# GEOLOGY OF THE PROPOSED

# FIVE MILE DRAW UNIT

# CHAVES COUNTY, NEW MEXICO

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October 1, 1984

PROPOSED FIVE MILE DRAW UNIT

Enclosures and Attachments:

Exhibit A.....Isolith Abo Sand

Exhibit B.....Cross Section A-A'

Exhibit C.....Cross Section B-B'

Exhibit D.....Cross Section C-C'

Exhibit E.....Unit Well #1 Prognosis

Exhibit F.....Current Well Cost

# GEOLOGICAL REPORT

## PROPOSED FIVE MILE DRAW FEDERAL UNIT

## CHAVES COUNTY, NEW MEXICO

PURPOSE:

This report sumarizes reasons for forming a 6,457.74 acre Federal Unit in Chaves County, New Mexico to test the Abo Sand section. The initial unit test will be drilled to approximately 3600 feet in the SE/4 section 26-T6S-R23E.

LOCATION:

The proposed unit is located in northwestern Chaves County, approximately 25 miles north of Roswell, on US highway 85 (exhibit A - Isolith Abo sand greater than 10% Porosity). Topographically the area is characterized by gently south rolling terrain which drains into Five Mile Draw, and eventually into the Pecos River some 15 miles east. Geologically this area is on the northwest shelf, a northerly extension of the Midland and Delaware basins. That portion of the shelf presently undergoing development for Abo gas is known as the Pecos slope.

GENERAL GEOLOGY:

By the end of the Pennsylvanian system an emergent Pedernal land mass occupied most of the area west of the Pecos Slope. Its eastern flank is partially defined in the subsurface by the Pre-Pennsylvanian subcrop and on the surface by Precambrian and younger igneous outcrops in central Lincoln and Torrance counties, New Mexico.

As the Wolfcampian sea transgressed over the Pecos Slope a continuous supply of coarse clastics were being supplied to the area from the highlands to the west. By upper Hueco and Abo time a regressive cycle dominated the Pecos Slope area with numerous streams transporting and depositing fine clastics over the region. The resulting depositional sequence is a maze of channel sands, bar sands and fans interbedded with red shale which now comprise the Abo gas play (exhibits B, C & D - northeast - southwest - stratigraphic X-sections).

Exhibit A, an isolith of Abo sand with 10% or greater porosity, suggest deposition of these sands were concentrated vertically through geologic time in somewhat restricted areas. Subsurface control, although limited, near the proposed unit, indicates the proposed Five Mile Draw Unit to be located in an area where numerous channels are stacked vertically but will have great lateral discontinuity (exhibit D stratigraphic X-section). The sand Isolith (exhibit A) is strongly suggestive of local channel development with a northwest - southeast trend through the Five Mile Draw Unit.

LOCAL GEOLOGY:

Interpretation of very limited subsurface control suggest that the proposed unit will conform to an area in which rapid stratigraphic change is occuring in an SW-NE direction (exhibit C & D stratigraphic X-sections) with multiple sands stacking and having a long axis in a NW - SE direction This is considered indicative of channel systems draining

the Pedernal land mass located west of the area of interest. Although the number of wells have been drilled near the proposed unit none have been drilled within its boundaries (exhibit A). These wells have met with varying degrees of success; and initial potentials posted by completed wells on exhibit A indicate to some extent the degree of risk involved.

UNIT OUTLINE:

The proposed unit outline, as indicated on the attached Isolith Abo Sand (Exhibit A) is defined primarily by the thirty (30') foot contour. However, adminstrative restraints and dry holes to the northeast and southwest cause local departures. A productive area to the northwest of the proposed unit also places restraints on the unit boundary in this direction. Formation of the unit should permit the orderly, timely and economical exploration and development of a large area for Abo gas in which few wells have been drilled and none within the proposed unit boundary.

Joel C. Carlisle

/lm

10-18-84

EXHIBIT E

# INEXCO OIL COMPANY

## WELL PROGNOSIS

☒ Exploratory ☐ Development

Prospect/Field: Five Mile Draw Lease #:
Well Name & No.: Inexco Federal 1-26
State or Province: New Mexico
County or Parish: Chaves

Location: SE/4 Sec. 26 Twp. 6S Rge. 23E

Proposed T.D & Objective Formation:
Date: 9/25/84 Elevation Gr.: 4040 Kb:

### GEOLOGICAL REQUIREMENTS

**SAMPLE PROGRAM**

10 ' samples 1500 ' to TD '
' samples ' to '
' samples ' to '
' samples ' to '
Samples to
Samples to other partners

**LOGGING PROGRAM**

IES ' to '
Dual Induction ' to '
BHC Acoustic ' to '
BHC Density GRN Surface ' to TD '
Laterolog 3 ' to '
Microlaterolog ' to '
SNP ' to '
Gamma Ray Neutron ' to '
Dipmeter ' to '
Other DLL 1500 ' to TD '
' to '

CORING PROGRAM: 60'

DST PROGRAM:

SIDE WALL SAMPLING PROGRAM:

Mud Logger Required: Yes X No
Type
Geologist: From ' to '

Prepared by: J.C. Carlisle Date: 9/25/84
(Geological)

| Formation Tops | Depth |
|---|---|
| Tubb | 2540 |
| Abo | 3175 |

**Co-owners and Participants**

### DRILLING PROGRAM

| HOLE SIZE | | CASING PROGRAM | | | |
|---|---|---|---|---|---|
| | | Size | Weight | Depth | Cement |
| 12 1/4" | to 900 | 9 5/8" | 36 # | 900' | w/ TO BE DET. sax |
| 8 3/4" | to 4040 | 5 1/2" | 15.5 # | 4040' | w/ TO BE DET. sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |
| " | to | " | # | | w/ sax |

### MUD PROGRAM

| Type | Depth | | Characteristics | | | | |
|---|---|---|---|---|---|---|---|
| | From | To | Wt. | Vis. | % Oil | W.L. | |
| FRESHWATER | 0 | 900 | 8.3 | 28 | ---- | N/C | |
| NATIVE MUD | 900 | 2500 | 9.0-10.0 | 28 | ---- | N/C | |
| EX LOW SOLIDS | 2500 | 4040 | 10.0 | 32 | ---- | 10 or less | |

Engr. Portion Prepared by: MIKE PAVELKA Date: OCTOBER 2, 1984

Approved: Land Date Exploration Date
Producing Date

O-14 (Rev. 3-26-80)

EXHIBIT F

# INEXCO OIL COMPANY

## AUTHORIZATION FOR EXPENDITURE

AFE No. (Inexco Property No.) _____
Prospect FIVE MILE DRAW
Well Name and Number INEXCO FEDERAL NO. 1-26

Estimated Days to Drill 15
Estimated Days to Complete 8

Location: SE/4 Sec. 26 T6S R23E
CHAVES COUNTY, NEW MEXICO

| OBJECTIVES | SANDS | AND DEPTH |
|---|---|---|
| | TUBB | 2540 |
| | ABO | 3175 |
| | | |
| | | |

Est. T.D. 4040
Est. Spud _____
A F E Prepared OCTOBER 2, 1984
By: MIKE PAVELKA

(XX) Drill ( ) Workover Same Zone ( ) Recomplete in New Zone

| | DESCRIPTION | ESTIMATED COSTS DRILLING | ESTIMATED COSTS COMPLETION | ACTUAL COST |
|---|---|---|---|---|
| | INTANGIBLE COSTS (321) | | | |
| 01 | Access and Location Costs | 10,500 | | |
| 02 | Move-in, Rig-up, Rig-down, Move-out | | | |
| | Contract Drilling | | | |
| 03 | Footage 4040 ft. at $ 15.00 ft. | 60,600 | | |
| 04 | Daywork 2 days at $ 4200 day | 4,200 | 4,200 | |
| 05 | Completion Unit 8 days at $ 1400 day | | 11,200 | |
| 06 | Fuel, Power, Water and Water Lines | 13,400 | 2,400 | |
| 07 | Bits, Reamers and Stabilizers | | 1,000 | |
| 08 | Equipment Rental | 3,000 | 1,000 | |
| 09 | Cementing and Squeezing - | | | |
| | Conductor Casing | | | |
| | Surface Casing | 5,000 | | |
| | Intermediate Casing | 6,000 | | |
| | Production Casing | | 8,000 | |
| | Liner | | | |
| | Other | | | |
| 10 | Drilling Mud and Chemicals | 14,000 | 2,500 | |
| 10 | Mud Logger | 6,500 | | |
| 11 | Logging, Coring and Testing - | | | |
| | Cores 60' | 8,000 | | |
| | DST's | | | |
| | Logs GR-NEUTRON 1500-TD | 3,000 | | |
| | DLL 1500-TD | 4,000 | | |
| | CBL-GR & VDL | | 5,000 | |
| | Perforating & WIRELINE WORK | | 5,000 | |
| 12 | Acidizing and Fracturing | | 55,000 | |
| 13 | Labor and Supervision | | 2,500 | |
| 13 | Contract Labor | 4,000 | 12,000 | |
| 14 | Drilling Overhead | 29,200 | | |
| 15 | Transportation | 2,800 | 5,000 | |
| 16 | Sales Tax | 2,800 | 1,000 | |
| 17 | Other Miscellaneous Intangible Costs | 2,000 | 4,000 | |
| 18 | Losses, Damages and Abandonment | 6,000 | | |
| 19 | Fishing Tool Expense and/or Directional Drilling | | | |
| 20 | Dry Hole Contributions | | | |
| 22 | Well Control Insurance | | | |
| | TOTAL INTANGIBLE | $ 304,800 | $ 185,000 | $119,800 | $ |

| DESCRIPTION | | | ESTIMATED COSTS | | ACTUAL COST |
|---|---|---|---|---|---|
| | | | DRILLING | COMPLETION | |
| NGIBLE COSTS (313/314): | | | | | |
| Conductor Csg. | 60 ft. of | 16" at /ft | 1,000 | | |
| Surface Csg. | 900' ft. of | 9 5/8" at 36#,J-55,ST&C /ft | 9,500 | | |
| Intermediate Csg. | ft. of | at /ft | | | |
| Liner | ft. of | at /ft | | | |
| Liner | ft. of | at /ft | | | |
| Tieback | ft. of | at /ft | | | |
| Production Csg. | 4040 ft. of | 5 1/2" at 15.5#,J-55,LT&C /ft | | 20,200 | |
| Tubing | 4040 ft. of | 2 7/8" at 6.5#,J-55,EUE 8RD /ft | | 10,100 | |
| Installation Costs and Non-Controllable Well Equipment | | | | | |
| Casing Head Assembly | | | 3,000 | | |
| Tubing Head Assembly & TREE | | | | 10,000 | |
| Pumping Unit | | | | | |
| Prime Mover | | | | | |
| Storage Tanks | | | | 8,000 | |
| Separator | | | | 3,500 | |
| Dehydrator | | | | | |
| Heater - Treater | | | | 8,500 | |
| LACT Unit | | | | | |
| LTX or Production Unit | | | | | |
| Line Pipe | | | | 2,000 | |
| Gas Recorders | | | | | |
| Installation Costs and Non-Controllable Lease Equipment | | | | 6,000 | |
| TOTAL TANGIBLE | | $ 81,800 | $ 13,500 | $ 68,300 | $ |
| TOTAL WELL | | $ 386,600 | $198,500 | $188,000 | $ |

It is recognized that the amounts herein are estimates only and approval of this authorization shall extend to the actual costs incurred in conducting the operation specified, whether more or less than that herein set out.

OWNERSHIP APPROVALS:

| INEXCO OIL COMPANY | Interest: | $ | Authorized Signature | Date: |
|---|---|---|---|---|
| | | | | |