GEOLOGY OF THE PROPOSED
HUGGINS DRAW FEDERAL UNIT
CHAVES COUNTY, NEW MEXICO

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October 1, 1984

PROPOSED HUGGINS DRAW FEDERAL UNIT

Enclosures and Attachments:

Exhibit A.....Isolith Abo Sand

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

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

Exhibit D.....Unit Well #1 Prognosis

Exhibit E.....Current Well Cost

G E O L O G I C A L R E P O R T

PROPOSED HUGGINS DRAW FEDERAL UNIT

CHAVES COUNTY, NEW MEXICO

PURPOSE:

This report sumarizes reasons for forming a 30,029.95 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 18-T5S-R23E.

LOCATION:

The proposed unit is located in northwestern Chaves County, approximately 35 miles north of Roswell, New Mexico and approximately 1.5 miles east of US highway 85 (exhibit A - Isolith Abo sand greater than 10% Porosity). Topographically the area is characterized by gently south sloping terrain. The northern portion of the proposed unit is drained by Huggins Draw and the southern portion by Five Mile Draw, both of which are tributaries of the Pecos River some 13 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 Wolfcamp 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 (exhibit B & C - 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 Huggins Draw Unit to be located in an area where numerous channels are stacked vertically but will have great lateral discontinuity (exhibit C stratigraphic X-section). The sand Isolith (exhibit A) also indicates the possibilities of one or more fans being present in the area.

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 stratigraphic X-section) with multiple sands stacking and having a long axis in a NW - SE direction This is considered indicative of channel systems draining the

Perdernal land mass located west of the area of interest. Two wells have been drilled within the confines of the proposed unit. One near the north edge of the unit in the NE/NW 23, 4S-23E and the other in the NW/SE 25 5S-22E. The northern most well has been plugged, while the one to the south has temporarily suspended operations. Other wells proximal to the unit have had 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 unit outline, as shown on the Isolith Abo Sand (Exhibit A), is designed to include most of the acreage within the forty five (45) foot contour. Where necessary local departures from this have been made for adminstrative purposes and acreage restraints. 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.

Joel C. Carlisle

/lm

8-23-84

INEXCO

EXHIBIT D

WELL PROGNOSIS

Prospect/Field: Huggins Draw Lease #:
Well Name & No. Inexco Federal 1-18
State or Province: New Mexico
County or Parish: Chaves

☒ Exploratory ☐ Development

Location: SE/4 Sec. 18 Twp 5S Rge 23E

Date: 9/24/84

Proposed T.D & Objective Formation:
Elevation Gr. 4330 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 ' to '
Laterolog 3 ' to '
Micro'aterolog ' 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: 9/24/84
(Geological)

Formation Tops	Depth
Tubb	2880 + 1450
Abo	3230 + 1100

Co-owners and Participants

DRILLING PROGRAM

HOLE SIZE			CASING PROGRAM			
			Size	Weight	Depth	Cement
? 1/4"	to	900	9 5/8"	36 #	900	w/ TO BE DET. sax
8 3/4"	to	4330	5 1/2"	15.5 #	4330	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 From	Depth To	Characteristics Wt.	Vis.	% Oil	W.L.
FRESH WATER	0	900	8.3	28	---	N/C
NATIVE MUD	900	2700	9.0-10.0	28	---	N/C
NEX LOW SOLIDS	2700	4330	10.0	32	---	10 or less

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

Approved: Date: Exploration Date:

EXHIBIT E

INEXCO OIL COMPANY

AUTHORIZATION FOR EXPENDITURE

AFE No. (Inexco Property No.) _____
Prospect HUGGINS DRAW
Well Name and Number INEXCO FEDERAL NO. 1-18

Location: SE/4 SEC. 18T5S R23E
CHAVES COUNTY, NEW MEXICO

Estimated Days to Drill 15
Estimated Days to Complete 8

OBJECTIVES	SANDS	AND DEPTH
	TUBB	2880 + 1450
	ABO	3230 + 1100

Est. T.D. 4330
Est. Spud _____
A F E Prepared OCTOBER 2, 1984
By: Mike Pavelka

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

CRIPTION	ESTIMATED COSTS DRILLING	ESTIMATED COSTS COMPLETION	ACTUAL COST
NTANGIBLE COSTS (321)			
Access and Location Costs	10,500		
Move-in, Rig-up, Rig-down, Move-out			
Contract Drilling			
Footage 4330 ft. at $ 15.00 ft.	65,000		
Daywork 2 days at $ 4200 day	4,200	4,200	
Completion Unit 8 days at $ 1400 day		11,200	
Fuel, Power, Water and Water Lines	13,400	2,400	
Bits, Reamers and Stabilizers		1,000	
Equipment Rental	3,000	1,000	
Cementing and Squeezing -			
Conductor Casing			
Surface Casing	5,000		
Intermediate Casing	6,000		
Production Casing		8,000	
Liner			
Other			
Drilling Mud and Chemicals	14,000	2,500	
Mud Logger	6,500		
Logging, Coring and Testing -			
Cores 60'	8,000		
DST's			
Logs. GR-NEUTRON 1500' - TD	3,000		
DLL 1500' - TD	4,000		
GR-CBL/VDL		5,000	
Perforating & WIRELINE WORK		5,000	
Acidizing and Fracturing		55,000	
Labor and Supervision		2,500	
Contract Labor	4,000	12,000	
Drilling Overhead	29,200		
Transportation	2,800	5,000	
Sales Tax	2,800	1,000	
Other Miscellaneous Intangible Costs	2,000	4,000	
Losses, Damages and Abandonment	6,000		
Fishing Tool Expense and/or Directional Drilling			
Dry Hole Contributions			
Well Control Insurance			
TOTAL INTANGIBLE	$ 309,200	$ 189,400	$ 119,800	$

SCRIPTION			ESTIMATED COSTS DRILLING	ESTIMATED COSTS COMPLETION	ACTUAL COST
ANGIBLE COSTS (313/314):					
nductor Csg 60	ft. of 16	at /ft	1,000		
face Csg. 900'	ft. of 9 5/8	at 36#,J-55,ST&C /ft	9,500		
ermediate Csg	ft. of	at /ft			
Liner	ft. of	at /ft			
Liner	ft. of	at /ft			
Tieback	ft. of	at /ft			
Production Csg. 4330	ft. of 5 1/2"	at 15.5#,J-55,LT&C /ft		21,700	
Tubing 4330	ft. of 2 7/8"	at 6.5#,J-55,EUE 8RD /ft		10,900	
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		$ 81,100	$ 13,500	$ 70,600	$
TOTAL WELL		$ 393,300	$ 202,900	$190,400	$

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: