

ARCO Permian

600 North Marienfeld Midland, TX 79701-4373 P.O. Box 1610 Midland, TX 79702-1610 Telephone 915-688-5570 Facsimile 915-688-5956 Email ecasbee@mail.arco.com

Elizabeth A. Casbeer
Regulatory/Compliance Analyst

April 12, 2001

New Mexico Oil Conservation Division ATTN: Mike Stogner 1220 S. St. Francis Drive Santa Fe, New Mexico 87505

RE:

Unorthodox Location
Hilltop Federal Well No. 2
Little Box Canyon (Morrow) Pool
Unit L Section 1, T-21-S, R-21-E
Eddy Co., NM

Mr. Stogner:

As previously discussed by phone with Roger Elliott and myself, ARCO Permian, as operator requests approval of the unorthodox location. Our plans are to drill at a location 660' FWL and 2130' FSL of Section 1, T21S, R21E, Eddy County, New Mexico, as a 8,600 feet Morrow test. Enclosed are our attachments and supporting documentations for this unorthodox application.

At the earliest possible date, please send us our written approval order and fax a copy to 915/688-5956, granting us our unorthodox and drill site location.

We have a rig in the area (2 miles to the North) that is currently drilling and we want to move this rig down to Section 1 within the next month and a half.

Thank you for your cooperation and prompt response to our request. If you have any questions, please contact me at 915/688-5570. Please send your approval to proceed to my attention at the address listed above.

Yours very truly,

Elizabeth A. Casbeer

Regulatory Compliance Analyst

Attachments

xc: Lee Scarborough - WL4-241A

Gary Smallwood - WL4243

ligituchle Clistical

Mike Brock - EUN

Central Files – Records Management Room 0.320/Houston

R/C Files

ARCO Permian
Unorthodox Location
Hilltop Federal Well No. 2
Little Box Canyon (Morrow) Pool
660' FWL & 2130' FSL (L)
Section 1, T-21S, R-21E
319.88 Acres
Eddy County, New Mexico

Attachments:

Form 3160 (APD Application)

Form C-102

Topographic map

Waivers

Land Plat - Showing Offset Working Interest Owners

Geological Data (Explanation & Maps)

Formalice (July 1992)

SUBMIT IN TRIPLICATE.

FORM APPROVED OMB NO. 1004-0136

()	-	IED STATES	Têver	ge side) se side)	Expires: Febr	uary 28, 1995	
	DEPARTME	NT OF THE INTI	ERIOR		5. LEASE DESIGNATION AL	ERIAL NO.	
	BUREAU C		Net-27451				
	6. IF INDIAN, ALLOTTEE OR TRIBE NAME						
APF	LICATION FOR P	ERMIT TO DRIL	L OR DEEPEN				
6. TYPE OF WORK b. TYPE OF WELL	DRILL X	DEEPEN		 _	7. UNIT AGREEMENT NAM	В	
OIL	GAS X OTHER			LTIPLE X	A. FARM OR LEASE NAME,	WELL NO.	
2. NAME OF OPERATOR	7110-1		ZONE ZO	45 TT	HILLIOP REDER!	I	2
ARCO Permian 1. ADDRESS AND TELEPHO	ONE NO.			-	9. API WELL NO.		
	Midland, TX 79702			5-688-5570	10. FIELD AND POOL, OR W	LDCAT	
4. LOCATION OF WELL (R	teport location clearly and in accor	dance with any State requirement	mis.")		LITTLE BOX CAN		
2130' FSL & 660	' FWL				(CISCO & MORRO	*1	
At proposed prod, zone					 SEC., T., R., M., OR BLK. AND SURVEY OR AREA 		
<u>\$448</u>	<u> </u>				1-T21S-R21E		
	d direction from nearest tov	yn or post oppice"			12. COUNTY OR PARISH	13. STATE	
35 MILES NW OF					EDDA	NM	
LOCATION TO NEAREST PROPERTY OR LEASE L	I INDELET.	16. N	D. OF ACRES IN LEASE	17, NO. OF A TO THIS	CRES ASSIGNED WELL		
(Also to nearest drig w	(Also to nearest drig unit line if any) 660'						
14. DISTANCE PROMPROPO TO NEAREST WELL DE	20. ROTARY	Y OR CABLE TOOLS					
OR APPLIED FOR ON TO	ARY						
21, PLEVATIONS (Show w	hether DF,RT, GR, etc.)				22. APPROX. DATE WORK	WILL START	
4489 'CR					5/1/01		
25,		PROPOSED CASING AND	EMENTING PROGRAM				
SIZE OF HOLE	GRADE SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH		QUANTITY OF CEM	NT	_
12-1/4	8-5/8 <i>J</i> -55	32#	1400'				

8600

539

SUBJECT WELL IS PLANNED AS A 8600' STRAIGHT HOLE. 3,000 PSI BOPE WILL BE USED FROM 1400' TO TO.

PLANS ARE TO PERF AND TEST THE MORROW.

ATTACHMENTS ARE AS FOLLOWS:

1. CERTIFIED LOCATION PLAT

24,

- 2. DRILLING PIAN WITH ATTACHMENTS
- 3. SURFACE USE PLAN WITH ATTACHMENTS

Standard LOCATION

17#

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM:

If proposal is to despen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on aubsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

SIGNED Elizabeth Carbon	TILE RECILITORY COMPLIANCE AVAILABLE	DATE 3/9/01
(This space for Federal or State office use)		
PERMIT NO. Application approval does not warrant or carefy that the applicant holds legal or equitable CONDITIONS OF APPROVAL, IF ANY:	APPROVAL DATE————————————————————————————————————	anduct operations thereon.
Title 18 U.S.C. Section 1001, makes it a crime for any person fictitious or fraudulent statements or representations as to any max	tructions On Reverse Side knowingly and willfully to make to any department or	agency of the United States any false,

_RECEIVED TIME __MAR.13. 10:57AM PRINT TIME MAR.13. 10:59AMCT I c.O. Box 1980, Hobbs, NM 86841-1988

DISTRICT II P.O. Brewer BD, Artesia, NM 88211-0718

P.O. BOX 2008, SANTA FE, M.M. 87504-2008

OIL CONSERVATION DIVISION

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Corries

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

State Lease - 4 Copies Fee Lease - 3 Copies

1000 Rio Brazos Rd., Astec, NM 87410.

DISTRICT III

DISTRICT IV

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Poo	Pool Name		
	80240	Little Box CANGON	(Cisco + MOKROW)		
Property Code	Prop	orty Name	Well Number		
	HILLTOP	FEDERAL	2		
OGRID No.		ator Name	Elevation		
000990	ARCO	PERMIAN	4489'		

Surface Location

UL or lot No.	Section	Township	Range	Lot, Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	1	21-S	21-E		2130	SOUTH	660	WEST	EDDY

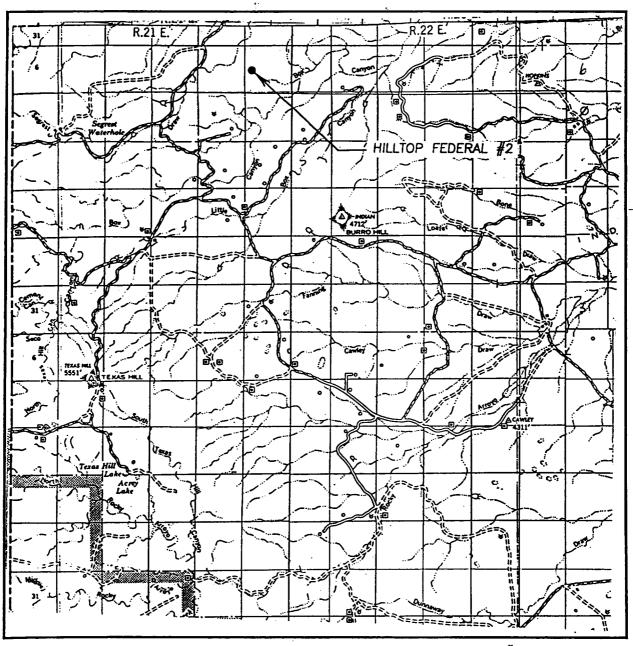
Bottom Hole Location If Different From Surface

UL o	r la	t No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedi	cate	ed Acre	Joint of	r Infill (Consolidation (Code Or	der No.				<u> </u>
3	32	0					·				

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

				
LOT 4	(B86)	LOT 2	LOT 1	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
39.93 AC 1980	39.95 AC	39.97 AC	39,99 AC	Signature Signature A CASBEER Printed Name Liquida lore, Omplitude Award Title 3/1/01 Date SURVEYOR CERTIFICATION
4510.4' A87.8' 4486.4' 4485.2'				I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me er under my supervison, and that the same is true and correct to the best of my beliaf. FEBRUARY, 15, 2001 Date Surveyed AWB
2130				Signatury & Seal of Professional Sulveyor District Seal of Professional Sulveyor

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 1 TWP. 21—S RGE. 21—E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 2130' FSL & 660' FWL

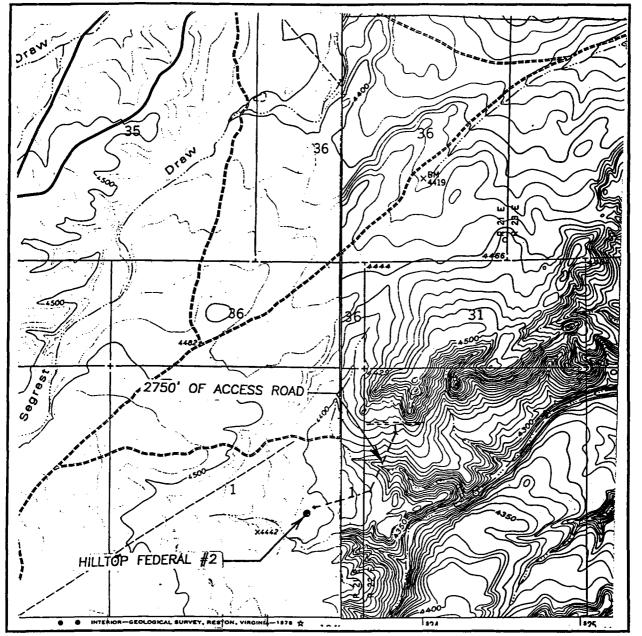
ELEVATION 4489'

OPERATOR ARCO PERMIAN

LEASE HILLTOP FEDERAL

JOHN WEST SURVEYING HOBBS, NEW MEXICO (505) 393-3117

LOCATION VERFICATION MAP



SCALE: 1" = 2000'

SEC. 1 TWP. 21-S RGE. 21-E

SURVEY_____N.M.P.M.

COUNTY EDDY

DESCRIPTION 2130' FSL & 660' FWL

ELEVATION 4489'

OPERATOR ARCO PERMIAN

LEASE HILLTOP FEDERAL

U.S.G.S. TOPOGRAPHIC MAP STRYCHNINE DRAW, N.M. AND

BOX CANYON RANCH, N.M.

CONTOUR INTERVAL:

10' & 20'

STRYCHNINE DRAW, N.M. 10' BOX CANYON RANCH, N.M. 20'

JOHN WEST SURVEYING HOBBS, NEW MEXICO (505) 393-3117

THE ROGER T. AND HOLLY L. ELLIOTT FIR. HOLLYHOCK CORP., THE GENERAL PARTNER

Roger T. Elliott
Certified Professional Landman

4105 Baybrook Drive Midland, Texas 79707 (915) 694-0069 - Home (915) 687-5969 - Office (915) 687-1817 -Fax

March 13, 2001

WORKING INTEREST OWNERS
AND/OR OPERATING RIGHTS OWNERS

FAXED AND HARD COPY TO FOLLOW

RE:

Hilltop Federal #2 Well

Township 21 South, Range 21 East, NMPM Section 1: 2310' FSL & 660' FWL (W/2) Eddy County, New Mexico

Dear Owner:

Please be advised that BP Permian Business Unit (BP) is prepared to drill the Hilltop Federal #2 Well at a non-standard location of 2310' FSL & 660' FWL in Section 1, T21S, R21E, Eddy County, New Mexico. It is BP intention to utilize the west half (W/2) as the proration unit for the well.

BP, as operator, will provide all owners with drilling data for the Hilltop Federal #2 Well.

Enclosed is a letter to the NMOCD granting a waiver to BP for the aforementioned location. Please execute the waiver and fax a copy to (915) 687-1817 and return an executed (hard copy) copy to the undersigned. Please return the executed waiver as soon as possible.

Should you have any questions, please feel free to call me.

Sincerely,

Roger T. Elliott, CPL

THE ROGER T. AND HOLLY L. ELLIOTT FLP, HOLLYHOCK CORP., THE GENERAL PARTNER

Roger T. Elliott
Certified Professional Landman

4105 Baybrook Drive Midland, Texas 79707 (915) 694-0069 - Home (915) 687-5969 - Office (915) 687-1817 -Fax

APR 3 200

NSL-4584

March 13, 2001

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

Attention:

Mr. Michael Stogner

RE:

Unorthodox Location

Section 1: W/2, T21S, R21E Eddy County, New Mexico

Dear Mr. Stogner:

Yates Petroleum Corporation and its affiliates are offsetting owners of leasehold or operating rights to the east half (E/2) of Section 2, T21S, R21E, Eddy County, New Mexico.

This letter is to advised that Yates Petroleum Corporation and the parties listed below have no objection to the granting of a permit to drill at a location 2310' FSL & 660' FWL to test the Morrow formation. Although the footage location for the well is 2310' FSL & 660' FWL of Section 1, the actual footage location may vary within the NW/4SW/4 of Section 1 due to topographic and archaeological reasons. Yates Petroleum Corporation and its affiliates hereby waive objection and notice of administrative approval for such application.

Sincerely,

Roger T. Elliott, CPL

SERVICE LIST

Mark D. Wilson Rio Pecos Corporation 4501 Green Tree Blvd. Midland, Texas 79707 Hollyhock Corp. 4105 Baybrook Drive Midland, Texas 79707

TARA-JON Corp.
Partnership Management, Inc.
6003 Meadowview Lane
Midland, Texas 79707

Cannon Exploration Co. 3608 SCR 1184 Midland, Texas 79706

James Woodard 3613 Imperial Midland, Texas 79707 Nearburg Exploration Company, L.L.C. 3300 North A Street, Bldg. 2, Suite 120 Midland, Texas 79705

Yates Petroleum Corporation Yates Drilling Company MYCO Industries, Inc. Abo Petroleum Corporation 105 South Fourth Street Artesia, New Mexico 88210 KLM Petroleum Corp. 1305 Terra Court Midland, Texas 79705

Don McClung 4110 E. 37th Street Odessa, Texas 79762 Dillard, Fisher & Heasley Partnership 405 West Wall, Suite 1510 Midland, Texas 79701

Ken Macho 1720 Cross Point Road McKinney, Texas 75070 March 13, 2001 Page 2

AGREED TO AND ACCEPTED this 23 day of March, 2001.

Yates Petroleum Corporation Yates Drilling Company MYCO Industries, Inc. Abo Petroleum Corporation

Du Sank Hilleress	_ &
By: Asy in Fast	
AGREED TO AND ACCEPTED this	_day of March, 2001.
Dillard, Fisher & Heasley Partnership	
By:	
Title:	<u> </u>
AGREED TO AND ACCEPTED this	day of March, 2001.
KLM Petroleum Corp.	,
Ву:	
Title:	
AGREED TO AND ACCEPTED this	day of March, 2001.
James Woodard	
By:	
Title:	

March 13, 2001 Page 2

Yates Petroleum Corporation Yates Drilling Company

AGREED TO AND ACCEPTED this 23 day of March, 2001.

MYCO Industries, Inc. Abo Petroleum Corporation Title: Ally-10-Fact AGREED TO AND ACCEPTED this ____ day of March, 2001. Dillard, Fisher & Heasley Partnership By: Title: AGREED TO AND ACCEPTED this _____ day of March, 2001. KLM Petroleum Corp. By: Title: AGREED TO AND ACCEPTED this _____ day of March, 2001. James Woodard By:_____ Title:

March 13, 2001 Page 3
AGREED TO AND ACCEPTED this day of March, 2001.
Don McClung
By:
Title:
AGREED TO AND ACCEPTED this day of March, 2001.
Ken Macho
By:
Title:
AGREED TO AND ACCEPTED this /374 day of March, 2001.
Mark D. Wilson Rio Pecos Corporation
By hand Wila
Title: PRESIDENT (RPC) & INDIVIDUALIST
AGREED TO AND ACCEPTED this day of March, 2001.
Hollyhock Corp.
By:
Title:

.

FROM : ELLISTT-LINT

FAK NO. : 9156871817 Mar. 13 2981 83:28PM P4

March 13, 2001 Page 3	·
AGREED TO AND ACCEPTED this	13th day of March, 2001.
Don McClung	
By: Don P. M. Cluma	-
Tide INDIVIDUAL	Ż
AGREED TO AND ACCEPTED this	day of March, 2001.
Ken Macho	
By:	
AGREED TO AND ACCEPTED this	dev of March. 2001.
Mark D. Wilson Rio Pecos Corporation	,
Ву:	.
Title:	
AGREED TO AND ACCEPTED this	day of March, 2001.
Hollyhock Corp.	
Ву	
Title:	

FROM : ELLIOTT-LINT

FAX NO. : 9156871817

Mar. 13 2001 03:32PM P4

March 13, 2001 Page 3
AGREED TO AND ACCEPTED this day of March, 2001.
Don McClung
By:
Title:
AGREED TO AND ACCEPTED this 13 day of March, 2001.
Ken Macho
By: Ken Market Title: Independent
Title: Independent
AGREED TO AND ACCEPTED this day of March, 2001.
Mark D. Wilson Rio Pecos Corporation
Ву:
Title:
AGREED TO AND ACCEPTED this day of March, 2001.
Hollyhock Corp.
Ву:
Title:

March 13, 2001 Page 4

46
AGREED TO AND ACCEPTED this _/3 day of March, 2001.
TARA-JON Corp.
By: Heather V. Echolo
Title: President
AGREED TO AND ACCEPTED this day of March, 2001.
Cannon Exploration Co.
By:
Title:
AGREED TO AND ACCEPTED this day of March, 2001.
Nearburg Exploration Company, L.L.C.
By:
Title:
AGREED TO AND ACCEPTED this 137 day of March, 2001.
Partnership Management, Inc.
By: Bliss
Title: President

2 002

Mar. 13 2001 03:48PM P4

FROM : ELLIOTY-LINT

CANNON EXP CO

FAX NO. : 9156871817

March 13, 2001 Page 4 AGREED TO AND ACCEPTED this day of March, 2001. TARA-JON Corp. AGREED TO AND ACCEPTED this _____ day of March, 2001. Cannon Exploration Co. By Jodd M. Wilson Title: PRESIDENT AGREED TO AND ACCEPTED this 14⁷ day of March, 2001. Nearburg Exploration Company, L.L.C. Title: AGREED TO AND ACCEPTED this ____ day of March, 2001. Partnership Management, Inc.

NEARBURG MIDLAND

FROM : ELLIOTT-LINT

Fax:915-686-7806

5-686-7806 Mar 15 '01 16:04 P.02 FAX NO. : 915**687**1817 Mar. 13 2001 03:52FT F4

March 13, 2001 Page 4

AGREED TO AND ACCEPTED this _____ day of March, 2001. TARA-JON Corp. Title: AGREED TO AND ACCEPTED this _____ day of March, 2001. Cannon Exploration Co. Title: AGREED TO AND ACCEPTED this /SK day of March, 2001. Nearburg Exploration Company, L.L.C. By: Allelios Title: Commonose AGREED TO AND ACCEPTED this _____ day of March, 2001. Partnership Management, Inc. By:____ Title:

March 13, 2001

Page 2 AGREED TO AND ACCEPTED this 23 day of March, 2001. Yates Petroleum Corporation Yates Drilling Company MYCO Industries, Inc. Abo Petroleum Corporation AGREED TO AND ACCEPTED this ____ day of March, 2001. Dillard, Fisher & Heasley Partnership Ву:_____ Title: AGREED TO AND ACCEPTED this _____ day of March, 2001. KLM Petroleum Corp. Title: AGREED TO AND ACCEPTED this _____ day of March, 2001. James Woodard

FAX NO. : 9156871817

March 13, 2001 Page 2
AGREED TO AND ACCEPTED this day of March, 2001.
Yates Petroleum Corporation Yates Drilling Company MYCO Industries, Inc. Abo Petroleum Corporation
By:
Title:
AGREED TO AND ACCEPTED this day of March, 2001.
Dillard, Fisher & Heasley Partnership
By:
Title:
AGREED TO AND ACCEPTED this day of March, 2001
KLM Petroleum Corp.
Ву:
Title:
AGREED TO AND ACCEPTED this / day of March, 2001.
James Woodard
By: pmes books
Title:

Mar-13-2001 04:45pm From-DARRELL W DILLARD CPA

FROM : ELLIOTT-LINT

10 CPA 9156834305 T-324 P.004/004 F-072 FAX NO. : 9156871817 Mar. 13 2만이 보고: 15대 무수

March 13, 2001 Page 2
AGREED TO AND ACCEPTED this day of March, 2001.
Ystes Petroleum Corporation Yates Drilling Company MYCO Industries, Inc. Abo Petroleum Corporation
Ву:
Title:
AGREED TO AND ACCEPTED this /4/day of March, 2001.
Dillard, Fisher & Heasley Partnership
By: Meil Sistes Title: PARTNER
Title: PARTNER.
AGREED TO AND ACCEPTED this day of March, 2001.
KLM Petroleum Corp.
By:
Title:
AGREED TO AND ACCEPTED this day of March, 2001.
James Woodard
Ву:
Title:

FROM : ELLIOTT-LINT

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INTRODUCTION

This geologic report relates to a proposed Morrow well to be drilled 2130 feet from the south line and 660 feet from the west line of Section 1-T21S-R21E, Eddy County, New Mexico by ARCO PERMIAN. The west half of Section 1 will be the spacing unit for this well. Location is shown on Exhibits 1 and 2.

Our preferred location was 2310' FSL and 660' FWL on federal acreage, but this location was rejected by the BLM after we had secured the consent of all offset owners. There is no obvious topographic reason for this rejection, so it may have been for archaeological reasons.

The new location 2130 feet from the south line is only slightly unorthodox being 510 feet from the E-W half-section line, rather than 660 feet. Offset owners have also approved this drill site.

GEOLOGY

In essence, this Morrow prospect consists of a major NW-trending, lower Morrow distributary channel sandstone draped across a NNW-trending well-defined faulted anticline of late Pennsylvanian or early Wolfcamp age. Many major Morrow sand gas traps in Eddy County are similar to this faulted structure. In the immediate area, in the same distributary channel, is a similar accumulation in Section 7-21S-22E. This field had approximately 10 billion CFG of gas reserves from three channel sand wells. We estimate that our structure would produce around 20 billion CFG.

STRUCTURE

This structure is shown on Exhibit 1 and is a NNW-trending asymetric anticline; steeper on its west flank where a dipmeter survey in the Yates well in Section 35, $T20\frac{1}{2}S$, R21E found 17° dips toward the southwest, on the up-side of the NNW-trending boundary fault. Closure is in excess of 150 feet. A significant Cisco limestone/accumulation has been recently established in the north 1/3 of this structure by wells in the E/2 Sec. 34, and the W/2 of Section 35 of T20S, R21E.

The north half of this structure is rather well-controlled by 5 wells; the less well controlled south half of the structure is likely to be similar in configuration to the north half. The four wells in Section 12, T21S-R21E help define the SE limits of the structure.

In the same distributary channel, in the west portion of Section 7 and the north portion Section 18, both in T2lS-R22E, are three productive wells where the sand is 44, 56 and 58 feet thick. The structural trap is caused by a closure on the up-side of a NNW-trending fault on the west side of the structure. The fault has 100'-200' of throw. Maximum pay thickness in the channel sand is 56' in the well in the SE/4 SW/4 Section 7. Ultimate recovery will be nearly 10 billion CFG. The gas-water contact is shown in Section 18 on Exhibit 1 where it was established by the first well drilled.

MORROW DISTRIBUTARY CHANNEL SANDSTONE

Six wells have encountered this leveed distributary channel sandstone over a distance of nearly three miles from the NE/4 of Section 12-T21S-R21E, through the west half of Sec. 7-21S-22E, and on through two wells in Section 17-21S-22E. The most probable trend of the channel is northwest from the NE quarter of Section 12 (see Exhibits 1 and 2).

The trend of the channel out of the NE/4 Sec. 12-21S-21E is best established by isopaching the interval in the Lower Morrow containing the sand. (See Exhibit 2).

Exhibit 3 is a density-neutron well log showing the sand in the NE/4 Section 12-21S-21E. The channel sand is 51 feet thick in this well, and it is overlain in this well by the L. Morrow "Pink Oolitic Ls" whick is a reliable marker over a multi-township area, and is the basis for the Lower Morrow structure map comprising Exhibit 1.

Exhibit 2 is an isopach of the interval from the top of the Lower Morrow "Pink Oolitic Ls" to the base of the Morrow, or the unconformity at the top of the Mississippian Chester series. Various Chester units occur at the erosional base of the Morrow in this area.

The most prominent feature on this total Lower Morrow isopach is the deeply incised alluvial valley trend where the Lower Morrow is generally in excess of 170 feet thick. This obviously is a very early Morrow trend.

In the SW/4 of Section 7-21S-22E, this early Lower Morrow trend is overlain by the $^{N}_{\cdot}$ W-trending Upper Lower Morrow distributary channel, our objective. Thus, there are two (2) entirely different trends in the Lower Morrow.

The Upper Lower Morrow distributary channel in Section 17-21S-R22E is distinctly separate and north of the early Morrow alluvial valley in Section 20 of 21S-22E, likewise the late Lower Morrow channel sandstone in the well in the NE/4 of Section 12, T21S-R21E is distinctly separate from the deep early Morrow valley in the

west part of Section 7, T21S-R22E which trends NNE.

These two entirely different trending systems in the Lower Morrow have created vast confusion by overlying each other in the west half of Section 7 and the NE/4 of Section 18.

Based principally on the Lower Morrow Isopach (Exhibit 2), I believe that the existing evidence points to a NW-trend for the late Lower Morrow distributary channel from the NE/4 of Section 12, T21S-R21E.

The Lower Morrow isopach shows thickening northward in Section 12 to greater than 55 feet. The distributary channel sandstone is present and 51 feet thick in the well in the NE/4, Sec. 12, T21S-R21E. Here the total Lower Morrow is 73 feet thick. Channel sands in this area can appear when the Upper Lower Morrow is as little as 64 feet thick. We are approaching the 64 to 70 foot thickness in the north part of Section 12, and the south margin of the sand must be near by as shown. The flanks of the sand body are nearly vertical.

The two Morrow wells in Section 1, T21S-R21E each have 42 feet of Lower Morrow, whereas the well in Section 35, T20 $\frac{1}{2}$ S-R21E has 114 feet. Contours from 40 feet to 70 feet should lie just south of the western well in Section 1.

The well in Section 35, $T20\frac{1}{2}S$, R21E shows 114 feet of Lower Morrow. This much Morrow is present only in wells $l\frac{1}{2}$ miles to the east. Southeastward, the well in the NE/4 of Sec. 12-T21S-R21E has only 73 feet of Lower Morrow (Including the 51-foot channel sandstone).

A northwest trend appears to be most likely as shown on Exhibit 2.

GAS-WATER CONTACT

On Exhibit 1, an oval area of Upper Lower Morrow sandstone ranging from 14 to 18 feet in thickness is mapped in Sections 12 and 13, T21S-R21E. This sand is at the same stratigraphic level as the topmost part of the 51-foot thick distributary channel sandstone in the well in the NE/4 of Sec. 12-21S-21E.

This oval area of sand deposition is interpreted as a crevasse-splay sand resulting from a flood-related breakout from the main NW-trending distributary channel sandstone (See Exhibit 1).

Of the four wells in the crevasse splay sand, three are gas-bearing, and the fourth in the SW/4 NW/4 Section 12-21S-22E is water-bearing. Thus, a gas-water contact separates the water-bearing well from the three gas wells in the splay as shown on Exhibit 1. Porosity in the crevasse-splay sand appears to be in porosity and permeability continuity with the NW trending main distributary channel sandstone to which it is related, making it probable that the two sandbodys have a common gas-water contact as shown on Exhibit 1.

The area of possible gas production would extend for about two miles from the gas-water contact to the NW-trending fault on the west side of the structure. Since the smaller trap in this channel sandstone in Sections 7 and 18, T2IS-R22E has about 10 billion CFG, then our prospect area could have conservatively at least 20 billion CFG reserves.

SUMMARY

Using the data available, a NW-trending distributary channel sandstone is mapped in the prospect area. This channel appears to be 1500 feet to 2000 feet wide.

However, the channel could be as little as 1000 feet to 1500 feet wide at the drill site.

In picking our initial location, 2310' FSL and 660' FWL of Section 1, we aimed for the center of the channel in case it is narrower than shown.

As usual, the BLM changed our location, without reference to the geology, to 2130' FSL and 660' FWL. We will reluctantly concur with this drill site which has been approved by owners of offset and other near-by acreage.

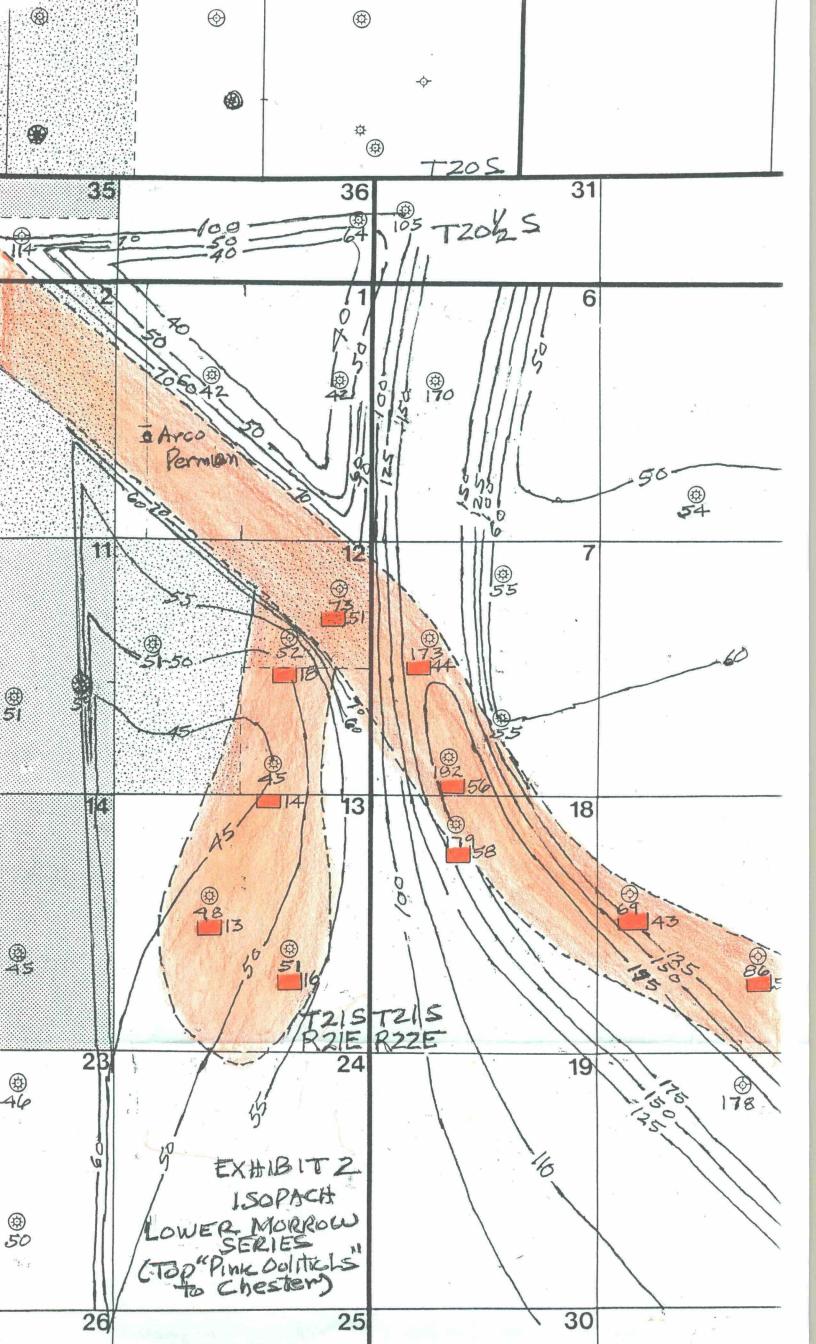
This geologic report is presented in support of the location above for the use of all parties concerned.

PREPARED BY MARK D. WILSON INDEPENDENT GEOLOGIST

4501 Green Tree Blvd. Midland, Texas 79707

(915-697-2206

104 104	roducing Company anyon "12" Fed #1 anyon Morrow STATE: New Mexico PLATFORM EXPRESS Compensated Neutron Log Three Detector Density / NG Three	WORK LOG
SC ROOM		TOP MORROW M-3 OOLITE
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LARGE FORMAT EXHIBIT HAS BEEN REMOVED AND IS LOCATED IN THE NEXT FILE

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county Eddy Pool Little Box Canyon-Mortow Gas

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E 40.00	F 40.00	G 40.00	H 40.00
Federal owned	 Federal owned	 Federal owned	 Federal owned
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PF07 BKWD PF08 FV	ND PF09 PRINT	PF10 SDIV PF11	PF12

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OG5SECT

ONGARD

INQUIRE LAND BY SECTION

05/02/01 08:48:18 OGOMES -TPJ2

PAGE NO: 2

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INQUIRE WELL COMPLETIONS OGOMES -TPJ2 OG6IWCM

Pool Idn : 79122 INDIAN LOAFER DRAW; UPPER PENN (GAS)

OGRID Idn : 990 ARCO PERMIAN
Prop Idn : 24384 NASSER FEDERAL

Well No : 001 GL Elevation: 4420

U/L Sec Township Range North/South East/West Prop/Act(P/A)

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B.H. Locn : H 1 21S 21E FTG 1980 F N FTG 660 F E P

Lot Identifier:

Dedicated Acre: 319.96

Lease Type : F

Type of consolidation (Comm, Unit, Forced Pooling - C/U/F/O) :

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 HISTORY
 PF12
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INQUIRE WELL COMPLETIONS OG6IWCM OGOMES -TPJ2

Pool Idn : 80240 LITTLE BOX CANYON; MORROW (GAS)

OGRID Idn : 990 ARCO PERMIAN Prop Idn : 24384 NASSER FEDERAL

Well No : 001 GL Elevation: 4420

> U/L Sec Township Range North/South East/West Prop/Act(P/A) ___ ___

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B.H. Locn : H 1 21S 21E FTG 1980 F N FTG 660 F E

Lot Identifier:

Dedicated Acre: 319.96

Lease Type : F

Type of consolidation (Comm, Unit, Forced Pooling - C/U/F/O) :

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Page No: 1

OGRID Identifier: 990 ARCO PERMIAN

Pool Identifier : 79122 INDIAN LOAFER DRAW; UPPER PENN (GAS)

API Well No : 30 15 27865 Report Period - From : 01 2000 To : 04 2001

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30	15 27865	NASSER	FEDERAL	03	00	31	30944	18	F	
30	15 27865	NASSER	FEDERAL	04	00	30	29122	8	F	
30	15 27865	NASSER	FEDERAL	05	00	31	28088	17	F	
30	15 27865	NASSER	FEDERAL	06	00	30	28090	6	F	
30	15 27865	NASSER	FEDERAL	07	00	31	29613	13	F	

Reporting Period Total (Gas, Oil) :

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PF03 EXIT PF04 GoTo PF05 PF06 CONFIRM PF01 HELP PF02

PF07 BKWD PF08 FWD PF09 PF10 NXTPOOL PF11 NXTOGD PF12

Date: 5/2/2001 Time: 10:36:07 AM

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INQUIRE PRODUCTION BY POOL/WELL OG6 I PRD OGOMES -TPJ2

Page No: 2

OGRID Identifier: 990 ARCO PERMIAN

Pool Identifier : 79122 INDIAN LOAFER DRAW; UPPER PENN (GAS)

API Well No : 30 15 27865 Report Period - From : 01 2000 To : 04 2001

______ API Well No Property Name Prodn. Days Production Volumes Well MM/YY Prod Gas Oil Water Stat ______ F F F

Reporting Period Total (Gas, Oil): 277114 282

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