

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8-T2N-R65W

Nichols 26N-5HZ

Plan B Rev 1

Design: Actual Field Surveys

## Sperry Drilling Services Standard Report

11 December, 2012

Well Coordinates: 1,299,927.47 N, 3,229,147.33 E (40° 09' 13.64" N, 104° 40' 48.74" W)

Ground Level: 4,893.00 ft

Local Coordinate Origin:

Centered on Well Nichols 26N-5HZ

Viewing Datum:

RKB=25 @ 4918.00ft (HP 308)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

**HALLIBURTON**

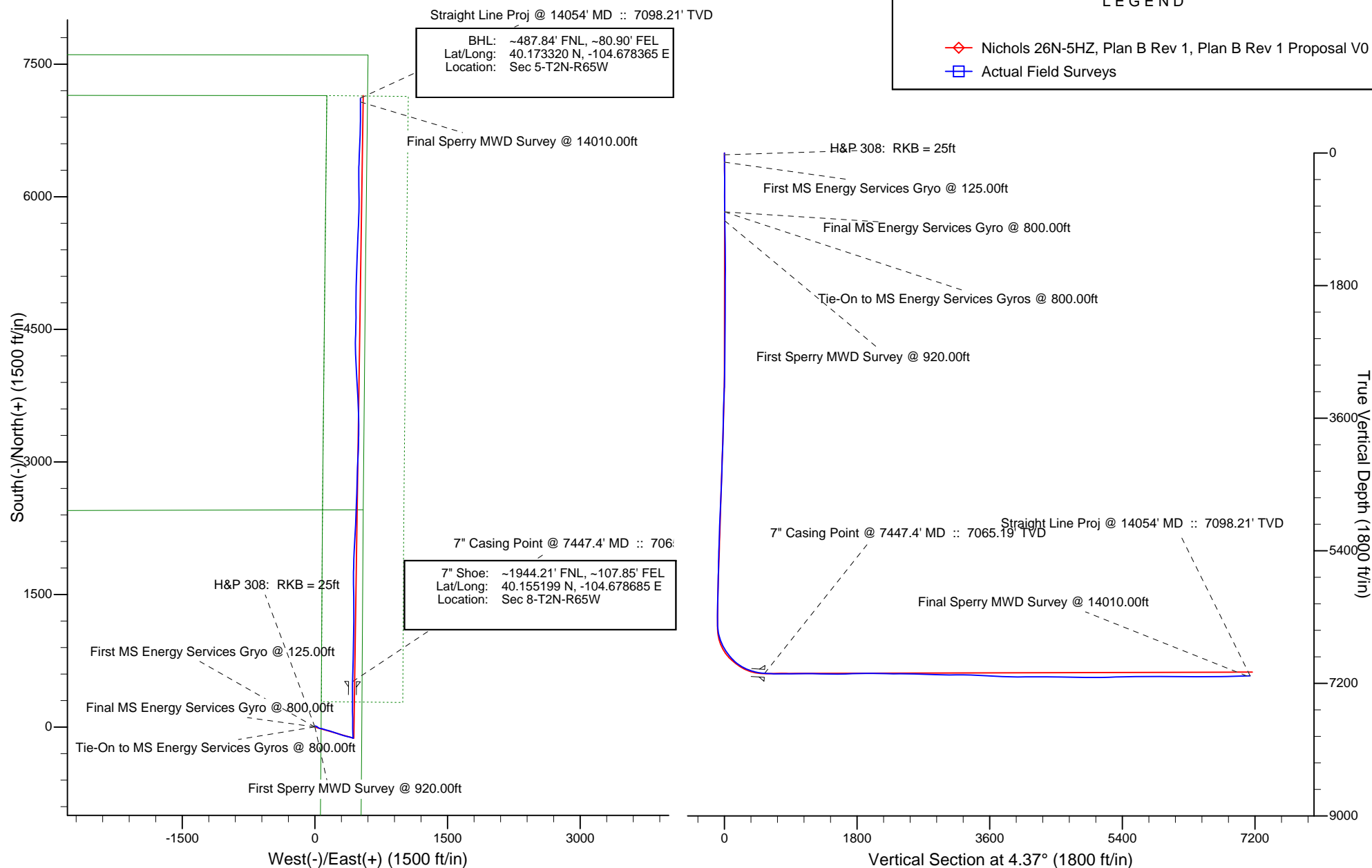
Project: Weld County, CO (NAD 83)  
 Site: Sec. 8-T2N-R65W  
 Well: Nichols 26N-5HZ



**HALLIBURTON**  
 Sperry Drilling

# LEGEND

- Nichols 26N-5HZ, Plan B Rev 1, Plan B Rev 1 Proposal V0
- Actual Field Surveys



**Design Report for Nichols 26N-5HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00
<b>H&amp;P 308: RKB = 25ft</b>							
125.00	0.76	319.26	125.00	0.50	-0.43	0.47	0.76
<b>First MS Energy Services Gryo @ 125.00ft</b>							
225.00	0.63	320.77	224.99	1.43	-1.21	1.33	0.13
325.00	0.70	331.84	324.98	2.40	-1.85	2.25	0.15
425.00	0.29	15.35	424.98	3.18	-2.07	3.01	0.53
525.00	0.16	328.67	524.98	3.54	-2.08	3.37	0.21
625.00	0.02	27.44	624.98	3.68	-2.14	3.50	0.15
725.00	0.17	226.57	724.98	3.59	-2.24	3.41	0.19
800.00	0.15	132.47	799.98	3.45	-2.25	3.27	0.31
<b>Tie-On to MS Energy Services Gyros @ 800.00ft - Final MS Energy Services Gyro @ 800.00ft</b>							
920.00	1.12	15.18	919.97	4.47	-1.83	4.32	1.00
<b>First Sperry MWD Survey @ 920.00ft</b>							
1,012.00	1.41	17.68	1,011.95	6.42	-1.25	6.31	0.32
1,104.00	1.03	26.15	1,103.93	8.24	-0.54	8.17	0.46
1,196.00	1.04	5.91	1,195.91	9.81	-0.09	9.78	0.40
1,287.00	0.54	68.62	1,286.91	10.79	0.40	10.79	1.02
1,379.00	0.89	80.76	1,378.90	11.06	1.51	11.15	0.41
1,471.00	0.60	67.39	1,470.89	11.36	2.66	11.53	0.37
1,563.00	0.78	78.88	1,562.88	11.67	3.71	11.92	0.25
1,655.00	1.32	128.10	1,654.87	11.14	5.16	11.50	1.09
1,747.00	1.25	112.59	1,746.85	10.10	6.92	10.59	0.38
1,839.00	1.03	93.99	1,838.83	9.65	8.67	10.29	0.46
1,931.00	1.04	101.12	1,930.81	9.43	10.32	10.19	0.14
2,022.00	1.18	111.85	2,021.80	8.93	12.00	9.81	0.27
2,114.00	0.99	103.63	2,113.78	8.39	13.65	9.40	0.27
2,209.00	0.99	104.85	2,208.77	7.98	15.24	9.12	0.02
2,304.00	1.01	108.43	2,303.75	7.51	16.83	8.77	0.07
2,398.00	1.13	109.47	2,397.73	6.94	18.49	8.32	0.13
2,493.00	0.99	117.99	2,492.72	6.24	20.10	7.75	0.22
2,588.00	1.08	133.12	2,587.70	5.24	21.47	6.86	0.30
2,683.00	1.42	120.83	2,682.68	4.03	23.14	5.78	0.45
2,778.00	1.11	108.33	2,777.66	3.13	25.02	5.03	0.44
2,872.00	1.09	120.15	2,871.64	2.40	26.66	4.42	0.24
2,967.00	0.87	120.87	2,966.63	1.58	28.06	3.71	0.23
3,062.00	1.92	140.76	3,061.60	-0.03	29.69	2.23	1.20
3,157.00	2.91	130.21	3,156.51	-2.82	32.54	-0.33	1.14
3,252.00	6.66	122.78	3,251.17	-7.36	39.01	-4.37	3.99
3,347.00	8.08	114.26	3,345.38	-13.08	49.73	-9.26	1.88
3,442.00	7.67	97.42	3,439.50	-16.65	62.11	-11.87	2.46
3,536.00	6.71	94.00	3,532.76	-17.84	73.80	-12.17	1.12
3,631.00	6.76	108.70	3,627.11	-20.02	84.64	-13.52	1.81
3,726.00	7.88	108.68	3,721.33	-23.90	96.10	-16.51	1.18
3,821.00	6.78	102.72	3,815.56	-27.22	107.74	-18.94	1.41
3,915.00	8.29	107.68	3,908.74	-30.50	119.61	-21.30	1.75
4,010.00	9.01	106.76	4,002.66	-34.72	133.26	-24.48	0.77
4,105.00	8.91	104.85	4,096.50	-38.75	147.50	-27.41	0.33
4,199.00	8.79	107.51	4,189.38	-42.78	161.38	-30.37	0.45

**Design Report for Nichols 26N-5HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
4,294.00	8.07	106.47	4,283.36	-46.86	174.70	-33.42	0.77
4,389.00	9.54	110.48	4,377.24	-51.50	188.47	-37.00	1.68
4,483.00	9.03	107.18	4,470.01	-56.41	202.81	-40.80	0.78
4,578.00	8.33	104.41	4,563.92	-60.32	216.60	-43.65	0.86
4,673.00	8.40	109.33	4,657.91	-64.33	229.81	-46.64	0.76
4,768.00	9.87	107.97	4,751.70	-69.14	244.11	-50.35	1.56
4,863.00	10.47	110.53	4,845.21	-74.68	259.94	-54.67	0.79
4,958.00	9.87	109.02	4,938.71	-80.36	275.72	-59.13	0.69
5,052.00	8.70	109.09	5,031.48	-85.31	290.05	-62.98	1.24
5,147.00	9.87	106.42	5,125.24	-89.96	304.65	-66.50	1.31
5,242.00	9.79	106.00	5,218.84	-94.49	320.23	-69.83	0.11
5,337.00	8.61	105.97	5,312.62	-98.67	334.83	-72.89	1.24
5,432.00	8.08	105.60	5,406.61	-102.42	348.10	-75.62	0.56
5,526.00	8.41	104.87	5,499.64	-105.96	361.10	-78.16	0.37
5,621.00	6.93	103.48	5,593.79	-109.08	373.39	-80.34	1.57
5,715.00	7.22	101.63	5,687.07	-111.60	384.69	-81.98	0.39
5,810.00	8.27	103.64	5,781.20	-114.41	397.18	-83.84	1.14
5,905.00	6.76	103.76	5,875.38	-117.35	409.25	-85.85	1.59
6,000.00	4.88	115.94	5,969.89	-120.45	418.32	-88.25	2.36
6,095.00	3.59	117.08	6,064.63	-123.57	424.60	-90.88	1.36
6,189.00	1.93	117.67	6,158.52	-125.65	428.62	-92.65	1.77
6,284.00	0.81	99.31	6,253.49	-126.50	430.70	-93.34	1.25
6,379.00	0.55	24.27	6,348.49	-126.19	431.55	-92.97	0.90
6,410.00	0.51	50.11	6,379.49	-125.97	431.72	-92.73	0.77
6,442.00	1.46	12.48	6,411.48	-125.48	431.91	-92.23	3.44
6,473.00	3.81	0.56	6,442.45	-124.06	432.01	-90.81	7.74
6,505.00	7.16	353.59	6,474.30	-121.02	431.80	-87.79	10.65
6,537.00	10.37	353.79	6,505.92	-116.17	431.26	-83.00	10.03
6,568.00	13.32	354.67	6,536.25	-109.84	430.63	-76.73	9.53
6,600.00	15.73	354.71	6,567.23	-101.85	429.89	-68.82	7.53
6,631.00	17.73	354.87	6,596.92	-92.96	429.08	-60.02	6.45
6,663.00	20.12	356.52	6,627.18	-82.61	428.31	-49.76	7.65
6,695.00	23.36	359.15	6,656.90	-70.77	427.88	-37.99	10.57
6,727.00	26.69	0.66	6,685.90	-57.24	427.87	-24.50	10.60
6,758.00	29.20	1.04	6,713.28	-42.72	428.09	-10.00	8.12
6,790.00	31.75	0.92	6,740.86	-26.49	428.36	6.20	7.97
6,821.00	33.84	359.90	6,766.91	-9.70	428.48	22.95	6.97
6,853.00	35.99	358.83	6,793.15	8.61	428.27	41.20	6.99
6,884.00	38.86	358.81	6,817.77	27.45	427.88	59.94	9.26
6,916.00	41.31	358.70	6,842.25	48.04	427.43	80.45	7.66
6,947.00	43.21	358.23	6,865.19	68.88	426.87	101.19	6.21
6,979.00	45.84	357.92	6,888.00	91.31	426.12	123.49	8.25
7,010.00	48.44	358.06	6,909.09	114.02	425.32	146.07	8.39
7,042.00	51.29	358.63	6,929.71	138.47	424.62	170.40	9.01
7,074.00	54.51	0.04	6,949.01	163.98	424.33	195.82	10.66
7,105.00	58.66	1.09	6,966.08	189.85	424.59	221.63	13.68
7,137.00	62.05	0.38	6,981.91	217.66	424.94	249.38	10.77
7,169.00	63.97	0.13	6,996.43	246.17	425.07	277.82	6.04
7,200.00	66.94	359.42	7,009.31	274.37	424.96	305.92	9.80
7,231.00	69.99	359.13	7,020.69	303.20	424.59	334.64	9.88
7,263.00	72.60	359.92	7,030.95	333.50	424.34	364.84	8.48

**Design Report for Nichols 26N-5HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7,295.00	74.15	0.41	7,040.10	364.16	424.43	395.42	5.06
7,326.00	76.10	0.88	7,048.06	394.12	424.77	425.32	6.46
7,358.00	79.45	359.41	7,054.84	425.39	424.85	456.50	11.39
7,402.00	83.77	359.93	7,061.25	468.91	424.60	499.87	9.89
7,447.40	86.29	1.10	7,065.19	514.13	425.00	545.00	6.11
<b>7" Casing Point @ 7447.4' MD :: 7065.19' TVD</b>							
7,473.00	87.71	1.75	7,066.53	539.69	425.64	570.53	6.11
7,536.00	87.16	1.26	7,069.35	602.60	427.29	633.39	1.17
7,630.00	89.63	1.52	7,071.98	696.53	429.57	727.21	2.64
7,725.00	90.74	1.82	7,071.67	791.49	432.34	822.11	1.21
7,817.00	90.56	1.57	7,070.63	883.44	435.06	914.00	0.33
7,909.00	90.25	1.11	7,069.98	975.41	437.21	1,005.87	0.60
8,001.00	90.25	0.29	7,069.58	1,067.40	438.33	1,097.68	0.89
8,093.00	88.95	0.45	7,070.22	1,159.40	438.93	1,189.45	1.42
8,185.00	89.20	359.94	7,071.70	1,251.38	439.24	1,281.20	0.62
8,277.00	89.14	359.73	7,073.04	1,343.37	438.98	1,372.90	0.24
8,368.00	88.95	359.36	7,074.55	1,434.36	438.25	1,463.56	0.46
8,460.00	90.56	359.77	7,074.95	1,526.35	437.55	1,555.24	1.81
8,552.00	91.48	359.31	7,073.31	1,618.33	436.82	1,646.89	1.12
8,644.00	92.16	0.03	7,070.39	1,710.28	436.29	1,738.54	1.08
8,737.00	91.48	1.22	7,067.43	1,803.23	437.30	1,831.29	1.47
8,828.00	90.56	2.15	7,065.81	1,894.17	439.98	1,922.18	1.44
8,920.00	89.69	2.65	7,065.61	1,986.09	443.83	2,014.12	1.09
9,012.00	88.83	3.10	7,066.80	2,077.97	448.44	2,106.08	1.05
9,104.00	88.76	3.20	7,068.74	2,169.81	453.50	2,198.04	0.13
9,198.00	89.07	2.76	7,070.52	2,263.66	458.38	2,291.99	0.57
9,293.00	89.26	2.44	7,071.90	2,358.56	462.69	2,386.94	0.39
9,388.00	89.63	2.16	7,072.82	2,453.47	466.50	2,481.87	0.49
9,483.00	88.89	1.98	7,074.05	2,548.40	469.94	2,576.79	0.80
9,578.00	89.88	1.79	7,075.07	2,643.35	473.06	2,671.69	1.06
9,673.00	86.78	1.50	7,077.84	2,738.25	475.79	2,766.53	3.28
9,767.00	86.91	1.64	7,083.01	2,832.08	478.36	2,860.28	0.20
9,862.00	88.39	2.06	7,086.90	2,926.94	481.42	2,955.10	1.62
9,957.00	90.49	2.46	7,087.83	3,021.86	485.17	3,050.03	2.25
10,052.00	91.05	2.68	7,086.56	3,116.76	489.43	3,144.97	0.63
10,147.00	90.06	1.33	7,085.64	3,211.69	492.75	3,239.89	1.76
10,241.00	87.71	0.33	7,087.47	3,305.65	494.11	3,333.68	2.72
10,336.00	87.03	359.55	7,091.82	3,400.55	494.01	3,428.30	1.09
10,431.00	86.53	359.32	7,097.16	3,495.40	493.08	3,522.79	0.58
10,526.00	87.03	357.78	7,102.50	3,590.21	490.68	3,617.15	1.70
10,620.00	87.90	357.61	7,106.65	3,684.05	486.90	3,710.42	0.94
10,715.00	88.39	357.91	7,109.73	3,778.92	483.19	3,804.74	0.60
10,810.00	88.08	357.06	7,112.66	3,873.79	479.02	3,899.01	0.95
10,904.00	90.00	356.34	7,114.23	3,967.61	473.61	3,992.15	2.18
10,999.00	91.24	356.74	7,113.20	4,062.43	467.88	4,086.26	1.37
11,094.00	89.81	356.07	7,112.33	4,157.24	461.92	4,180.34	1.66
11,189.00	90.31	359.10	7,112.23	4,252.14	457.92	4,274.66	3.23
11,283.00	90.00	0.39	7,111.98	4,346.14	457.50	4,368.36	1.41
11,379.00	88.89	2.00	7,112.91	4,442.11	459.50	4,464.20	2.04
11,473.00	88.58	1.45	7,114.98	4,536.04	462.33	4,558.08	0.67
11,568.00	88.89	0.67	7,117.08	4,631.00	464.09	4,652.89	0.88

**Design Report for Nichols 26N-5HZ - Actual Field Surveys**

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
11,663.00	89.07	0.19	7,118.77	4,725.98	464.80	4,747.65	0.54
11,758.00	88.58	359.33	7,120.72	4,820.96	464.41	4,842.33	1.04
11,852.00	91.05	1.29	7,121.02	4,914.95	464.91	4,936.08	3.35
11,947.00	89.94	0.09	7,120.20	5,009.93	466.06	5,030.88	1.72
12,042.00	90.80	2.65	7,119.59	5,104.90	468.33	5,125.74	2.84
12,137.00	91.54	2.91	7,117.65	5,199.76	472.94	5,220.68	0.83
12,232.00	91.54	2.36	7,115.10	5,294.63	477.30	5,315.60	0.58
12,326.00	91.73	1.65	7,112.41	5,388.53	480.59	5,409.48	0.78
12,421.00	90.49	2.30	7,110.57	5,483.46	483.86	5,504.38	1.47
12,516.00	90.93	1.90	7,109.40	5,578.38	487.34	5,599.30	0.63
12,611.00	90.37	2.76	7,108.32	5,673.30	491.20	5,694.23	1.08
12,705.00	90.43	1.75	7,107.66	5,767.22	494.90	5,788.16	1.08
12,800.00	90.19	1.03	7,107.15	5,862.19	497.21	5,883.03	0.80
12,895.00	89.63	0.08	7,107.30	5,957.19	498.13	5,977.82	1.16
12,990.00	89.57	359.39	7,107.96	6,052.18	497.69	6,072.51	0.73
13,084.00	89.69	358.82	7,108.57	6,146.17	496.22	6,166.11	0.62
13,179.00	88.95	0.64	7,109.70	6,241.16	495.77	6,260.79	2.07
13,274.00	89.26	0.77	7,111.18	6,336.14	496.94	6,355.58	0.35
13,369.00	90.00	2.81	7,111.79	6,431.08	499.91	6,450.48	2.28
13,463.00	90.31	2.47	7,111.54	6,524.98	504.24	6,544.43	0.49
13,558.00	90.80	2.01	7,110.62	6,619.90	507.95	6,639.36	0.71
13,653.00	91.24	1.45	7,108.93	6,714.85	510.82	6,734.25	0.75
13,748.00	91.36	1.40	7,106.77	6,809.79	513.18	6,829.10	0.14
13,842.00	91.24	0.32	7,104.64	6,903.76	514.59	6,922.90	1.16
13,937.00	91.73	0.01	7,102.18	6,998.72	514.86	7,017.61	0.61
14,010.00	92.04	359.57	7,099.78	7,071.68	514.60	7,090.34	0.74
<b>Final Sperry MWD Survey @ 14010.00ft</b>							
14,054.00	92.04	359.57	7,098.21	7,115.65	514.27	7,134.15	0.00
<b>Straight Line Proj @ 14054' MD :: 7098.21' TVD</b>							

**Design Annotations**

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
25.00	25.00	0.00	0.00	H&P 308: RKB = 25ft
125.00	125.00	0.50	-0.43	First MS Energy Services Gyro @ 125.00ft
800.00	799.98	3.45	-2.25	Tie-On to MS Energy Services Gyros @ 800.00ft
800.00	799.98	3.45	-2.25	Final MS Energy Services Gyro @ 800.00ft
920.00	919.97	4.47	-1.83	First Sperry MWD Survey @ 920.00ft
14,010.00	7,099.78	7,071.68	514.60	Final Sperry MWD Survey @ 14010.00ft
14,054.00	7,098.21	7,115.65	514.27	Straight Line Proj @ 14054' MD :: 7098.21' TVD

**Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (ft)
				+N/-S (ft)	+E/-W (ft)	
Target	Nichols 26N-5HZ_BHL	4.37	Slot	0.00	0.00	0.00

## Design Report for Nichols 26N-5HZ - Actual Field Surveys

### Survey tool program

From (ft)	To (ft)	Survey/Plan	Survey Tool
25.00	800.00	MS Energy Services - Surface Gyros	NS-GYRO-MS
920.00	7,402.00	Sperry MWD Surveys - Vert/Build	MWD+IFR1+SC
7,473.00	14,010.00	Sperry MWD Surveys - Lateral	MWD+IFR1+SC

### Casing Details

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
7,447.40		7" Casing Point @ 7447.4' MD :: 7065.19' TVD	7	8-3/4

## Design Report for Nichols 26N-5HZ - Actual Field Surveys

**Targets**

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Nichols 26N-5HZ_Si	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Polygon									
Point 1			-4,200.06	7,148.54		1,307,036.59	3,224,881.54		
Point 2			-4,223.61	5,093.47		1,304,981.47	3,224,876.99		
Point 3			-4,253.64	2,906.15		1,302,794.06	3,224,867.19		
Point 4			-4,264.38	1,986.08		1,301,873.97	3,224,864.95		
Point 5			-4,285.32	-204.45		1,299,683.43	3,224,864.27		
Point 6			-4,306.17	-2,391.34		1,297,496.53	3,224,863.63		
Point 7			-2,128.11	-2,391.45		1,297,516.56	3,227,041.51		
Point 8			50.28	-2,391.86		1,297,536.28	3,229,219.72		
Point 9			68.21	-215.84		1,299,712.29	3,229,217.53		
Point 10			82.14	1,997.39		1,301,925.46	3,229,211.00		
Point 11			89.70	2,917.46		1,302,845.52	3,229,210.06		
Point 12			111.81	5,086.68		1,305,014.76	3,229,212.11		
Point 13			135.44	7,143.87		1,307,072.00	3,229,216.72		
Point 14			-2,032.43	7,146.21		1,307,054.30	3,227,049.01		
Nichols 26N-5HZ_Hi	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Polygon									
Point 1			528.23	-217.04		1,299,715.34	3,229,677.53		
Point 2			-4,285.32	-204.45		1,299,683.43	3,224,864.27		
Nichols 26N-5HZ_Si	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Polygon									
Point 1			-4,720.03	2,444.93		1,302,328.57	3,224,405.10		
Point 2			-2,087.47	2,451.70		1,302,359.67	3,227,037.38		
Point 3			545.07	2,458.63		1,302,390.94	3,229,669.63		
Nichols 26N-5HZ_Li	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Polygon									
Point 1			135.44	7,143.87		1,307,072.00	3,229,216.72		
Point 2			111.81	5,086.68		1,305,014.76	3,229,212.11		
Point 3			89.70	2,917.46		1,302,845.52	3,229,210.06		
Point 4			82.14	1,997.39		1,301,925.46	3,229,211.00		
Point 5			72.86	287.81		1,300,215.94	3,229,217.53		
Point 6			992.86	279.31		1,300,215.94	3,230,137.53		
Point 7			1,002.14	1,988.89		1,301,925.46	3,230,131.00		
Point 8			1,009.70	2,908.95		1,302,845.52	3,230,130.06		
Point 9			1,031.81	5,078.17		1,305,014.76	3,230,132.11		
Point 10			1,055.44	7,135.37		1,307,072.00	3,230,136.72		
Nichols 26N-5HZ_Si	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Point									
Nichols 26N-5HZ_BI	0.00	0.00	7,048.00	7,143.52	545.49	1,307,075.44	3,229,626.74	40.173397	-104.678253
- actual wellpath misses target center by 65.37ft at 14054.00ft MD (7098.21 TVD, 7115.65 N, 514.27 E)									
- Point									
Nichols 26N-5HZ_Si	0.00	0.00	0.00	0.00	0.00	1,299,927.48	3,229,147.33	40.153788	-104.680205
- actual wellpath hits target center									
- Polygon									
Point 1			-4,654.84	7,609.06		1,307,492.86	3,224,422.55		
Point 2			-4,683.66	5,094.18		1,304,977.93	3,224,416.98		
Point 3			-4,720.03	2,444.93		1,302,328.57	3,224,405.10		
Point 4			-4,745.34	-203.25		1,299,680.38	3,224,404.27		
Point 5			-4,770.60	-2,851.34		1,297,032.28	3,224,403.50		
Point 6			-2,131.97	-2,851.47		1,297,056.54	3,227,041.90		
Point 7			506.51	-2,851.97		1,297,080.43	3,229,680.17		
Point 8			528.23	-217.04		1,299,715.34	3,229,677.53		
Point 9			545.07	2,458.63		1,302,390.94	3,229,669.63		
Point 10			571.84	5,085.96		1,305,018.29	3,229,672.11		
Point 11			600.77	7,603.39		1,307,535.78	3,229,677.76		
Point 12			-2,027.04	7,606.22		1,307,514.32	3,227,050.15		



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**Design Report for Nichols 26N-5HZ - Actual Field Surveys**

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## North Reference Sheet for Sec. 8-T2N-R65W - Nichols 26N-5HZ - Plan B Rev 1

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB=25 @ 4918.00ft (HP 308). Northing and Easting are relative to Nichols 26N-5HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is -105.500000°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995827

Grid Coordinates of Well: 1,299,927.47 ft N, 3,229,147.33 ft E

Geographical Coordinates of Well: 40° 09' 13.64" N, 104° 40' 48.74" W

Grid Convergence at Surface is: 0.53°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,054.00ft  
the Bottom Hole Displacement is 7,134.21ft in the Direction of 4.13° (True).

Magnetic Convergence at surface is: -8.12° (27 November 2012, , BGGM2012)

