

NMOC

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Form 3160-4
(August 1999)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FFR 0 3 2004

FORM APPROVED
OMB No. 1004-0137
Expires: November 30, 2000

OCD-ARTESIA

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.
NMLC064243A1a. Type of Well ☐ Oil Well ☒ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.
NMNM70964A2. Name of Operator
MARATHON OIL COMPANYContact: CHARLES KENDRIX
E-Mail: cekendrix@marathonoil.com8. Lease Name and Well No.
INDIAN HILLS UNIT 523. Address P O BOX 3487
HOUSTON, TX 77253-34873a. Phone No. (include area code)
Ph: 713.296.20969. API Well No.
30-015-32805-00-S1

4. Location of Well (Report location clearly and in accordance with Federal requirements)*

At surface SWSE Lot 7 1265FSL 2073FEL

At top prod interval reported below SWSE Lot 7 323FSL 2152FEL

At total depth SWSE Lot 7 128FSL 2159FEL

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10. Field and Pool, or Exploratory
INDIAN BASIN UPPER PENN ASSOC11. Sec., T., R., M., or Block and Survey
or Area Sec 17 T21S R24E Mer NMP12. County or Parish
EDDY13. State
NM14. Date Spudded
09/20/200315. Date T.D. Reached
09/30/200316. Date Completed
☐ D & A ☒ Ready to Prod.
10/30/200317. Elevations (DF, KB, RT, GL)*
4207 GL18. Total Depth: MD 8764
TVD 861319. Plug Back T.D.: MD 8714
TVD 856620. Depth Bridge Plug Set: MD
TVD21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
SPECTRALDENSITY NEUTRON SPECTRALGAMMARA22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record (Report all strings set in well)

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sk. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
12.375	9.625 K55	36.0		1832		875		0	
8.750	7.000 K55	26.0		8764		1405		0	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)
2.875	8489							

25. Producing Intervals

26. Perforation Record

Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A) UPPER PENN	8050	8458	8117 TO 8448		596	SHOT IN 12 INT 4 PER FT. 120 DI
B)						
C)						
D)						

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
8030 TO 8330	STAGE 2: FOAMED ACID FRAC W/ 15,000 GALS OF 17% CCA SOUR
8300 TO 8500	STAGE 1: FOAMED ACID FRAC W/ 10,000 GALS OF 17% CCA SOUR.

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
10/30/2003	11/03/2003	24	→	92.0	901.0	1620.0			ELECTRIC PUMP SUB-SURFACE
Choke Size	Tbg. Press. Flwg. SI	Csg. Press. SI	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
	220	170.0	→	92	901	1620	9793	PGW	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press. SI	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

ACCEPTED FOR RECORD

ALEXIS C. SWOBODA
PETROLEUM ENGINEER

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #27256 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status	
			→						

29. Disposition of Gas(Sold, used for fuel, vented, etc.)
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top
					Meas. Depth
UPPER PENN	8050	8458		SAN ANDRES	1202
				GLORIETA	2862
				YESO	3006
				BONE SPRINGS	5146
				WOLFCAMP	7203
				CISCO	8050

32. Additional remarks (include plugging procedure):

Production Casing detail: All production casing is 7" K55 w/ two weights ran in the following sequence. 2 jts 26#

100 jts 23#

85 jts 26#

1 Float collar

1 jt 26#

Float shoe total depth 8764'

Notarized Inclination report and Directional survey are attached. The original copy of

33. Circle enclosed attachments:

1. Electrical/Mechanical Logs (1 full set req'd.)

2. Geologic Report

3. DST Report

4. Directional Survey

5. Sundry Notice for plugging and cement verification

6. Core Analysis

7 Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #27256 Verified by the BLM Well Information System.
For MARATHON OIL COMPANY, sent to the Carlsbad
Committed to AFMSS for processing by ARMANDO LOPEZ on 01/30/2004 (04AL0056SE)

Name (please print) CHARLES KENDRIX

Title AUTHORIZED REPRESENTATIVE

Signature (Electronic Submission)

Date 01/29/2004

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ** REVISED ****

Additional data for transaction #27256 that would not fit on the form

32. Additional remarks, continued

these, and a set of logs will be mailed to the Roswell office.

**McVAY DRILLING COMPANY**

Post Office Box 924
Hobbs, New Mexico 88241
(505) 397-3311
FAX: 39-DRILL

Well Name and Number: Indian Hills Unit # 52

Location: Sec. 21, T21S, R24E

Operator: Marathon

Drilling Contractor: McVay Drilling Company

The undersigned certifies that he is an authorized representative of the drilling contractor who drilled the above described well and that he has conducted deviation tests and obtained the following results:

Degrees @ Depth		Degrees @ Depth		Degrees @ Depth	
¼	300	16 ¼	5000	12 ¼	7626
¾	607	17	5251	11 ½	7848
¾	903	15 ½	5440	13 ½	8100
1	1212	16 ¼	5692	16	8414
¾	1521	15 ¼	5946	17 ¾	8603
¾	2046	15 ½	6134	18 ½	8667
¾	2392	16 ½	6325	18 ¾	8709
1 ¼	2836	16 ¼	6452		
1	3312	16 ¾	6643		
1	4023	17 ¼	6770		
1 ½	4086	16 ¼	7024		
14 ¼	4718	12 ½	7275		
15 ¾	4875	11 ½	7339		

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Drilling Contractor: McVay Drilling Company

By: [Signature]

Subscribed and sworn to before me this 14th day of October, 2003

[Signature]
Notary Public

My Commission Expires: 8-16-05

Lea County, New Mexico

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* * * N A U T I C A L (V e r s i o n 4 . 0 1) * * *

Well: Indian Hills Unit 52

Target Azimuth: 184.55

Closure Direction: 184

Target TVD: 8650

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	===== Tie-In Data				
100.00	0.58	303.91	100.00	-0.25	0.28	-0.42	0.51	0.006	-0.561	0.58	gyro
200.00	1.18	302.30	199.99	-0.98	1.11	-1.71	2.04	0.006	-0.016	0.60	gyro
300.00	1.24	304.17	299.96	-1.99	2.27	-3.48	4.15	0.001	0.019	0.07	gyro
400.00	1.16	303.76	399.94	-3.02	3.44	-5.21	6.25	-0.001	-0.004	0.08	gyro
500.00	1.05	306.90	499.92	-4.00	4.56	-6.79	8.17	-0.001	0.031	0.13	gyro
600.00	0.80	290.87	599.91	-4.69	5.35	-8.17	9.77	-0.003	-0.160	0.36	gyro
700.00	0.73	290.29	699.90	-5.06	5.82	-9.42	11.08	-0.001	-0.006	0.07	gyro
800.00	0.79	304.74	799.89	-5.58	6.44	-10.59	12.39	0.001	0.145	0.20	gyro
900.00	0.72	305.18	899.88	-6.24	7.19	-11.67	13.71	-0.001	0.004	0.07	gyro
1,000.00	0.72	294.75	999.88	-6.78	7.82	-12.75	14.96	0.000	-0.104	0.13	gyro
1,100.00	0.97	296.37	1,099.87	-7.31	8.46	-14.08	16.42	0.003	0.016	0.25	gyro
1,200.00	1.06	301.93	1,199.85	-8.05	9.32	-15.62	18.19	0.001	0.056	0.13	gyro
1,300.00	0.85	294.59	1,299.84	-8.73	10.12	-17.08	19.85	-0.002	-0.073	0.24	gyro
1,400.00	0.91	280.59	1,399.82	-9.07	10.57	-18.54	21.34	0.001	-0.140	0.22	gyro
1,500.00	0.96	271.66	1,499.81	-9.11	10.74	-20.15	22.84	0.000	-0.089	0.15	gyro
1,600.00	0.83	272.83	1,599.80	-9.05	10.80	-21.72	24.26	-0.001	0.012	0.13	gyro
1,700.00	0.71	259.04	1,699.79	-8.86	10.72	-23.05	25.42	-0.001	-0.138	0.22	gyro
1,800.00	0.50	250.69	1,799.78	-8.52	10.46	-24.07	26.24	-0.002	-0.084	0.23	gyro
1,900.00	0.43	251.50	1,899.78	-8.19	10.20	-24.83	26.85	-0.001	0.008	0.07	gyro
2,000.00	0.45	251.03	1,999.78	-7.89	9.95	-25.56	27.43	0.000	-0.005	0.02	gyro
2,100.00	0.51	249.62	2,099.77	-7.55	9.67	-26.35	28.07	0.001	-0.014	0.06	gyro
2,200.00	0.51	246.15	2,199.77	-7.15	9.33	-27.18	28.73	0.000	-0.035	0.03	gyro
2,300.00	0.50	246.24	2,299.77	-6.73	8.98	-27.98	29.39	0.000	0.001	0.01	gyro
2,400.00	0.34	240.77	2,399.76	-6.36	8.66	-28.64	29.92	-0.002	-0.055	0.16	gyro
2,500.00	0.46	220.38	2,499.76	-5.87	8.21	-29.16	30.29	0.001	-0.204	0.18	gyro
2,600.00	0.57	220.57	2,599.76	-5.14	7.52	-29.74	30.68	0.001	0.002	0.11	gyro
2,700.00	0.64	191.97	2,699.75	-4.18	6.60	-30.18	30.89	0.001	-0.286	0.31	gyro
2,800.00	0.47	179.67	2,799.75	-3.22	5.64	-30.30	30.82	-0.002	-0.123	0.21	gyro
2,900.00	0.45	190.76	2,899.74	-2.42	4.85	-30.37	30.75	0.000	0.111	0.09	gyro
3,000.00	0.67	215.24	2,999.74	-1.53	3.98	-30.78	31.03	0.002	0.245	0.32	gyro
3,100.00	0.75	200.93	3,099.73	-0.40	2.89	-31.35	31.48	0.001	-0.143	0.19	gyro
3,200.00	0.93	196.22	3,199.72	1.03	1.50	-31.81	31.84	0.002	-0.047	0.19	gyro
3,300.00	0.93	198.42	3,299.71	2.61	-0.05	-32.29	32.29	0.000	0.022	0.04	gyro
3,400.00	1.03	189.60	3,399.69	4.29	-1.70	-32.70	32.74	0.001	-0.088	0.18	gyro
3,500.00	0.83	178.60	3,499.68	5.91	-3.31	-32.83	33.00	-0.002	-0.110	0.27	gyro
3,600.00	0.83	190.81	3,599.67	7.35	-4.75	-32.95	33.29	0.000	0.122	0.18	gyro
3,700.00	0.75	189.18	3,699.66	8.72	-6.11	-33.19	33.75	-0.001	-0.016	0.08	gyro
3,800.00	0.50	200.78	3,799.65	9.79	-7.16	-33.45	34.21	-0.003	0.116	0.28	gyro
3,850.00	0.37	202.10	3,849.65	10.15	-7.51	-33.59	34.42	-0.003	0.026	0.26	gyro
3,960.00	0.44	211.60	3,959.65	10.87	-8.20	-33.94	34.92	0.001	0.086	0.09	mwd
4,023.00	0.88	207.09	4,022.65	11.53	-8.84	-34.29	35.41	0.007	-0.072	0.70	mwd
4,086.00	1.40	202.20	4,085.63	12.71	-9.98	-34.80	36.20	0.008	-0.078	0.84	mwd
4,148.00	2.60	196.90	4,147.59	14.81	-12.03	-35.49	37.48	0.019	-0.085	1.96	mwd
4,211.00	3.50	198.70	4,210.50	18.07	-15.22	-36.53	39.57	0.014	0.029	1.44	mwd
4,274.00	4.60	199.30	4,273.35	22.38	-19.42	-37.98	42.66	0.017	0.010	1.75	mwd
4,337.00	5.70	200.40	4,336.09	27.83	-24.74	-39.90	46.95	0.017	0.017	1.75	mwd
4,400.00	7.10	203.20	4,398.70	34.53	-31.25	-42.53	52.78	0.022	0.044	2.28	mwd
4,464.00	8.70	205.70	4,462.09	42.79	-39.25	-46.18	60.61	0.025	0.039	2.56	mwd
4,527.00	10.20	204.90	4,524.23	52.46	-48.60	-50.60	70.16	0.024	-0.013	2.39	mwd
4,591.00	11.70	204.30	4,587.06	63.89	-59.66	-55.66	81.59	0.023	-0.009	2.35	mwd
4,654.00	12.80	205.30	4,648.63	76.42	-71.79	-61.27	94.38	0.017	0.016	1.78	mwd
4,718.00	14.20	205.30	4,710.86	90.39	-85.30	-67.65	108.87	0.022	0.000	2.19	mwd
4,780.00	15.40	203.90	4,770.80	105.27	-99.70	-74.24	124.30	0.019	-0.023	2.02	mwd

* * * N A U T I C A L (V e r s i o n 4 . 0 1) * * *

Well: Indian Hills Unit 52

Target Azimuth: 184.55
Target TVD: 8650

Closure Direction: 184

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
4,843.00	15.80	202.50	4,831.48	121.33	-115.27	-80.91	140.83	0.006	-0.022	0.87 mwd	
4,939.00	16.10	200.40	4,923.78	146.56	-139.82	-90.55	166.58	0.003	-0.022	0.68 mwd	
5,000.00	16.20	197.60	4,982.38	162.99	-155.86	-96.07	183.09	0.002	-0.046	1.29 mwd	
5,063.00	16.20	191.60	5,042.88	180.27	-172.85	-100.50	199.94	0.000	-0.095	2.66 mwd	
5,124.00	16.30	185.20	5,101.45	197.28	-189.71	-102.98	215.86	0.002	-0.105	2.94 mwd	
5,187.00	16.70	179.60	5,161.86	215.14	-207.57	-103.72	232.04	0.006	-0.089	2.60 mwd	
5,251.00	17.10	176.50	5,223.10	233.62	-226.15	-103.08	248.54	0.006	-0.048	1.54 mwd	
5,313.00	16.60	176.80	5,282.43	251.42	-244.09	-102.03	264.56	-0.008	0.005	0.82 mwd	
5,377.00	16.00	177.20	5,343.86	269.23	-262.03	-101.09	280.86	-0.009	0.006	0.95 mwd	
5,440.00	15.60	178.60	5,404.48	286.26	-279.17	-100.46	296.70	-0.006	0.022	0.88 mwd	
5,504.00	15.50	180.00	5,466.14	303.35	-296.33	-100.25	312.83	-0.002	0.022	0.61 mwd	
5,565.00	16.00	178.90	5,524.85	319.84	-312.88	-100.09	328.50	0.008	-0.018	0.95 mwd	
5,629.00	16.30	177.50	5,586.32	337.53	-330.68	-99.53	345.33	0.005	-0.022	0.77 mwd	
5,692.00	16.30	177.20	5,646.79	355.07	-348.34	-98.71	362.05	0.000	-0.005	0.13 mwd	
5,756.00	15.70	176.80	5,708.31	372.56	-365.96	-97.79	378.80	-0.009	-0.006	0.95 mwd	
5,819.00	16.10	175.80	5,768.90	389.64	-383.18	-96.67	395.18	0.006	-0.016	0.77 mwd	
5,882.00	16.00	175.80	5,829.44	406.85	-400.55	-95.40	411.75	-0.002	0.000	0.16 mwd	
5,946.00	15.30	173.60	5,891.07	423.86	-417.74	-93.81	428.14	-0.011	-0.034	1.43 mwd	
6,009.00	16.00	175.40	5,951.74	440.60	-434.65	-92.19	444.32	0.011	0.029	1.35 mwd	
6,072.00	15.90	175.40	6,012.31	457.69	-451.91	-90.80	460.94	-0.002	0.000	0.16 mwd	
6,134.00	15.40	175.10	6,072.01	474.19	-468.58	-89.41	477.03	-0.008	-0.005	0.82 mwd	
6,198.00	15.60	176.90	6,133.69	491.11	-485.64	-88.22	493.59	0.003	0.028	0.81 mwd	
6,261.00	16.50	177.20	6,194.23	508.37	-503.03	-87.33	510.56	0.014	0.005	1.43 mwd	
6,325.00	16.40	176.80	6,255.61	526.34	-521.13	-86.38	528.24	-0.002	-0.006	0.24 mwd	
6,388.00	16.50	175.40	6,316.03	543.99	-538.93	-85.16	545.62	0.002	-0.022	0.65 mwd	
6,452.00	16.20	175.40	6,377.44	561.77	-556.89	-83.72	563.14	-0.005	0.000	0.47 mwd	
6,515.00	16.30	174.30	6,437.93	579.15	-574.44	-82.14	580.29	0.002	-0.017	0.51 mwd	
6,578.00	16.70	174.30	6,498.33	596.76	-592.25	-80.36	597.67	0.006	0.000	0.63 mwd	
6,642.00	16.70	173.60	6,559.63	614.83	-610.54	-78.42	615.55	0.000	-0.011	0.31 mwd	
6,706.00	17.05	171.90	6,620.88	633.02	-628.96	-76.07	633.55	0.005	-0.027	0.95 mwd	
6,770.00	17.30	171.90	6,682.02	651.46	-647.67	-73.41	651.82	0.004	0.000	0.39 mwd	
6,833.00	16.60	174.40	6,742.29	669.45	-665.90	-71.21	669.70	-0.011	0.040	1.60 mwd	
6,897.00	15.90	177.60	6,803.73	687.16	-683.76	-69.95	687.33	-0.011	0.050	1.78 mwd	
6,960.00	15.80	179.60	6,864.34	704.27	-700.96	-69.53	704.40	-0.002	0.032	0.88 mwd	
7,024.00	16.30	178.20	6,925.84	721.87	-718.65	-69.19	721.97	0.008	-0.022	0.99 mwd	
7,088.00	16.00	178.60	6,987.31	739.57	-736.45	-68.69	739.64	-0.005	0.006	0.50 mwd	
7,150.00	15.60	181.40	7,046.97	756.40	-753.32	-68.69	756.45	-0.006	0.045	1.39 mwd	
7,213.00	13.80	180.30	7,107.91	772.35	-769.31	-68.93	772.39	-0.029	-0.017	2.89 mwd	
7,275.00	12.30	182.40	7,168.31	786.32	-783.30	-69.25	786.35	-0.024	0.034	2.54 mwd	
7,339.00	11.60	182.80	7,230.92	799.57	-796.54	-69.85	799.59	-0.011	0.006	1.10 mwd	
7,402.00	11.40	183.20	7,292.65	812.12	-809.08	-70.51	812.15	-0.003	0.006	0.34 mwd	
7,466.00	10.80	182.10	7,355.46	824.44	-821.39	-71.08	824.46	-0.009	-0.017	0.99 mwd	
7,530.00	11.30	183.50	7,418.27	836.70	-833.64	-71.68	836.71	0.008	0.022	0.89 mwd	
7,594.00	11.90	186.00	7,480.96	849.56	-846.46	-72.75	849.58	0.009	0.039	1.22 mwd	
7,657.00	12.20	184.90	7,542.57	862.71	-859.55	-74.00	862.73	0.005	-0.017	0.60 mwd	
7,721.00	11.30	181.40	7,605.23	875.74	-872.56	-74.73	875.75	-0.014	-0.055	1.79 mwd	
7,785.00	11.20	179.70	7,668.00	888.19	-885.04	-74.85	888.20	-0.002	-0.027	0.54 mwd	
7,848.00	11.40	183.50	7,729.78	900.51	-897.38	-75.20	900.52	0.003	0.060	1.22 mwd	
7,912.00	10.80	184.90	7,792.59	912.83	-909.66	-76.10	912.84	-0.009	0.022	1.03 mwd	
7,975.00	10.80	184.50	7,854.47	924.64	-921.43	-77.07	924.65	0.000	-0.006	0.12 mwd	
8,037.00	11.80	186.70	7,915.27	936.78	-933.52	-78.26	936.79	0.016	0.035	1.76 mwd	
8,100.00	13.40	188.10	7,976.75	950.51	-947.14	-80.04	950.52	0.025	0.022	2.59 mwd	
8,164.00	14.70	182.80	8,038.84	966.03	-962.59	-81.48	966.04	0.020	-0.083	2.86 mwd	
8,227.00	15.70	179.60	8,099.63	982.51	-979.10	-81.81	982.52	0.016	-0.051	2.07 mwd	

* * * N A U T I C A L (V e r s i o n 4 . 0 1) * * *

Well: Indian Hills Unit 52

Target Azimuth: 184.55

Closure Direction: 184

Target TVD: 8650

Calculation Method - Minimum Curvature

Measured Depth (ft)	Inclination (deg.)	Azimuth (deg.)	True Vertical Depth (ft)	Vertical Section (ft)	North/ South (ft)	East/ West (ft)	Closure (ft)	Build Rate (deg/ft)	Walk Rate (deg/ft)	Dogleg Severity (d/100')	Tool Face (deg)
8,289.00	15.90	179.30	8,159.29	999.32	-995.98	-81.65	999.33	0.003	-0.005	0.35	mwd
8,353.00	15.90	180.30	8,220.84	1,016.79	-1,013.52	-81.59	1,016.80	0.000	0.016	0.43	mwd
8,414.00	16.10	181.00	8,279.48	1,033.57	-1,030.33	-81.78	1,033.57	0.003	0.011	0.46	mwd
8,477.00	16.70	181.00	8,339.91	1,051.32	-1,048.11	-82.09	1,051.32	0.010	0.000	0.95	mwd
8,541.00	17.50	180.30	8,401.08	1,070.10	-1,066.93	-82.30	1,070.10	0.013	-0.011	1.29	mwd
8,603.00	17.70	182.50	8,460.18	1,088.81	-1,085.67	-82.76	1,088.82	0.003	0.035	1.12	mwd
8,667.00	18.40	184.20	8,521.03	1,108.64	-1,105.46	-83.93	1,108.64	0.011	0.027	1.37	mwd
8,709.00	18.80	183.90	8,560.84	1,122.03	-1,118.83	-84.87	1,122.04	0.010	-0.007	0.98	mwd
8,764.00	18.80	183.90	8,612.91	1,139.76	-1,136.51	-86.08	1,139.76	0.000	0.000	0.00	proj