

3-11-2004 DATE IN	3-31-04 SUSPENSE	ENGINEER <i>MS</i>	LOGGED IN <i>mes</i>	TYPE <i>NSL</i>	P.MESO- APP NO. 409128991
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
 [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
 [PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
 [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
 [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
 [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

RECEIVED

MAR 11 2004

Oil Conservation Division
 1220 S. St. Francis Drive
 Santa Fe, NM 87505

[1] TYPE OF APPLICATION - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication

☒ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement

☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☐ Offset Operators, Leaseholders or Surface Owner

[C] ☐ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is accurate and complete to the best of my knowledge. I also understand that no action will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Mark Mick
 Print or Type Name

Mark Mick
 Signature

Operations Engineer
 Title

3/9/2004
 Date

msmick1@yahoo.com
 e-mail Address



Marathon
Oil Company

P.O. Box 3487
Houston, Texas 77253-3487
Telephone 713/296-1921

March 9, 2004

Mr. Richard Ezeanyim
Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87504

***RE: Indian Hills Unit Well No. 58 Unorthodox Location
1288' FSL & 2046' FEL, Sec. 17, Township 21 South, Range 24 East (SHL),
70' FSL & 1700' FWL, Sec. 17, Township 21 South, Range 24 East (BHL)
Indian Basin Upper Pennsylvanian Associated Pool***

Dear Mr. Ezeanyim,

By means of this application, Marathon Oil Company respectfully requests Non-Standard location approval for the proposed Indian Hills Unit Well No. 58 with a surface location of 1288' FSL & 2046' FEL, Section 17, Township 21 South, Range 24 East, and a terminus location of 70' FSL & 1700' FWL, Section 17, Township 21 South, Range 24 East, dedicated to a standard spacing unit consisting of 343.86 acres in the South half of Section 17.

Marathon proposes to complete the Indian Hills Unit Well No. 58 in the "Indian Basin Upper Pennsylvanian Associated Gas Pool" as promulgated by the New Mexico Oil Conservation Division Order No's R-9922, R-9922-A, R-9922-B, R-9922-C, R-9922-D and R-9922-E and the general rules for the Associated Gas Pools of Southeast New Mexico as promulgated by Division Order No. R-5333. These rules require wells to be located no closer than 660 feet to the outer boundary of the proration/spacing unit and no closer than 330 feet to the governmental quarter/quarter section line. The proposed Indian Hills Unit Well No. 58 is unorthodox because the penetration point and terminus for the Upper Pennsylvanian Associated Gas Pool are less than 660 feet from the Southern boundary of the 343.86 acre "lay down" gas proration unit located in the South half of Section 17, Township 21 South, Range 24 East (please see Attachment #1 – Well Location and Acreage Plat, Attachment #2 – Location Verification Map, and Attachment #3 – Vicinity Map). Based on the proposed directional plan, it is expected that the top of the Upper Pennsylvanian formation will be penetrated at 212' FSL & 1880' FWL of Section 17 at a projected true vertical depth of 7,919', and the terminus will be 70' FSL & 1700' FWL of Section 17 (please see Attachment #4 – Directional Plat supplied by Baker Inteq, Marathon's proposed directional drilling contractor).

Participating Area

The proposed well is located within the Indian Hills Unit Upper Pennsylvanian Participating Area (please see Attachment #5). The Indian Hills Unit is operated by Marathon Oil Company. Indian Hills Unit Well No. 58 is proposed to be dedicated to a standard lay down spacing unit consisting of 343.86 acres in the South Half of Section 17, Township 21 South, Range 24 East. The ownership of the proposed spacing unit is identical to the North Half of Section 20, which offsets the proposed unorthodox location in the Upper Pennsylvanian Associated Gas Pool. Marathon Oil Company has a 99.5444% working interest while Nearburg Exploration has a 0.45456% working interest in the South half of Section 17 and the North half of Section 20.

Directional Wellbore

The Indian Hills Unit Well No. 58 is proposed as a directionally drilled wellbore. Marathon's development of Sections 16, 17, 20 and 21, Township 21 South, Range 24 East, has relied heavily on directionally drilled wellbores because of the extreme topographical relief caused by the Seven Rivers Azotea Mesa (please see Attachment #6 East Indian Basin Topographical Map). No suitable surface location that satisfies the Bureau of Land Management's (BLM) requirements of minimizing surface disturbance on the Azotea Mesa could be found in the SW/4 of Section 16. Therefore it is planned to directionally drill from the Indian Hills Unit Well No. 52 {API No. 30-015-32805, approved under Administrative Order NSL-4755-A (BHL) (SD)} pad location to the proposed unorthodox bottom hole location.

Existing Wells and Simultaneous Dedication

Indian Hills Unit Well No. 58 is proposed to be dedicated to the existing gas proration unit in the South half of Section 17, Township 21 South, Range 24 East. Currently two (2) other wells, the Indian Hills Unit Well No. 42 {API No. 30-015-32355, approved under Administrative Order NSL-4755 (BHL)} and the Indian Hills Unit Well No. 52 produce from the Southeast Quarter (SE/4) of Section 17. No wells are producing from the Southwest Quarter (SW/4) of Section 17.

Geologic Issues

The Indian Basin Upper Pennsylvanian Associated Pool is predominantly composed of dolomite and limestone sequences. With current technology, only the dolomite sequences have proven productive and economic. The proposed Indian Hills Unit Well No. 58 is an attempt to further delineate and develop the Northwestern extent of the productive dolomite horizons in the Indian Hills Unit.

Based on open hole logs from offsetting wells, it is Marathon's current interpretation that a rapid and complete transition from dolomite to limestone facies occurs in the Southern most portion of the S/2 of Section 17. Reference is made to Attachment #7 - Indian Basin Field Map. The dark blue line shows the dolomite to limestone interface. The area

of the map that is white represents primarily dolomite facies while the blue shaded area represents primarily limestone facies. A cross section of open hole logs has been attached (Attachment #8). The cross section between Indian Hills Unit Well Nos. 6-A (API No. 30-015-20006), 40 (API No. 30-015-32222) and 15 (API No. 30-015-29870) also demonstrates the rapid transition from dolomite to limestone facies. Productive dolomite is colored pink on the cross section. Marathon believes that the transition to limestone occurs somewhere North of the Southern line of Section 17 and South of a line between the Indian Hills Unit Well Nos. 6-A and 15. Because of the geologic uncertainty where the transition happens, Marathon strongly believes the best bottom hole location to encounter economic and productive dolomite is the proposed unorthodox location herein.

Reservoir Management Plan

Marathon is completing the final anticipated infill development phase of the Indian Basin Upper Pennsylvanian Associated Gas Pool. The objective of this program is to infill drill the oil column from the original 160 acre well density to an 80 acre well density. It is Marathon's belief that the oil zone should be developed on a tighter spacing than the 160 acre development of the gas zone. This proposed 80 acre infill location will improve oil recovery while minimizing both economic and reservoir waste.

We believe that the proposed unorthodox BHL represents a superior location in regards to both geologic risk and reservoir drainage. The BHL of the Upper Pennsylvanian in the Indian Hills Unit Well No. 58 provides for a well balanced and near equal inter-well spacing between the existing Indian Hills Unit Well Nos. 40 (API No. 30-015-32222) and 52. The "equal" inter-well spacing will minimize well-to-well interference and maximize reserves recovery.

Notifications:

It is Marathon's understanding that since the working interest and mineral ownership are the same in the gas proration unit for the proposed well and the affected offset gas proration unit, no waivers are required.

Should you have any questions or concerns, please contact me at (713) 296-1921.

Respectfully,



Mark Mick
Operations Engineer
Indian Basin Asset Team
Marathon Oil Company

DISTRICT I

P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102

Revised February 10, 1994

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT II

P.O. Drawer DD, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

P.O. Box 2088, SANTA FE, N.M. 87504-2088

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 33685	Pool Name Indian Basin Upper Penn. Assoc.
Property Code	Property Name Indian Hills Unit	Well Number 58
OGRID No. 14021	Operator Name MARATHON OIL COMPANY	Elevation 4212'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	17	21-S	24-E		1288'	SOUTH	2046'	EAST	EDDY

Bottom Hole Location If Different From Surface

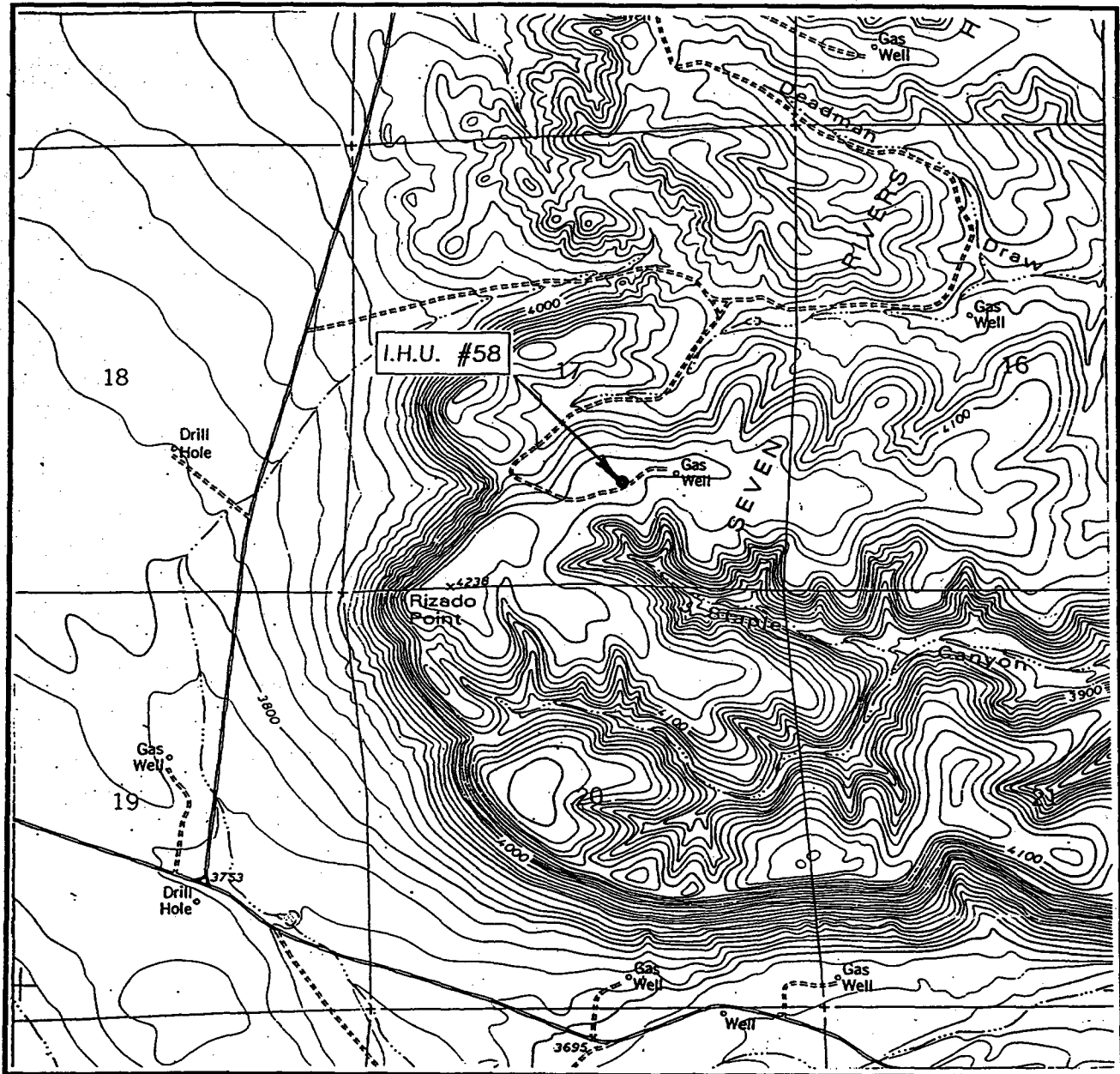
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	17	21-S	24-E		70'	SOUTH	1700'	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320 S/2			

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

<p>GEODETIC COORDINATES NAD 27 NME Y = 536769.5 N X = 442762.2 E LAT. 32°28'32.00"N LONG. 104°31'08.18"W</p> <p>Project Area</p>		<p>Standard Producing Area</p>	
<p>OPERATOR CERTIFICATION</p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Jerry Fletcher</i> Signature Jerry Fletcher Printed Name Engineer Tech. Title 9/25/03 Date</p>			
<p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>August 27, 2003</p> <p>Date Surveyed: _____ AWB Signature & Seal of Professional Surveyor GARY E. EDSON 9/14/03 03.11.09.18 Certificate No. GARY EDSON 12641</p>			

LOCATION VERIFICATION MAP

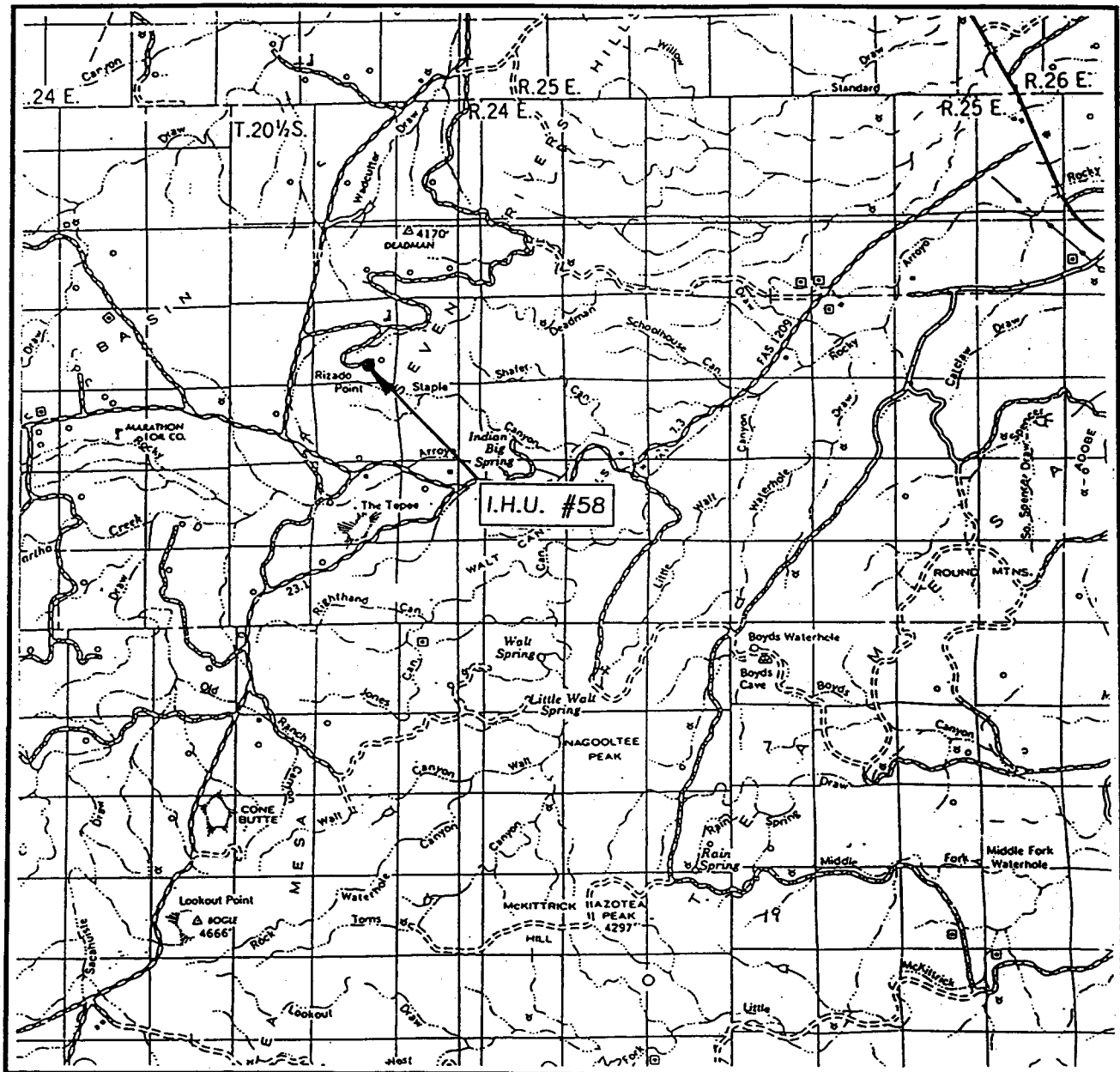


SCALE: 1" = 2000'

CONTOUR INTERVAL: 20'
MARTHA CREEK, N.M.SEC. 17 TWP. 21-S RGE. 24-ESURVEY N.M.P.M.COUNTY EDDYDESCRIPTION 1288' FSL 2046' FELELEVATION 4212'OPERATOR MARATHON OIL COMPANYLEASE I.H.U.U.S.G.S. TOPOGRAPHIC MAP
MARTHA CREEK, N.M.

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

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 17 TWP. 21-S RGE. 24-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1288' FSL 2046' FEL

ELEVATION 4212'

OPERATOR MARATHON OIL COMPANY

LEASE I.H.U.

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



INTEQ

Marathon Oil Company

Structure : Indian Hills Unit #58

Slot : slot #1

Field : INDIAN BASIN

Location : Eddy County New Mexico

Created by: danf

Date plotted : 15-Jan-2004

Plot Reference is Plan 2.

Coordinates are in feet reference slot #1.

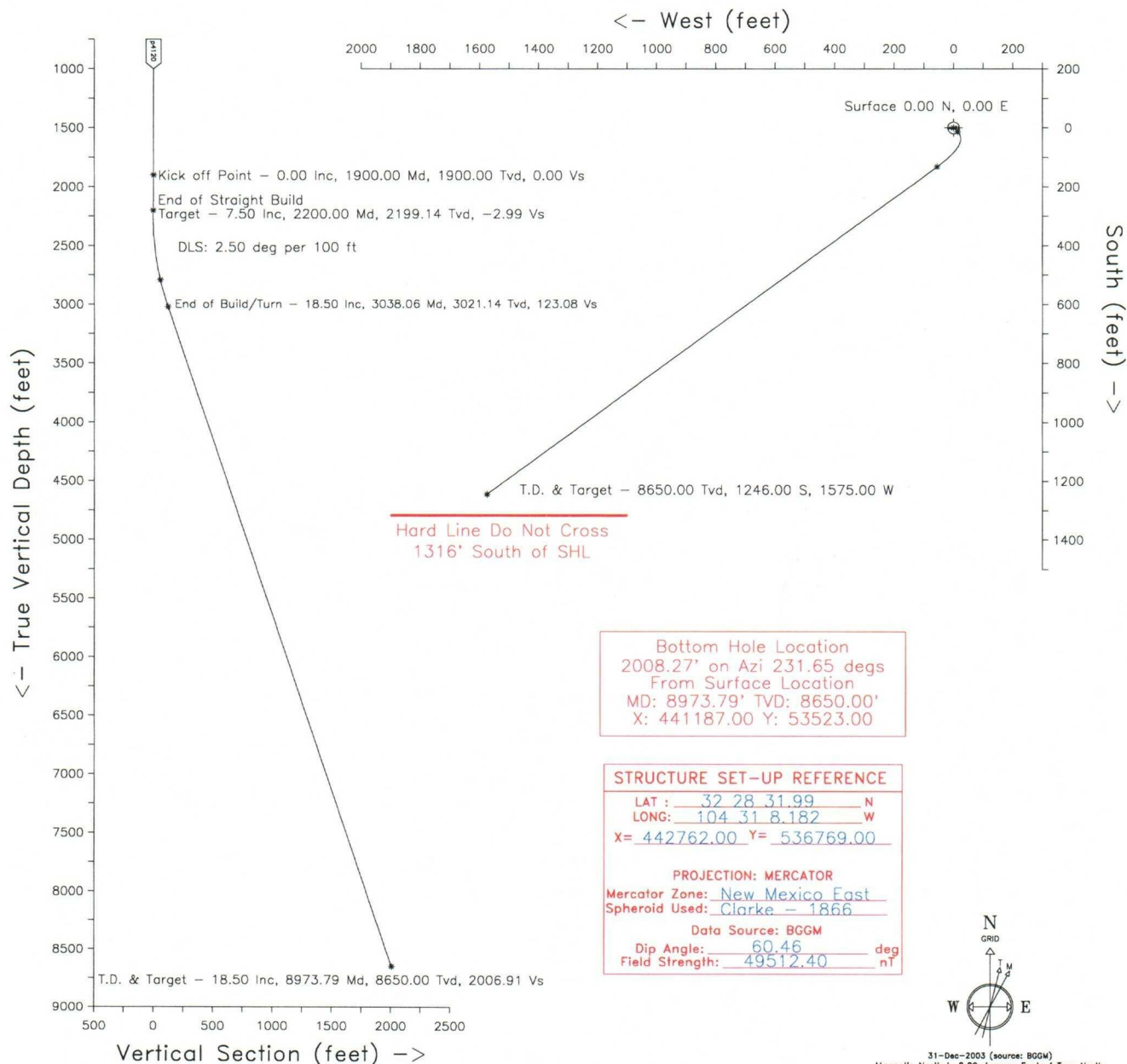
True Vertical Depths are reference rotary table.

58p2pp

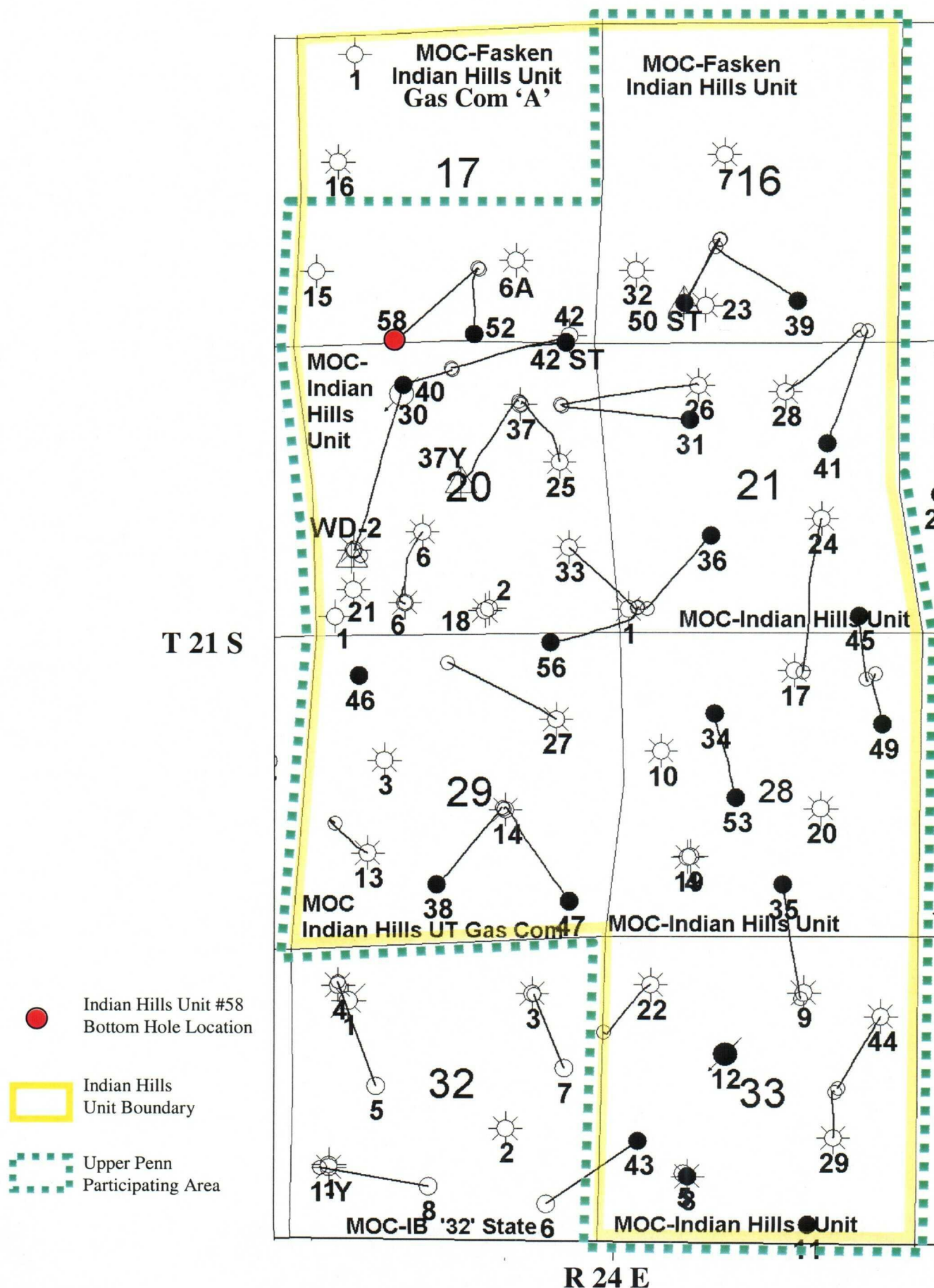
--- Baker Hughes INTEQ ---

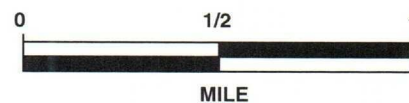
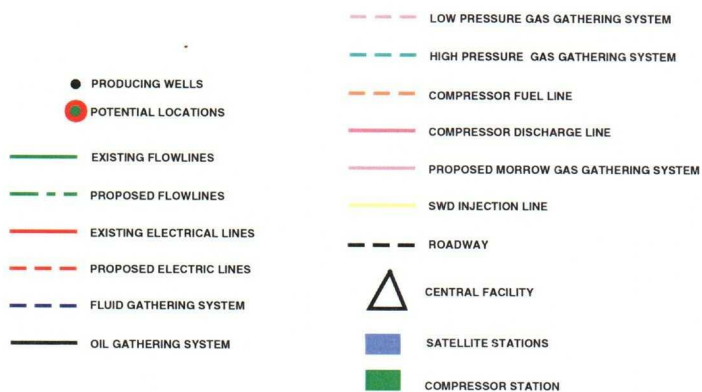
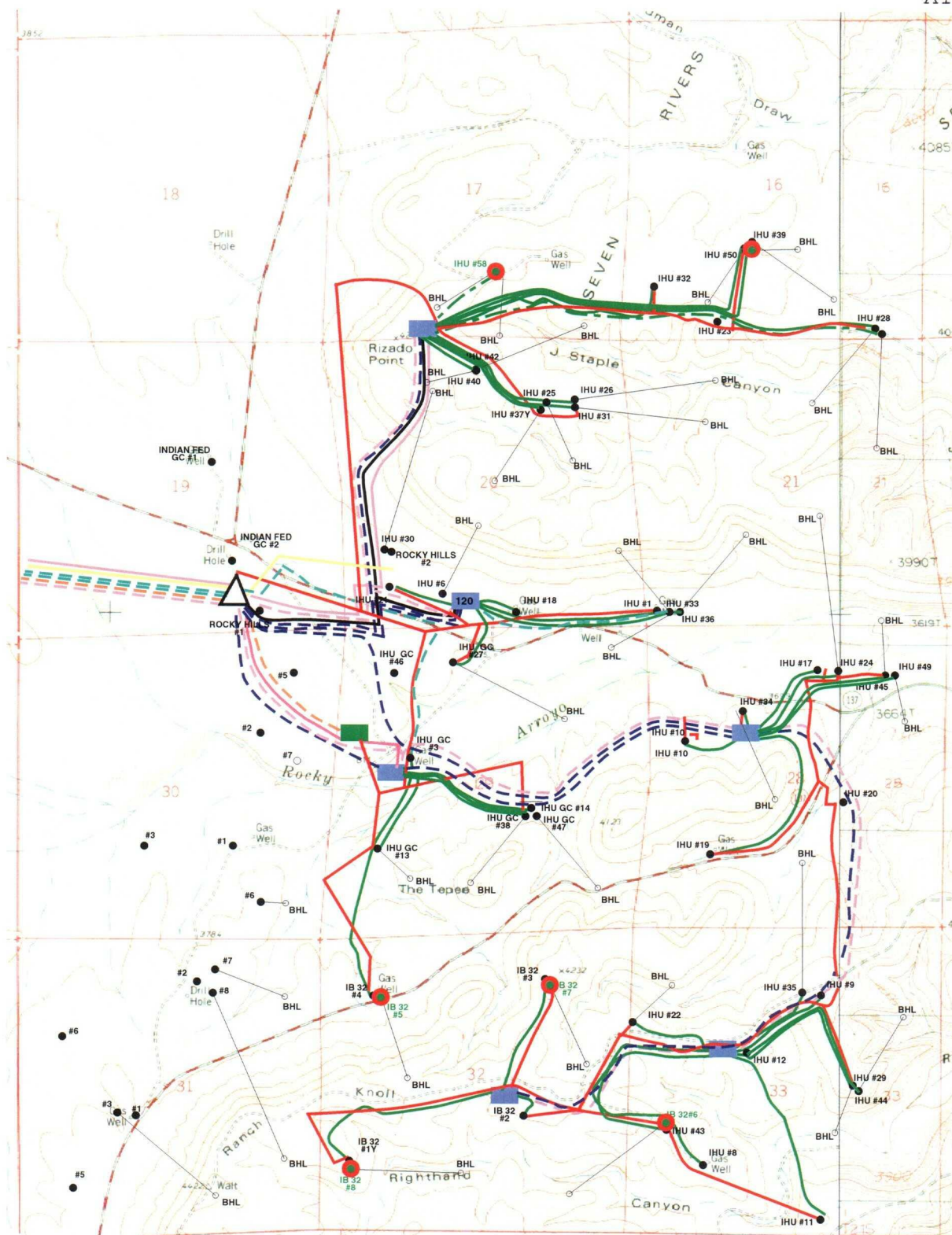
WELL PROFILE DATA

Point	MD	Inc	Dir	TVD	North	East	V. Sect	Deg/100
Tie on	0.00	0.00	135.00	0.00	0.00	0.00	0.00	0.00
KOP	1900.00	0.00	135.00	1900.00	0.00	0.00	0.00	0.00
Target End of Straight	2200.00	7.50	135.00	2199.14	-13.86	13.86	-2.99	2.50
End of Build/Turn	3038.06	18.50	233.76	3021.14	-132.46	-55.52	123.08	2.50
T.D. & Target BHL	8973.79	18.50	233.76	8650.00	-1246.00	-1575.00	2006.91	0.00



ATTACHMENT #5



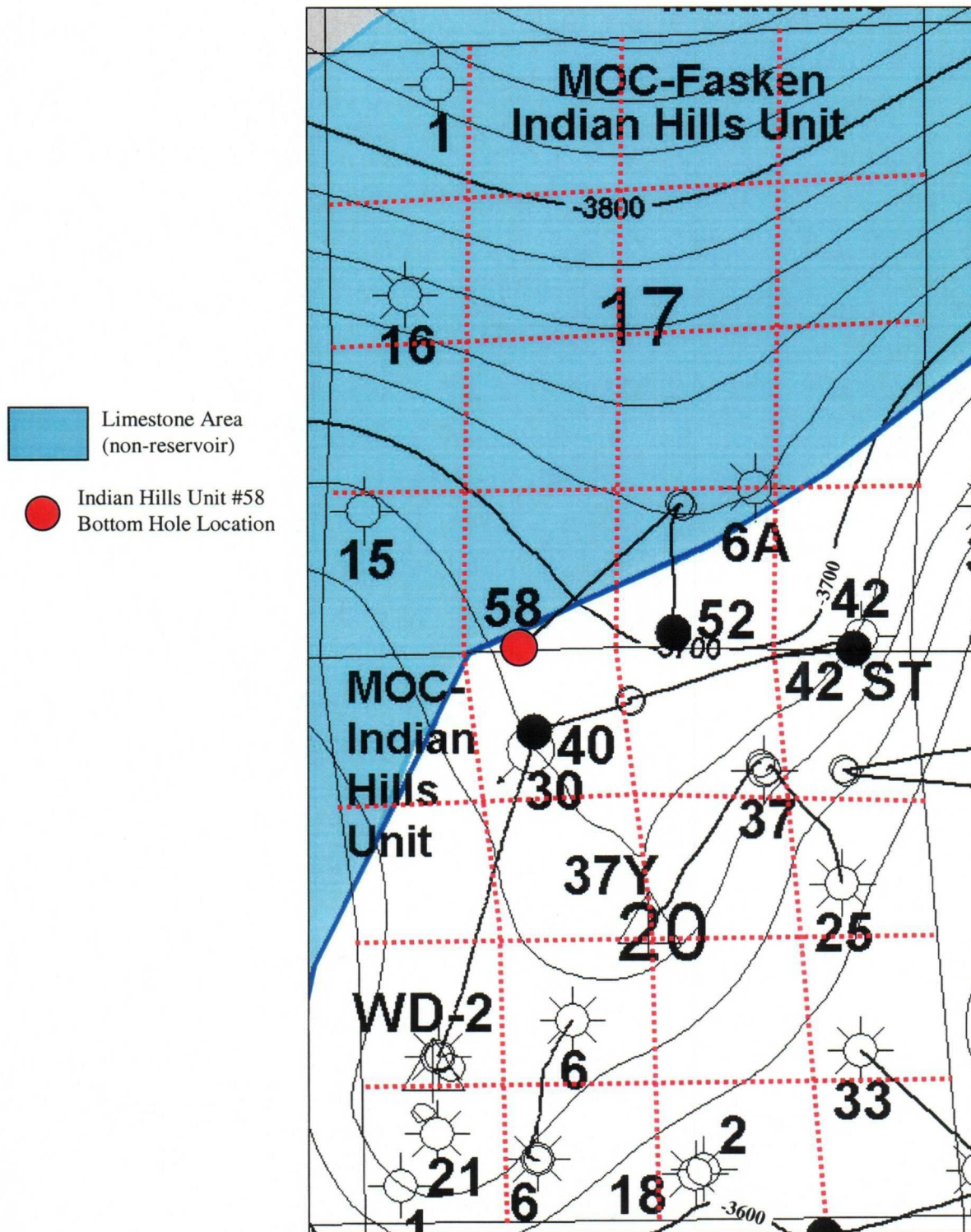


MARATHON OIL COMPANY
SOUTHERN BUSINESS UNIT

EAST INDIAN BASIN

EDDY COUNTY, NEW MEXICO

**STRUCTURAL ELEVATION, TOP OF UPPER PENNSYLVANIAN
AND PROPOSED IHU #58 WELL LOCATION**



Indian Hills Unit #58 Pre-Drill Assessment Stratigraphic Cross Section With Lithology Indicated

