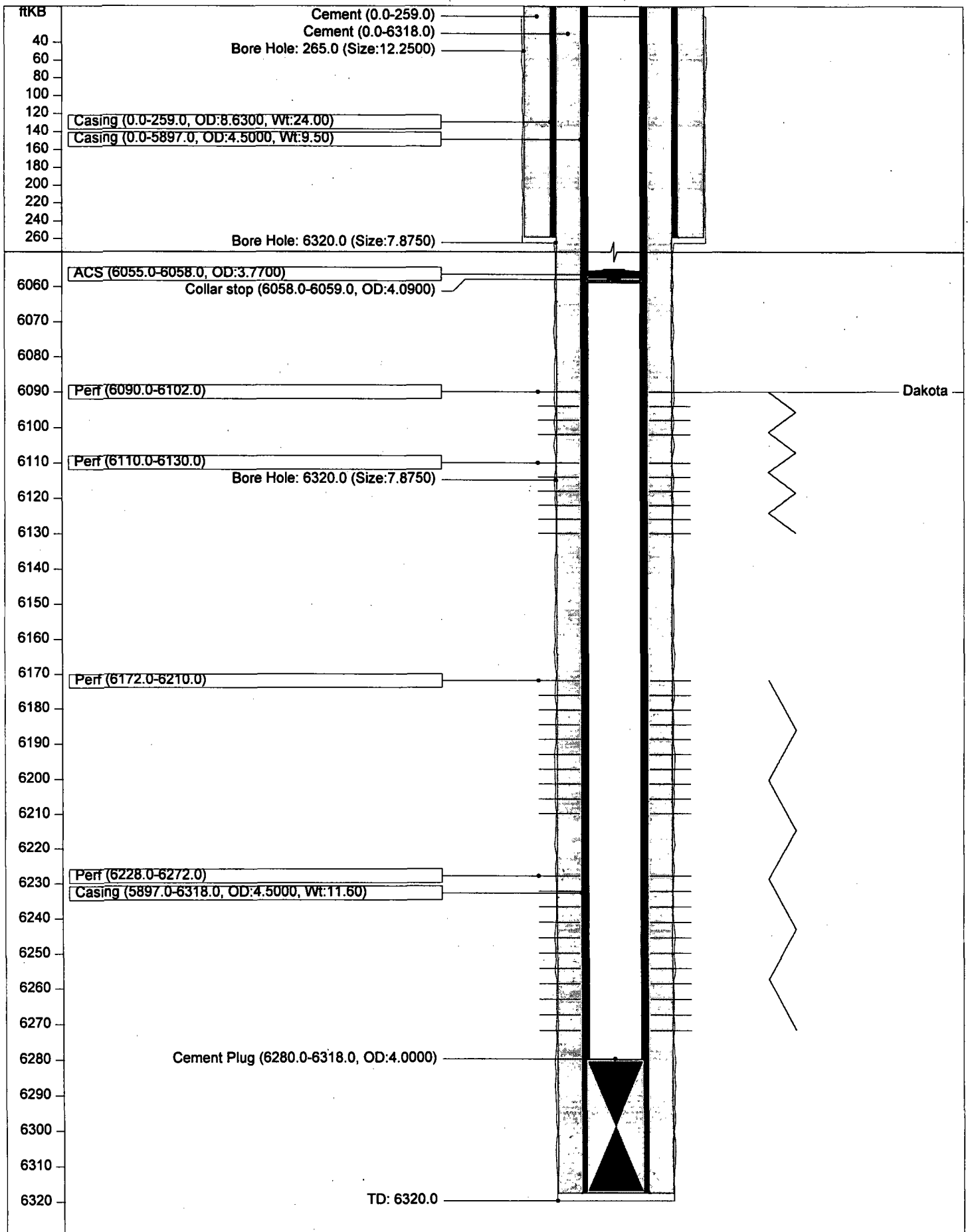
## OHIO 1 (FarmRCB11/24/97)

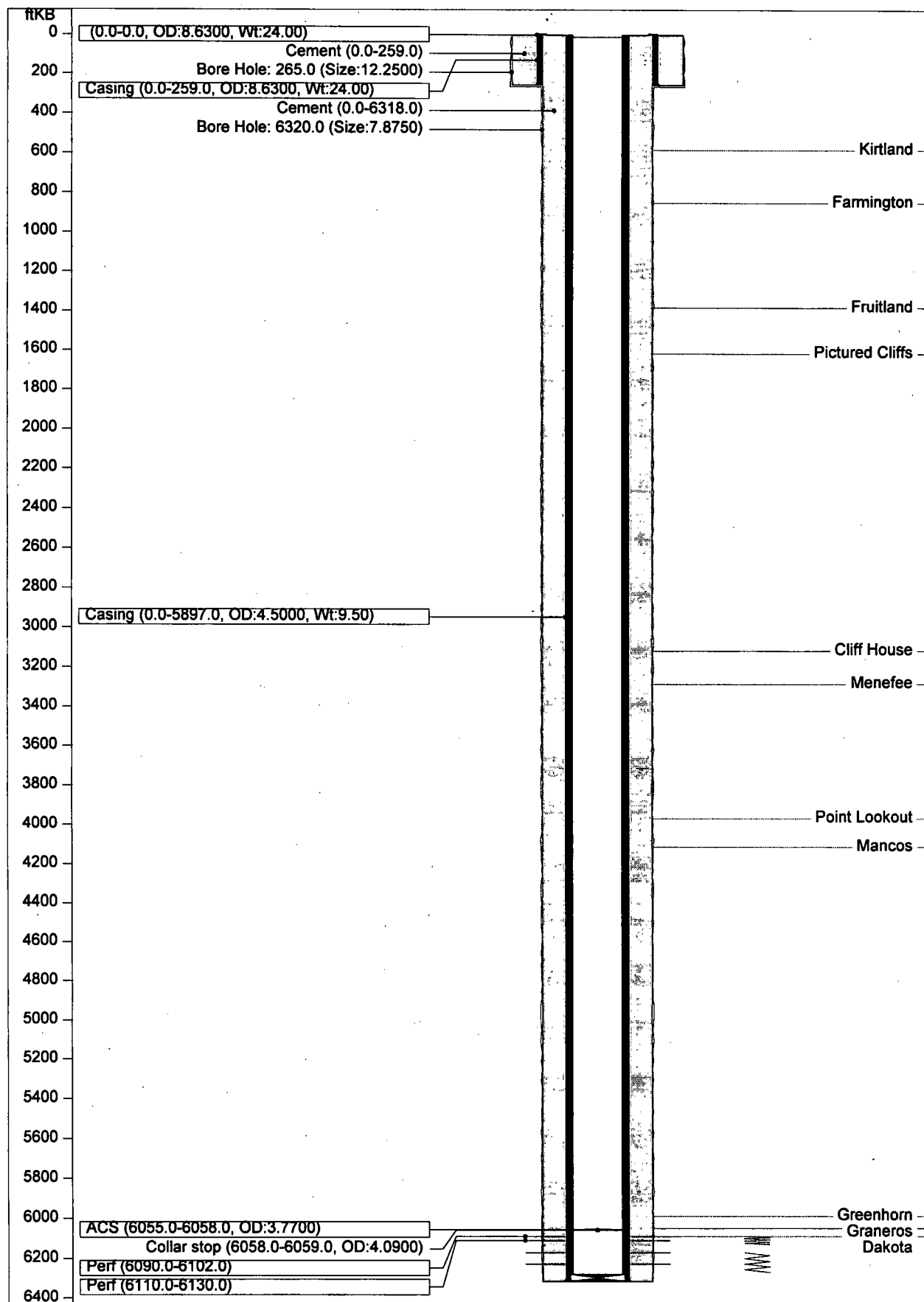
| OHIO 1 (FarmRCB11/24/97)                        |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
|-------------------------------------------------|------------------------------------------|--------------------------------------|-------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------|
| API Code                                        | 300450737500                             |                                      |                                                       | Field Code       | 676383130                                                                                                    |             |                                     |
| TD                                              | 6320.0 ftKB                              |                                      |                                                       | Basin            | SAN JUAN BASIN                                                                                               |             |                                     |
| PBTD                                            | 6280.0 ftKB                              |                                      |                                                       | Basin Code       | 580                                                                                                          |             |                                     |
| State                                           | New Mexico                               |                                      |                                                       | Permit           | 02-Mar-60                                                                                                    |             |                                     |
| County                                          | SAN JUAN                                 |                                      |                                                       | Spud             | 10-Mar-60                                                                                                    |             |                                     |
| District                                        | San Juan O.U.                            |                                      |                                                       | Finish Drl       | 27-Mar-60                                                                                                    |             |                                     |
| Permit No.                                      |                                          |                                      |                                                       | Completion       | 07-Apr-60                                                                                                    |             |                                     |
| TD Measured                                     | 6320 ftKB                                |                                      |                                                       | Abandon          |                                                                                                              |             |                                     |
| Reservoir                                       | Dakota                                   |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Field                                           | BASIN DK                                 |                                      |                                                       |                  |                                                                                                              |             |                                     |
| <b>Location</b>                                 |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Meridian                                        | NM                                       |                                      |                                                       | Top Latitude     | 36.65274                                                                                                     |             |                                     |
| Township                                        | 28N                                      |                                      |                                                       | Top Longitude    | 107.9938                                                                                                     |             |                                     |
| Range                                           | 11W                                      |                                      |                                                       | Top NS Distance  | 790.0 ft N                                                                                                   |             |                                     |
| Section                                         | 22                                       |                                      |                                                       | Top EW Distance  | 1700.0 ft W                                                                                                  |             |                                     |
| Quarter                                         | NE NW                                    |                                      |                                                       | Bottom Latitude  | 0                                                                                                            |             |                                     |
|                                                 |                                          |                                      |                                                       | Bottom Longitude | 0                                                                                                            |             |                                     |
|                                                 |                                          |                                      |                                                       | Btm NS Distance  | 0.0 ft                                                                                                       |             |                                     |
|                                                 |                                          |                                      |                                                       | Btm EW Distance  | 0.0 ft                                                                                                       |             |                                     |
| <b>Elevations</b>                               |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| KB                                              | 5640.0 ft                                |                                      |                                                       | Cas Flng         | 0.0 ft                                                                                                       |             |                                     |
| Grd                                             | 5629.0 ft                                |                                      |                                                       | Tub Head         | 0.0 ft                                                                                                       |             |                                     |
| KB-Grd                                          | 11.0 ft                                  |                                      |                                                       |                  |                                                                                                              |             |                                     |
| <b>Bore Hole Data</b>                           |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
|                                                 | Depth<br>(ftKB)                          |                                      |                                                       | Size<br>(in)     |                                                                                                              |             |                                     |
|                                                 | 265.0                                    |                                      |                                                       | 12.2500          |                                                                                                              |             |                                     |
|                                                 | 6320.0                                   |                                      |                                                       | 7.8750           |                                                                                                              |             |                                     |
| <b>Casing String - Surface Casing</b>           |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Item<br>(in)                                    | Btm<br>(ftKB)                            | Jnts                                 | ID                                                    | Wt               | Grd                                                                                                          | Thd         | Comments                            |
| 8.6300 in Casing                                | 259.0                                    | 8                                    | 8.1000                                                | 24.00            | J-55                                                                                                         | 8rd<br>ST&C |                                     |
| 8.6300 in                                       | 0.0                                      |                                      | 8.1000                                                | 24.00            | J-55                                                                                                         | 8rd<br>ST&C |                                     |
| <b>Casing String - Production Casing</b>        |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Item<br>(in)                                    | Btm<br>(ftKB)                            | Jnts                                 | ID                                                    | Wt               | Grd                                                                                                          | Thd         | Comments                            |
| 4.5000 in Casing                                | 5897.0                                   | 182                                  | 4.0900                                                | 9.50             | J-55                                                                                                         | 8rd<br>ST&C |                                     |
| 4.5000 in Casing                                | 6318.0                                   | 13                                   | 4.0000                                                | 11.60            | J-55                                                                                                         | 8rd<br>ST&C |                                     |
| 3.7700 in ACS                                   | 6058.0                                   |                                      | 4.0000                                                | 0.00             |                                                                                                              |             | Plunger type artificial lift device |
| <b>Casing Cement</b>                            |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Casing String                                   | Top<br>(ftKB)                            | Amount<br>(sx)                       | Comments                                              |                  |                                                                                                              |             |                                     |
| Surface Casing                                  | 0.0                                      | 150                                  | Cement circ                                           |                  |                                                                                                              |             |                                     |
| Production Casing                               | 0.0                                      | 325                                  | TOC unknown. DV @ 1771'. 1st stg 200sx, 2nd stg 125sx |                  |                                                                                                              |             |                                     |
| <b>Other (plugs, equip., etc.) - Plug Backs</b> |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Date                                            | Item                                     | Int<br>(ftKB)                        |                                                       | Comments         |                                                                                                              |             |                                     |
| 24-Nov-97                                       | Collar stop                              | 6058.0 - 6059.0                      |                                                       | for use with ACS |                                                                                                              |             |                                     |
| 31-Mar-60                                       | Cement Plug                              | 6280.0 - 6318.0                      |                                                       |                  |                                                                                                              |             |                                     |
| <b>Perforations</b>                             |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Date                                            | Int                                      | Shots<br>(/ft)                       | Comments                                              |                  |                                                                                                              |             |                                     |
| 01-Apr-60                                       | 6172.0 - 6210.0                          | 4.0                                  |                                                       |                  |                                                                                                              |             |                                     |
| 01-Apr-60                                       | 6228.0 - 6272.0                          | 2.0                                  | @ 6228-44, 6260-72                                    |                  |                                                                                                              |             |                                     |
| 02-Apr-60                                       | 6090.0 - 6102.0                          | 2.0                                  |                                                       |                  |                                                                                                              |             |                                     |
| 02-Apr-60                                       | 6110.0 - 6130.0                          | 4.0                                  |                                                       |                  |                                                                                                              |             |                                     |
| <b>Stimulations &amp; Treatments</b>            |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Date                                            | Type                                     | Zone                                 | Int                                                   | Fluid            | Comments                                                                                                     |             |                                     |
| 01-Apr-60                                       | Fracture                                 | Dakota                               | 6172.0 - 6272.0                                       | Water            | 62,284 G w/ 60,000# 20/40. Drop 100 BS in 3 stgs. BD @ 2100#, ATP=2600# @ 44.2 bpm, very little ball action. |             |                                     |
| 02-Apr-60                                       | Fracture                                 | Dakota                               | 6090.0 - 6130.0                                       | Water            | 34,800 G w/ 30,000# 20/40. Drop 30 BS. BD @ 3000#, ATP=2800# @ 47.5 bpm, no ball action.                     |             |                                     |
| <b>Completions &amp; Workovers</b>              |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Date                                            | Reason for<br>Workover                   | Summary                              |                                                       |                  |                                                                                                              |             |                                     |
| 14-Nov-97                                       | Remove tubing<br>prep for casing<br>swab | Remove tubing prep for casing swab - |                                                       |                  |                                                                                                              |             |                                     |
| <b>Formation/Horizon Tops</b>                   |                                          |                                      |                                                       |                  |                                                                                                              |             |                                     |
| Top<br>(ftKB)                                   | Formation                                |                                      |                                                       |                  |                                                                                                              |             |                                     |
| 584.0                                           | Kirtland                                 |                                      |                                                       |                  |                                                                                                              |             |                                     |
| 851.0                                           | Farmington                               |                                      |                                                       |                  |                                                                                                              |             |                                     |
| 1382.0                                          | Fruitland                                |                                      |                                                       |                  |                                                                                                              |             |                                     |

# OHIO 1 (FarmRCB11/24/97)

| Formation/Horizon Tops (con't) |                                                                                                                                                                       |                 |         |          |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|----------|
| Top<br>(ftKB)                  |                                                                                                                                                                       | Formation       |         |          |
| 1616.0                         |                                                                                                                                                                       | Pictured Cliffs |         |          |
| 3121.0                         |                                                                                                                                                                       | Cliff House     |         |          |
| 3288.0                         |                                                                                                                                                                       | Menefee         |         |          |
| 3970.0                         |                                                                                                                                                                       | Point Lookout   |         |          |
| 4115.0                         |                                                                                                                                                                       | Mancos          |         |          |
| 5990.0                         |                                                                                                                                                                       | Greenhorn       |         |          |
| 6050.0                         |                                                                                                                                                                       | Graneros        |         |          |
| 6090.0                         |                                                                                                                                                                       | Dakota          |         |          |
| Logs Run                       |                                                                                                                                                                       |                 |         |          |
| Date                           | Type                                                                                                                                                                  | Int             | Company | Comments |
| 27-Mar-60                      | IND                                                                                                                                                                   | 257.0 - 6316.0  | Welex   |          |
| General Notes                  |                                                                                                                                                                       |                 |         |          |
| Date                           | Note                                                                                                                                                                  |                 |         |          |
| 07-Apr-60                      | Initial Potential: 6720 MCF/24 hrs 3/4 in ck tbg SITP 2124 lb/8 days CAOF 9815 MCF, CP 2099 TP 2124                                                                   |                 |         |          |
| 24-Nov-97                      | Installed "Automatic Casing Swab" system. Brand name "Multi" Jet Star. Collar stop in Csg @ 6058". Initial runs look very good! 1st sys. like this in San Juan Basin. |                 |         |          |

OHIO 1 (FarmRCB11/24/97)



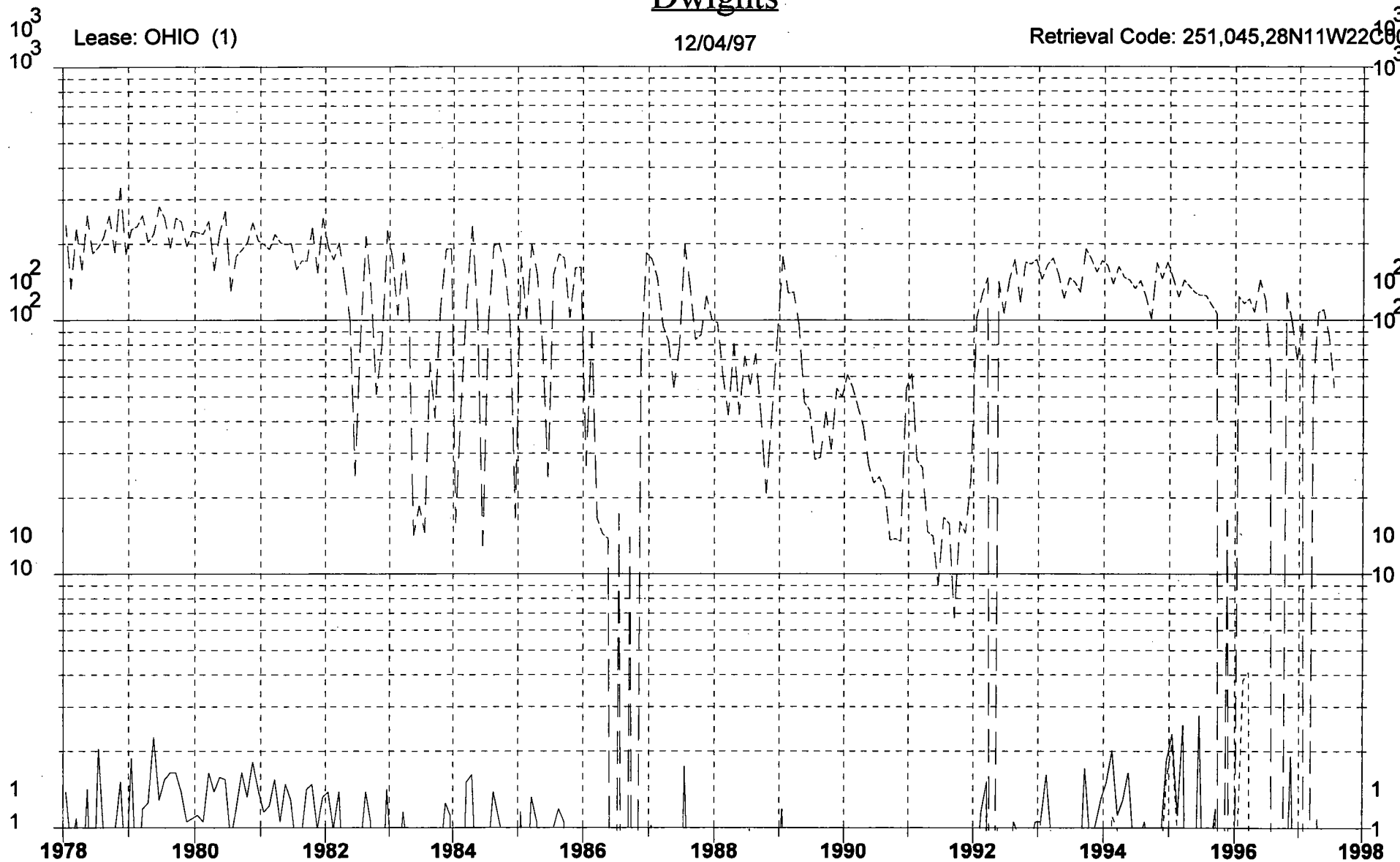


# Dwights

Lease: OHIO (1)

12/04/97

Retrieval Code: 251,045,28N11W22C80DK



Oil (bbl/day)

—

Water (bbl/day)

- - -

County: SAN JUAN, NM

F.P. Date: 04/61

Gas (mcf/day)

- - -

Field: BASIN (DAKOTA) DK

Oil Cum: 49.39 mbbl

Well Count

- - -

Reservoir: DAKOTA

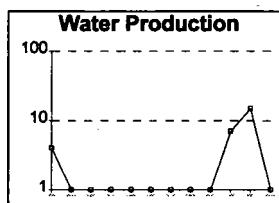
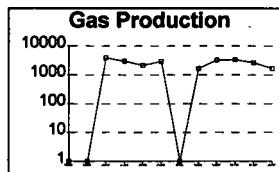
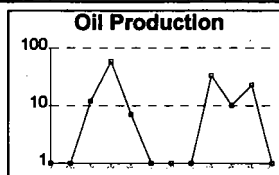
Gas Cum: 4300 mmcf

Operator: CONOCO INC

Location: 22C 28N 11W

|                              |                         |                   |
|------------------------------|-------------------------|-------------------|
| Lease: OHIO                  | Well #: 1               | FP Date: 61-04    |
| Field: BASIN (DAKOTA) DK     | Location: 22C 28N 11W   | LP Date: 97-07    |
| Operator: CONOCO INC         | Liquid Cum: 49,392 bbls | Liq Since: FPDATE |
| RCI #: 251,045,28N11W22C00DK | Gas Cum: 4,299,923 mcf  | Gas Since: FPDATE |
| API #: 30-045-07375-00       | Status: ACT GAS         |                   |

| DATE    | OIL, BBLs | GAS, MCF | WATER, BBLs | WELLS |
|---------|-----------|----------|-------------|-------|
| 08/1996 | 0         | 0        | 4           | 1     |
| 09/1996 | 0         | 0        | 0           | 1     |
| 10/1996 | 12        | 3,900    | 0           | 1     |
| 11/1996 | 58        | 3,013    | 0           | 1     |
| 12/1996 | 7         | 2,118    | 0           | 1     |
| 01/1997 | 0         | 2,941    | 0           | 1     |
| 02/1997 | 0         | 0        | 0           | 1     |
| 03/1997 | 0         | 1,654    | 0           | 1     |
| 04/1997 | 33        | 3,252    | 0           | 1     |
| 05/1997 | 10        | 3,345    | 7           | 1     |
| 06/1997 | 23        | 2,642    | 15          | 1     |
| 07/1997 | 0         | 1,649    | 0           | 1     |
| Total   | 143       | 24,514   | 26          |       |

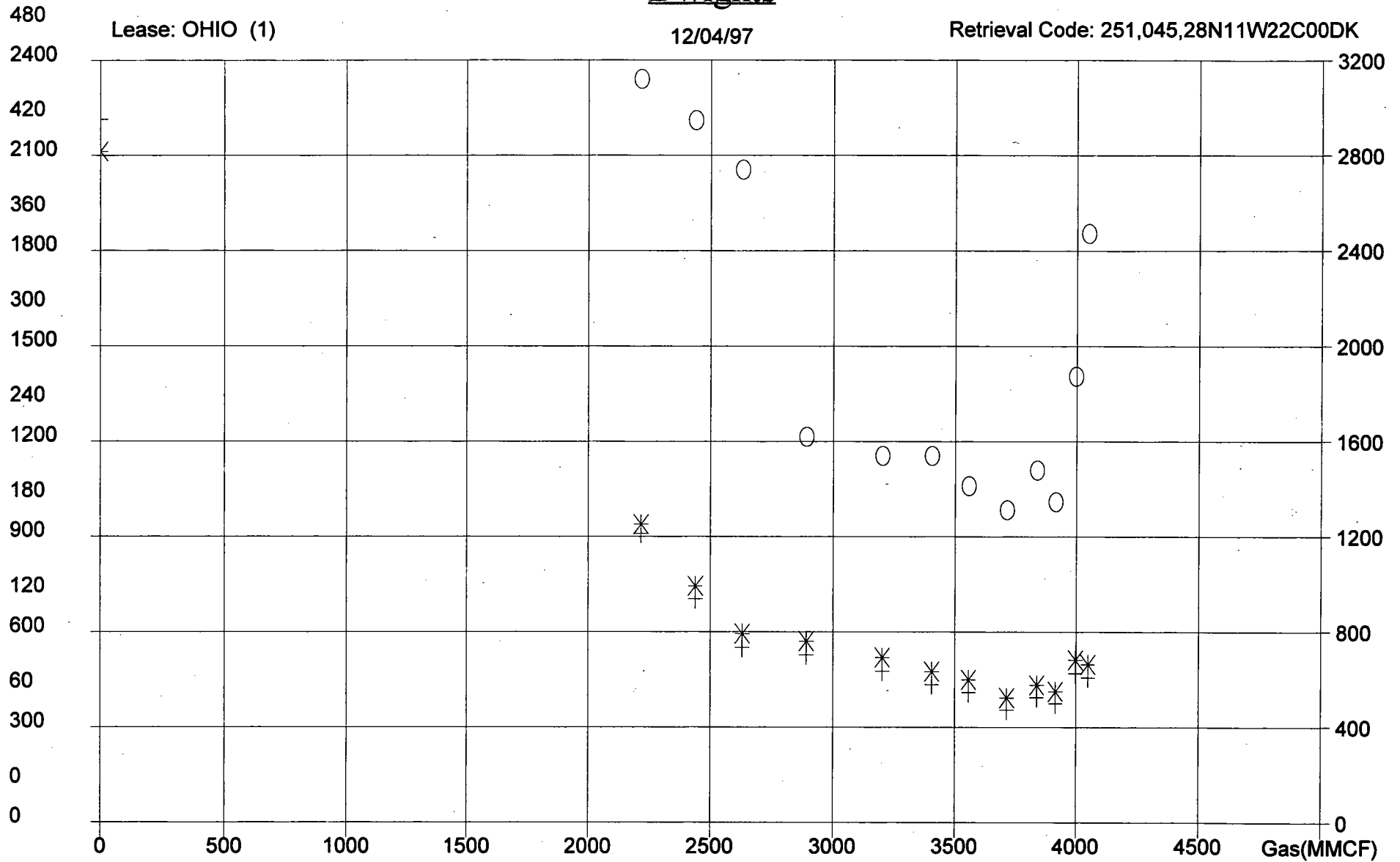


# Dwights

Lease: OHIO (1)

12/04/97

Retrieval Code: 251,045,28N11W22C00DK



WHSIP

\*

WHFP

○

County: SAN JUAN, NM

F.P. Date: 04/61

BHP/Z

+

Field: BASIN (DAKOTA) DK

Oil Cum: 49.39 mbbl

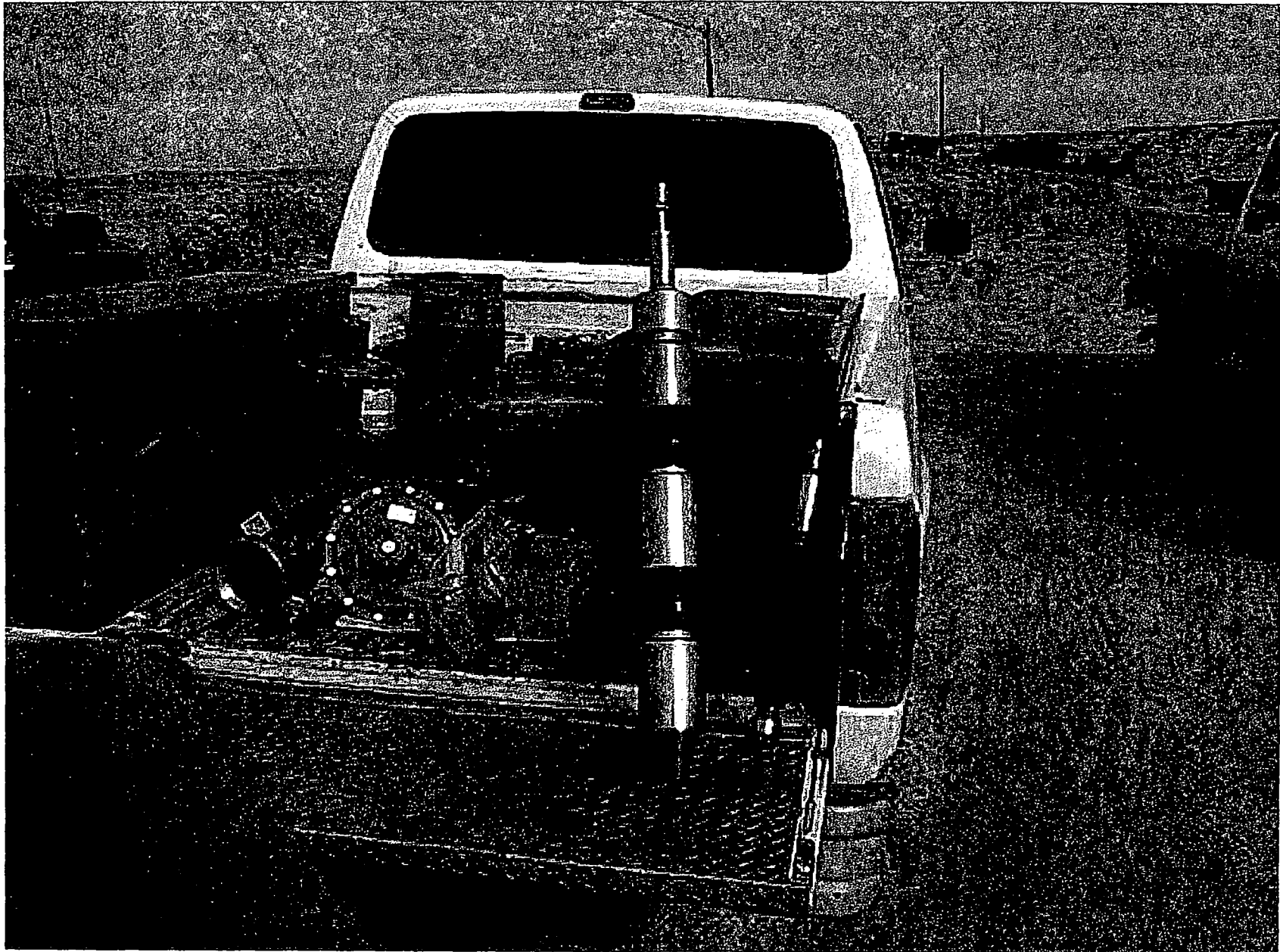
Reservoir: DAKOTA

Gas Cum: 4300 mmcf

Operator: CONOCO INC

Location: 22C 28N 11W

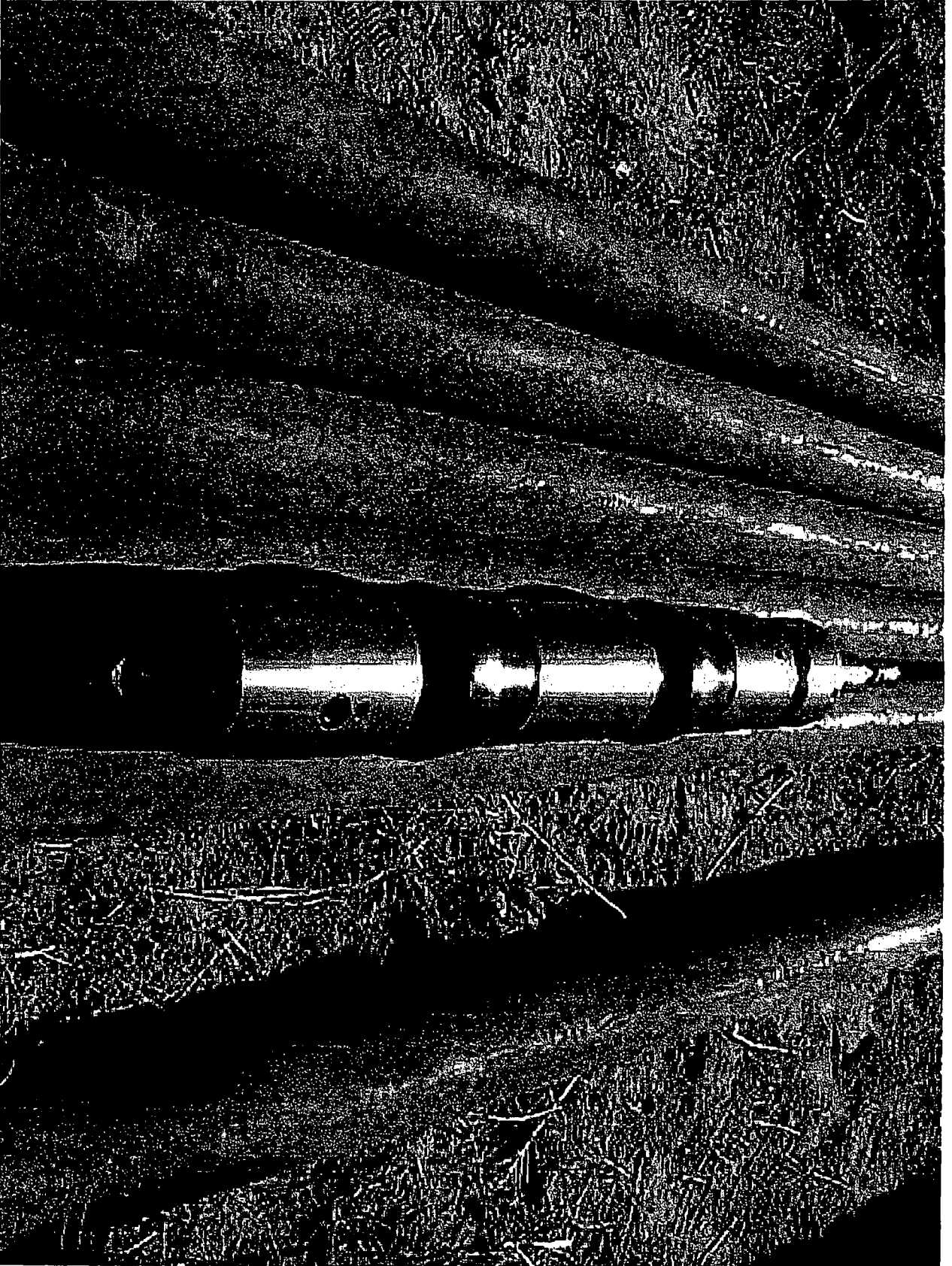
Cowoco Inc



COMPARISON 4" CASING PLUNGER ON LEFT (FOR 4½" Csg.)

2" TUBING PLUNGER ON RIGHT (FOR 2⅜" Tbg)

*Genoco Inc.*



*CASINO PLUNGER*

Conoco Inc.



WELL HEAD CONFIGURATION WITH CONTROLLER FOR  
CASING PLUNGER APPLICATION