



P.O. Box 3128
Houston, TX 77253-3128
Telephone 713/629-6600

PMES0-409157253
Susp: 4/20/04
RECEIVED

March 30, 2004

MAR 31 2004

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

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

**RE: *Indian Hills Unit Well No. 31 (API No. 30-015-31534) Sidetrack Re-Entry
1,093' FNL & 663' FEL, Sec. 20, Township 21 South, Range 24 East (SHL),
2,467' FNL & 496' FWL, Sec. 21, Township 21 South, Range 24 East (BHL)
Indian Basin Upper Pennsylvanian Associated Pool***

Dear Mr. Ezeanyim,

By means of this application, Marathon respectfully requests administrative approval for a non-standard location for the proposed sidetrack of the Indian Hills Unit Well No. 31. The current well has a surface location of 1,093' FNL & 663' FEL, Section 20, Township 21 South, Range 24 East. Marathon requests this approval in order to sidetrack and reposition the well to a more southern bottomhole location of 2,467' FNL & 496' FWL, Section 21, Township 21 South, Range 24 East in the Upper Pennsylvanian formation, and the well shall remain dedicated to the standard spacing unit consisting of the east half of Section 21.

Marathon proposes to sidetrack the Indian Hills Unit Well No. 31 in the "Indian Basin Upper Pennsylvanian Associated Pool" as promulgated by the New Mexico Oil Conservation Division Order Nos. R-9922, R-9922-A, R-9922-B, R-9922-C, and R-9922-D and the general rules for the Associated Gas Pools of Southeast New Mexico as promulgated by Division Order No. R-5533. 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. 31 is unorthodox because the wellbore will penetrate the Upper Pennsylvanian interval within the 660 foot setback from the western outer boundary of the 320-acre "stand-up" gas proration unit dedicated to the west half of Section 21 (please see Attachment #1 - Well Location and Acreage Dedication Plats, Attachment #2 - Location Verification Map, and Attachment #3 - Vicinity Map). Based on the proposed directional plan, it is expected that the Upper Pennsylvanian formation will be penetrated at 2,286' FNL & 340' FWL in Section 21, to the anticipated terminus of the wellbore at 2,467' FNL & 496' FWL in Section 21 (please see Attachment #4 - Directional Plat supplied by Baker Inteq, Marathon's proposed directional drilling company for the well).

In support of this application, specific details will be provided for the proposed unorthodox location. These details will include a brief Indian Hills Unit Well No. 31 history, the proration units related to the proposed well work, how the proposed sidetrack

fits into Marathon's reservoir management plan, and why the proposed location is geologically superior to a standard location in Section 21.

Well History:

The Indian Hills Unit Well No. 31 was directionally drilled in February, 2001, to a total depth of 8,982' MD. The well was completed in the Upper Pennsylvanian formation and placed on production. Production from this well has recently dropped significantly and continues to be on an extremely steep decline. In order to most optimally drain the Upper Pennsylvanian reservoir, Marathon's proposed plan is to first squeeze off the existing Upper Pennsylvanian formation perforations and sidetrack the well to a more southern bottomhole location.

Proration Unit:

Currently, the Indian Hills Unit Well No. 31 is dedicated to a standard proration unit consisting of the west half of Section 21, Township 21 South, Range 24 East. The proposed sidetrack will remain within this same proration unit. There are presently two other wells, the Indian Hills Unit Well No. 1 (API No. 30-015-10066), and the Indian Hills Unit Well No. 36 (API No. 30-015-32140), which also produce from this proration unit. For your information, the Indian Hills Unit Well No. 1 is producing from a non-standard location as per Administrative Order NSL-4649 (BHL). Further, there is an additional well in the western half of Section 21, the Indian Hills Unit Well No. 26 (API No. 30-015-31274), but this well produces from the deeper Morrow formation (please see Attachment #5 – Indian Basin field map covering Sections 21 and 24, Township 21 South, Range 24 East). The Indian Hills Unit is operated by Marathon Oil Company. Marathon has a 99.54544% working interest and Nearburg Exploration has a 0.45456% working interest. The ownership of this proration unit is identical to Section 20 which offsets to the west of the proposed unorthodox location in the Upper Pennsylvanian formation.

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 proved productive and economic. The proposed location for the sidetrack of the Indian Hills Unit Well No. 31 is expected to encounter minimal limestone because of dolomitic facies in all offsetting wells, and is expected to better develop the central area of the productive dolomite horizons within the Indian Hills Unit. Furthermore, the proposed penetration point at 2,286' FNL & 340' FWL in Section 21 is structurally on strike to the existing Indian Hills Unit Well No. 31 and is equivalent to the nearby and highly productive Indian Hills Unit Well No. 36 wellbore. A cross section between these wells has been generated for clarification purposes (please see Attachment #6).

Reservoir Management Plan:

Marathon is pursuing its 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 current 160-acre well density to an 80-acre well density. The proposed 80-acre infill program will improve oil recovery while minimizing both economic and reservoir waste.

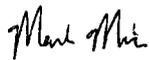
It is Marathon's belief that the proposed unorthodox location represents a superior location for optimal reservoir drainage than a standard location. The BHL of the Upper Pennsylvanian in the sidetracked Indian Hills Unit Well No. 31 provides a well balanced and near equal inter-well spacing between the existing wells. This 'equal' inter-well spacing will minimize well-to-well interference and hence maximize reserve recovery.

Notifications:

It is Marathon's understanding that because the gas spacing unit towards which the Indian Hills Unit Well No. 31 will be unorthodox is identical in ownership to that of the proposed, standard, 320-acre gas spacing unit, no waivers or notifications are required.

Should you have any questions/comments/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 1080, Hobbs, NM 88241-1080

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

For Lease - 3 Copies

DISTRICT II
P.O. Drawer 80, Artesia, NM 88211-0719

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT III
1000 Elia 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 30-015-31534	Pool Code	Pool Name INDIAN BASIN U. PENN. ASSOC.
Property Code	Property Name INDIAN HILLS UNIT	Well Number 31
OGRJD No.	Operator Name MARATHON OIL COMPANY	Elevation 4149'

Surface Location

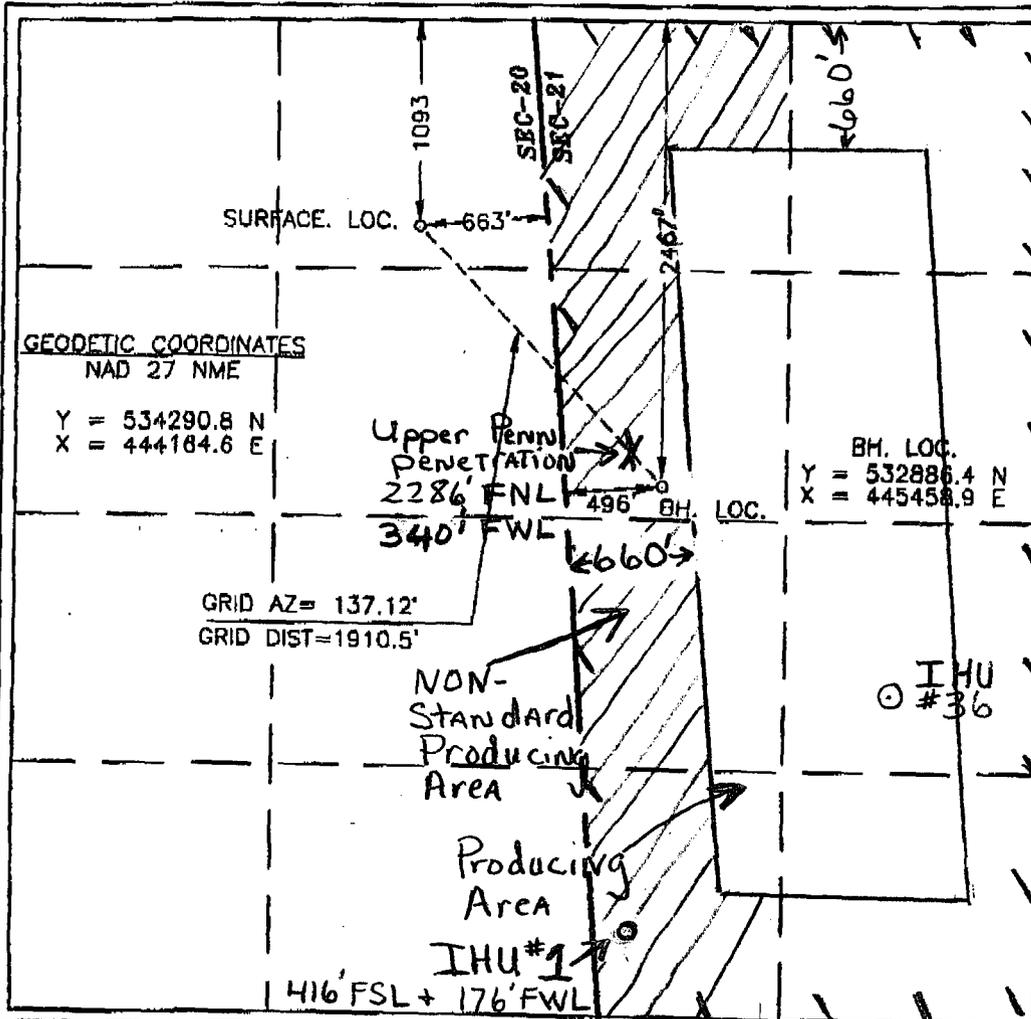
UL or lot No.	Section	Township	Range	Lot idn	Feet from the	North/South line	Feet from the	East/West line	County
A	20	21-S	24-E		1093	NORTH	663	EAST	EDDY

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
E	21	21-S	24-E		2467'	NORTH	496'	WEST	EDDY

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



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Signature: Mike Mick
 Printed Name: Mike Mick
 Title: Eng. Tech
 Date: 3-29-04

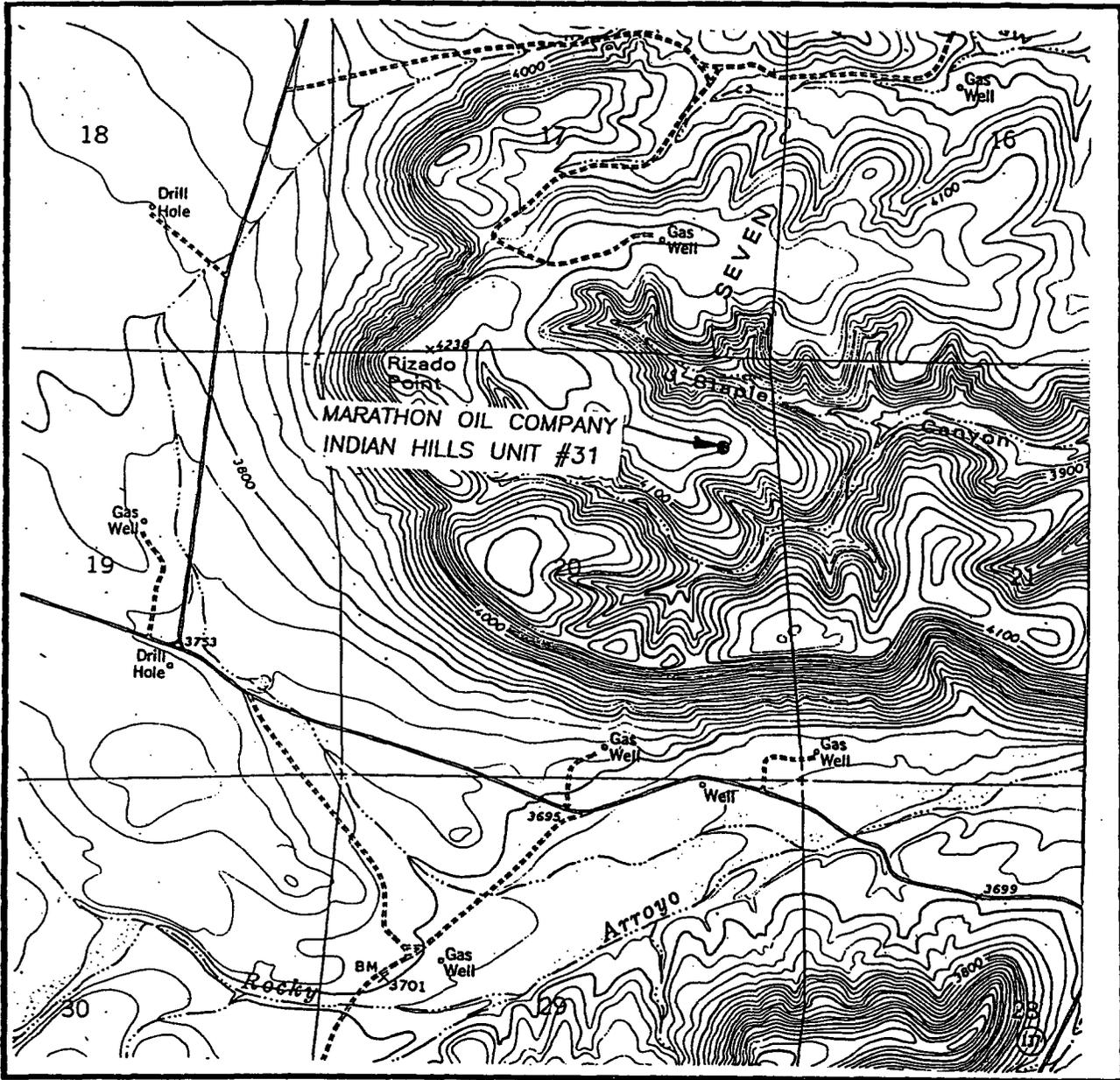
SURVEYOR CERTIFICATION

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.

October 18, 2000

Date Surveyed: _____ AWB
 Signature: GARY EDSON Rev. 03/24/04
 Professional Surveyor
 GARY EDSON
 NEW MEXICO
 04.13.0366
 Certified No. GARY EDSON 12841
 PROFESSIONAL SURVEYOR

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL - 20'

SEC. 20 TWP. 21-S RGE. 24-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1093' FNL & 663' FEL

ELEVATION 4149

OPERATOR MARATHON OIL COMPANY

LEASE INDIAN HILLS UNIT

U.S.G.S. TOPOGRAPHIC MAP

MARTHA CREEK, N.M.

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



INTEQ

Marathon Oil Company

Structure : Indian Hills Unit No. 31

Slot : IHU #31

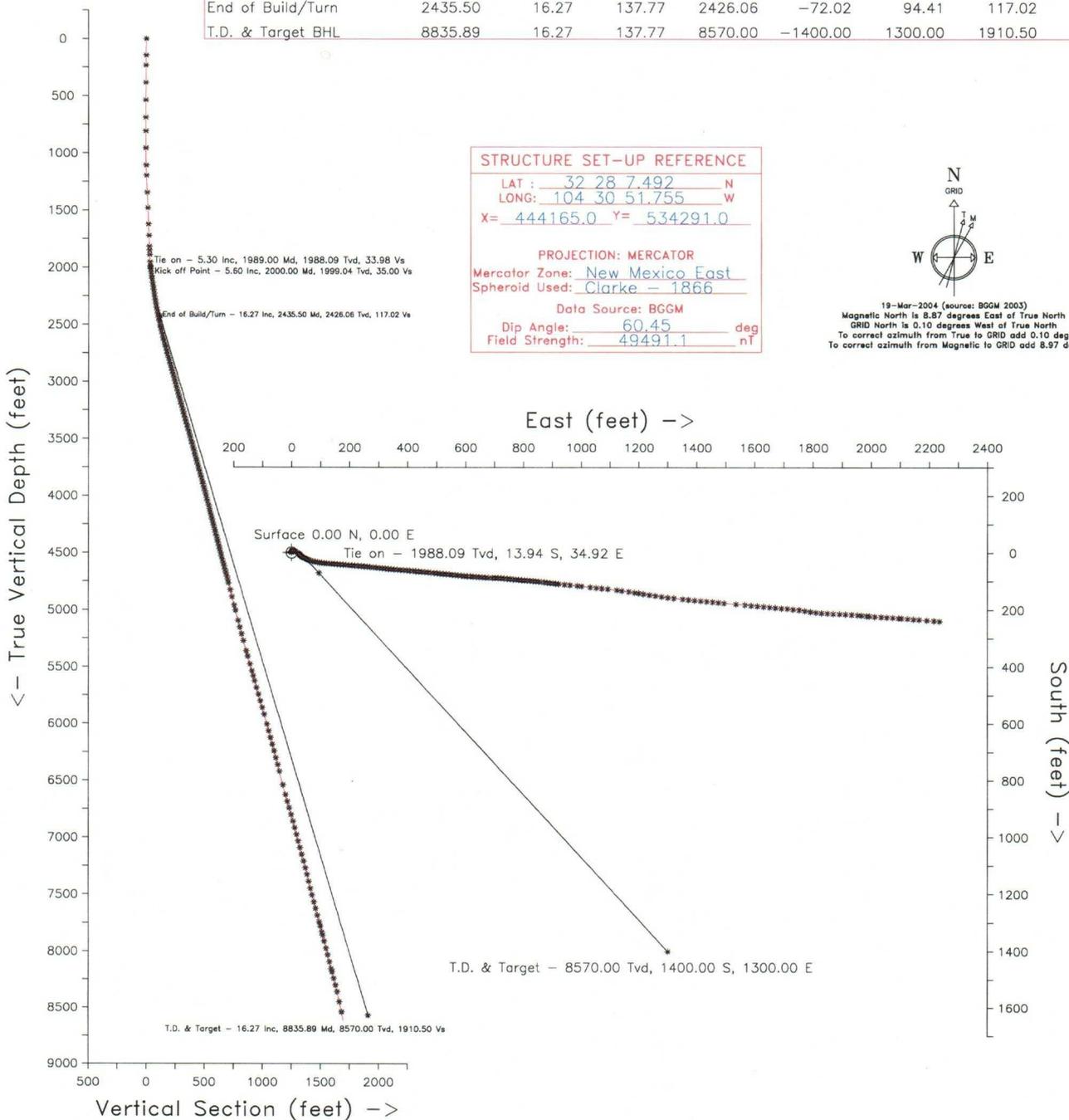
Field : Indian Basin

Location : EDDY COUNTY, NM.

Created by: danf
 Date plotted : 19-Mar-2004
 Plot Reference is ST P1.
 Coordinates are in feet reference IHU #31.
 True Vertical Depths are reference rotary table.
 31stst1
 --- Baker Hughes INTEQ ---

WELL PROFILE DATA

Point	MD	Inc	Dir	TVD	North	East	V. Sect	Deg/100
Tie on	1989.00	5.30	126.30	1988.09	-13.94	34.92	33.98	0.00
KOP	2000.00	5.60	124.80	1999.04	-14.54	35.77	35.00	3.02
End of Build/Turn	2435.50	16.27	137.77	2426.06	-72.02	94.41	117.02	2.50
T.D. & Target BHL	8835.89	16.27	137.77	8570.00	-1400.00	1300.00	1910.50	0.00

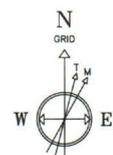


STRUCTURE SET-UP REFERENCE

LAT : 32 28 7.492 N
 LONG: 104 30 51.755 W
 X= 444165.0 Y= 534291.0

PROJECTION: MERCATOR
 Mercator Zone: New Mexico East
 Spheroid Used: Clarke - 1866

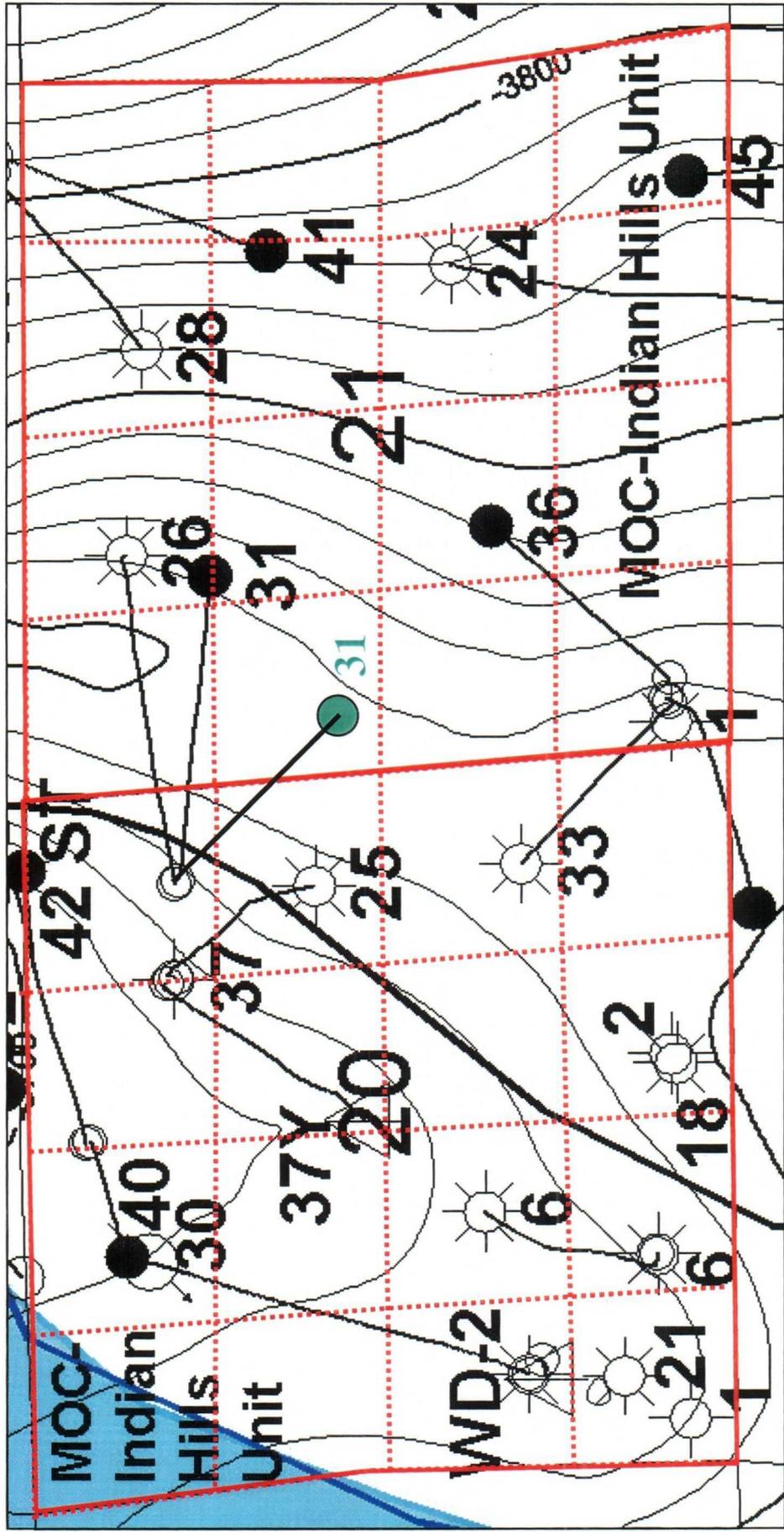
Data Source: BGGM
 Dip Angle: 60.45 deg
 Field Strength: 49491.1 nT



19-Mar-2004 (source: BGGM 2003)
 Magnetic North is 8.87 degrees East of True North
 GRID North is 0.10 degrees West of True North
 To correct azimuth from True to GRID add 0.10 deg
 To correct azimuth from Magnetic to GRID add 8.97 deg

Azimuth 137.12 with reference 0.00 N, 0.00 E from IHU #31

STRUCTURAL ELEVATION, TOP OF UPPER PENNSYLVANIAN
AND PROPOSED IHU #31 LOCATION



T 21 S

R 24 E

Structural Cross Section – Hung on OWC @ -4100'

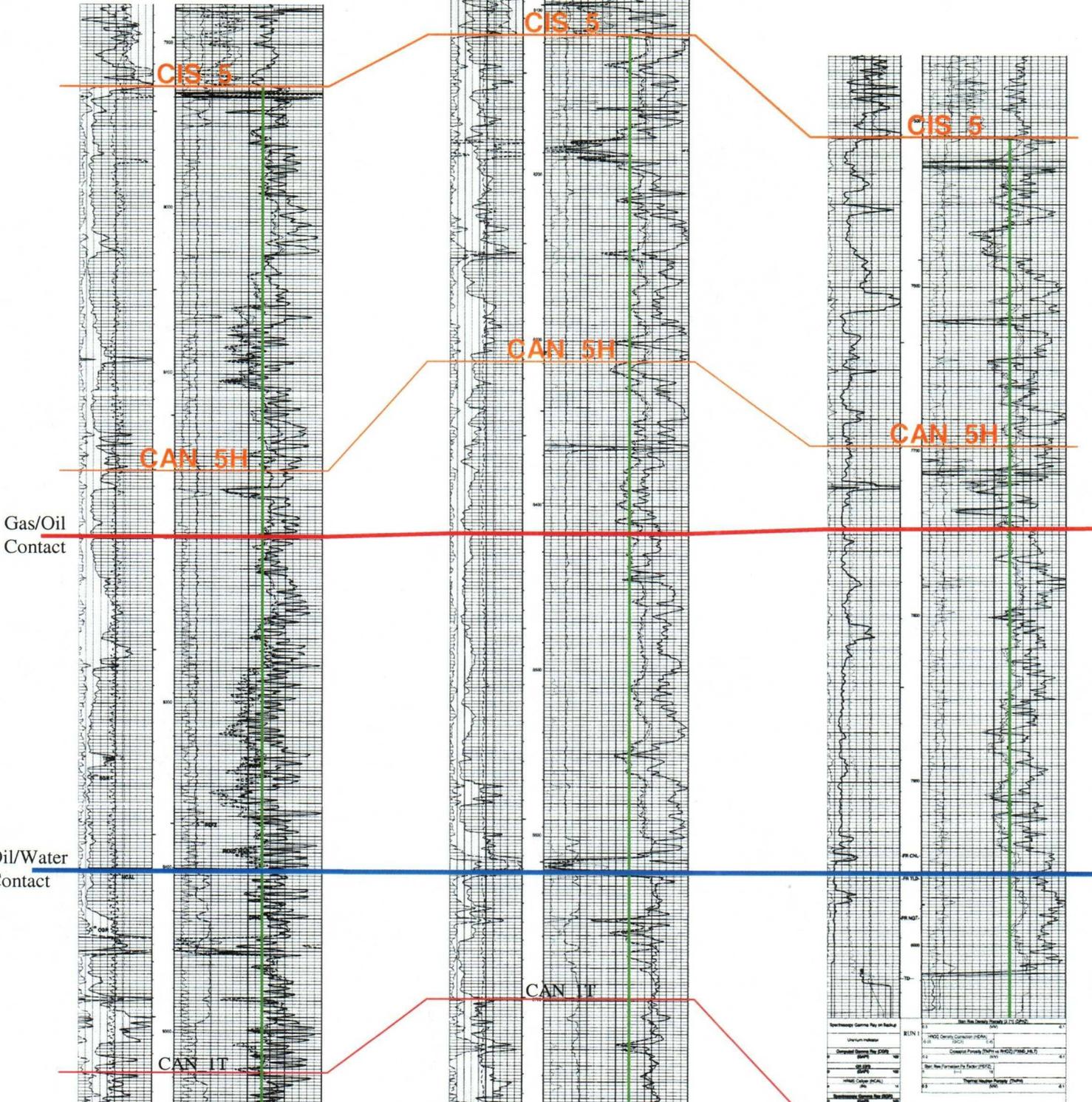
3001531194
Marathon
Indian Hills Unit #25
KB 4184

3001531534
Marathon
Indian Hills Unit #31
KB 4175

3001532140
Marathon
Indian Hills Unit #36
KB 3685

2947.8ft

3402.8ft



Gas/Oil Contact

Oil/Water Contact

6% porosity

T 21 S

R 24 E



Well Name	KB	Depth (ft)
CAN IT	3001531194	~4200
CAN 5H	3001531194	~4000
CIS 5	3001531194	~3800
CAN IT	3001531534	~4200
CAN 5H	3001531534	~4000
CIS 5	3001531534	~3800
CAN IT	3001532140	~4200
CAN 5H	3001532140	~4000
CIS 5	3001532140	~3800

Stogner, Michael

From: Stogner, Michael
Sent: Thursday, April 22, 2004 5:13 PM
To: Mark Mick (E-mail)
Subject: Indian Hills Unit #31

I am in the process of preparing an non-standard location order for your application filed on March 31st. From your application the proposed directional plan anticipates the Upper Pennsylvanian formation will be penetrated at a sub-surface location 2286' FNL & 340' FWL of Section 21.

At what depth is this expected to occur?

Stogner, Michael

From: Mick, Mark S. [msmick@marathonoil.com]
Sent: Friday, April 23, 2004 8:58 AM
To: MSTOGNER@state.nm.us
Subject: Indian Hills Unit #31

Mr. Stogner,

In response to your e-mailed question (copied below) regarding Marathon's non-standard location application for the Indian Hills Unit #31, I have provided the penetration depths as you requested. As you mentioned, we anticipate the Upper Pennsylvanian formation to be penetrated at a sub-surface location 2,286' FNL & 340' FWL of Section

21. This corresponds to the following approximate depths:

- -3,610' SSTVD
- 7,780' TVD
- 8,013' MD

I hope this provides you with the information you need, but if not please do not hesitate to let me know.

By the way, if it would not be too much trouble, could you please replace the "msmick1@yahoo.com" e-mail address in your records with my Marathon e-mail address of "msmick@marathonoil.com"? I only check that Yahoo address (which I primarily use for personal issues) every other day or so, but of course check my Marathon address numerous times during the day.

Thank you very much,

Mark Mick

Mark S. Mick

Operations Engineer
Indian Basin Asset Team
Marathon Oil Company
Office: (713) 296-1921
Cell: (713) 408-2247
Fax: (713) 296-4441
msmick@marathonoil.com

From: "Stogner, Michael" <MSTOGNER@state.nm.us>
To: "Mark Mick (E-mail)" <msmick1@yahoo.com>
Subject: Indian Hills Unit #31
Date: Thu, 22 Apr 2004 17:12:43 -0600

I am in the process of preparing an non-standard location order for your application filed on March 31st. From your application the proposed directional plan anticipates the Upper Pennsylvanian formation will be penetrated at a sub-surface location 2286' FNL & 340' FWL of Section 21.

4/23/2004