

# Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 26-T3N-R68W

DOUTHIT 38N-27HZ

Plan A

Plan: Rev A0 Permit

## Sperry Drilling Services

### Proposal Report

09 April, 2014

Well Coordinates: 1,314,035.13 N, 3,150,259.05 E (40° 11' 39.02" N, 104° 57' 43.63" W)

Ground Level: 4,925.00 usft

Local Coordinate Origin:

Centered on Well DOUTHIT 38N-27HZ

Viewing Datum:

RKB = 17' @ 4942.00usft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

**HALLIBURTON**

Project: Weld County, CO (NAD 83)  
 Site: Sec. 26-T3N-R68W  
 Well: DOUTHIT 38N-27HZ  
 Wellbore: Plan A  
 Design: Rev A0 Permit

# Anadarko Petroleum Corp.

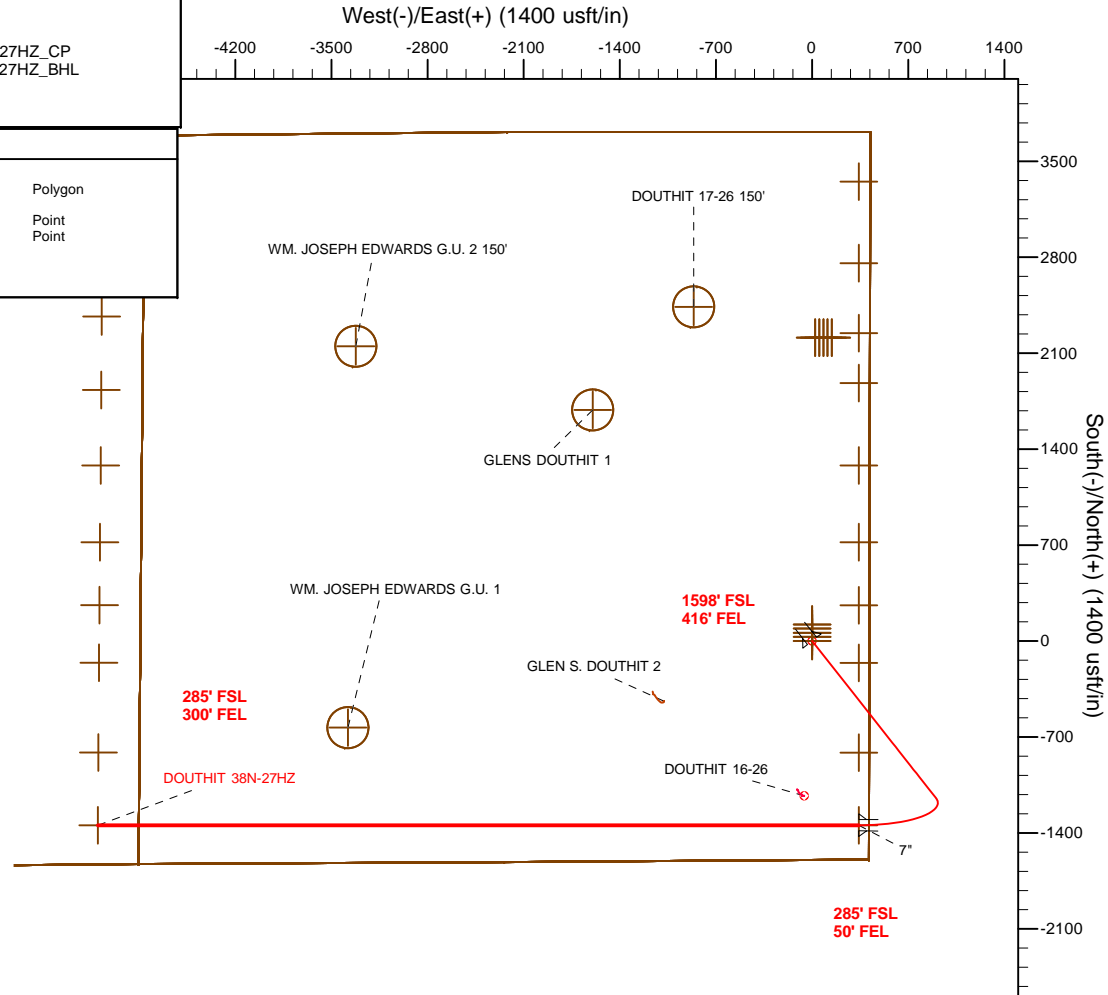
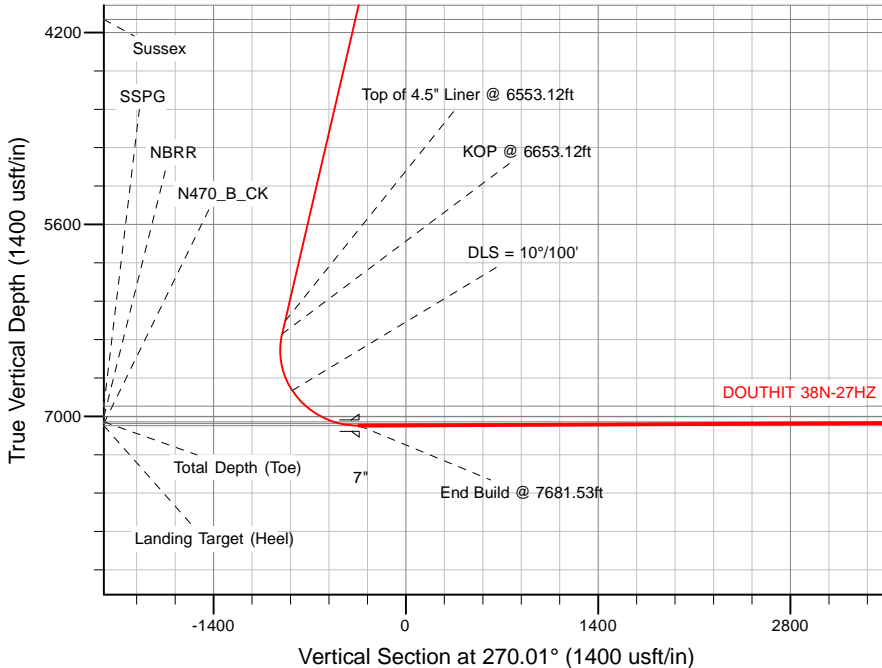


### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	
3	3030.21	20.60	141.83	3008.15	-144.06	113.26	2.00	141.83	-113.28	
4	6653.12	20.60	141.83	6399.31	-1146.34	901.23	0.00	0.00	-901.43	
5	7681.53	90.29	270.01	7068.00	-1344.98	339.20	10.00	126.27	-339.43	DOUTHIT 38N-27HZ_CP
6	13222.63	90.29	270.01	7040.00	-1344.44	-5201.83	0.00	0.00	5201.60	DOUTHIT 38N-27HZ_BHL

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
DOUTHIT 38N-27HZ_SEC	0.00	0.00	0.00	40° 11' 39.019 N	104° 57' 43.632 W	Polygon
DOUTHIT 38N-27HZ_SHL	0.00	0.00	0.00	40° 11' 39.019 N	104° 57' 43.632 W	Polygon
DOUTHIT 38N-27HZ_BHL	7040.00	-1344.44	-5201.83	40° 11' 25.728 N	104° 58' 50.660 W	Point
DOUTHIT 38N-27HZ_CP	7068.00	-1344.98	339.20	40° 11' 25.728 N	104° 57' 39.261 W	Point



TVD		MD	
6305.71	6553.12	Top of 4.5" Liner @ 6553.12ft	
6399.31	6653.12	KOP @ 6653.12ft	

WELL DETAILS: DOUTHIT 38N-27HZ	
Ground Level:	4925.00
RKB = 17' @ 4942.00usft (Drilling Rig)	
Plan: Rev A0 Permit (DOUTHIT 38N-27HZ/Plan A)	
Created By: Clint Eshelman	Date: 4/9/2014
Reviewed: _____	Date: _____

**Plan Report for DOUTHIT 38N-27HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>DOUTHIT 38N-27HZ_SHL - DOUTHIT 38N-27HZ_SEC</b>										
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,040.00	0.00	0.00	1,040.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills Base</b>										
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge @ 2000.00ft - 9 5/8"</b>										
2,100.00	2.00	141.83	2,099.98	-1.37	1.08	-1.08	2.00	2.00	0.00	141.83
2,200.00	4.00	141.83	2,199.84	-5.49	4.31	-4.31	2.00	2.00	0.00	0.00
2,300.00	6.00	141.83	2,299.45	-12.34	9.70	-9.70	2.00	2.00	0.00	0.00
2,400.00	8.00	141.83	2,398.70	-21.92	17.23	-17.23	2.00	2.00	0.00	0.00
2,500.00	10.00	141.83	2,497.47	-34.21	26.90	-26.90	2.00	2.00	0.00	0.00
2,600.00	12.00	141.83	2,595.62	-49.21	38.69	-38.70	2.00	2.00	0.00	0.00
2,700.00	14.00	141.83	2,693.06	-66.90	52.59	-52.61	2.00	2.00	0.00	0.00
2,800.00	16.00	141.83	2,789.64	-87.24	68.59	-68.60	2.00	2.00	0.00	0.00
2,900.00	18.00	141.83	2,885.27	-110.23	86.66	-86.68	2.00	2.00	0.00	0.00
3,000.00	20.00	141.83	2,979.82	-135.82	106.78	-106.80	2.00	2.00	0.00	0.00
3,030.21	20.60	141.83	3,008.15	-144.06	113.26	-113.28	2.00	2.00	0.00	0.00
<b>End Nudge @ 3030.21ft</b>										
3,100.00	20.60	141.83	3,073.47	-163.37	128.44	-128.46	0.00	0.00	0.00	0.00
3,200.00	20.60	141.83	3,167.08	-191.03	150.19	-150.22	0.00	0.00	0.00	0.00
3,300.00	20.60	141.83	3,260.68	-218.70	171.94	-171.97	0.00	0.00	0.00	0.00
3,400.00	20.60	141.83	3,354.28	-246.36	193.69	-193.73	0.00	0.00	0.00	0.00
3,500.00	20.60	141.83	3,447.89	-274.03	215.44	-215.48	0.00	0.00	0.00	0.00
3,600.00	20.60	141.83	3,541.49	-301.69	237.19	-237.24	0.00	0.00	0.00	0.00
3,700.00	20.60	141.83	3,635.09	-329.36	258.94	-258.99	0.00	0.00	0.00	0.00
3,762.93	20.60	141.83	3,694.00	-346.77	272.62	-272.68	0.00	0.00	0.00	0.00
<b>Parkman</b>										
3,800.00	20.60	141.83	3,728.70	-357.02	280.68	-280.75	0.00	0.00	0.00	0.00
3,900.00	20.60	141.83	3,822.30	-384.69	302.43	-302.50	0.00	0.00	0.00	0.00
4,000.00	20.60	141.83	3,915.90	-412.35	324.18	-324.26	0.00	0.00	0.00	0.00
4,100.00	20.60	141.83	4,009.51	-440.02	345.93	-346.01	0.00	0.00	0.00	0.00
4,200.00	20.60	141.83	4,103.11	-467.68	367.68	-367.77	0.00	0.00	0.00	0.00
4,200.95	20.60	141.83	4,104.00	-467.95	367.89	-367.97	0.00	0.00	0.00	0.00
<b>Sussex</b>										
4,300.00	20.60	141.83	4,196.71	-495.35	389.43	-389.52	0.00	0.00	0.00	0.00
4,400.00	20.60	141.83	4,290.32	-523.02	411.18	-411.27	0.00	0.00	0.00	0.00
4,500.00	20.60	141.83	4,383.92	-550.68	432.93	-433.03	0.00	0.00	0.00	0.00
4,600.00	20.60	141.83	4,477.52	-578.35	454.68	-454.78	0.00	0.00	0.00	0.00
4,700.00	20.60	141.83	4,571.13	-606.01	476.43	-476.54	0.00	0.00	0.00	0.00

**Plan Report for DOUTHIT 38N-27HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
4,800.00	20.60	141.83	4,664.73	-633.68	498.18	-498.29	0.00	0.00	0.00	0.00
4,900.00	20.60	141.83	4,758.33	-661.34	519.93	-520.05	0.00	0.00	0.00	0.00
5,000.00	20.60	141.83	4,851.94	-689.01	541.68	-541.80	0.00	0.00	0.00	0.00
5,100.00	20.60	141.83	4,945.54	-716.67	563.43	-563.56	0.00	0.00	0.00	0.00
5,200.00	20.60	141.83	5,039.14	-744.34	585.18	-585.31	0.00	0.00	0.00	0.00
5,300.00	20.60	141.83	5,132.75	-772.00	606.93	-607.07	0.00	0.00	0.00	0.00
5,400.00	20.60	141.83	5,226.35	-799.67	628.68	-628.82	0.00	0.00	0.00	0.00
5,500.00	20.60	141.83	5,319.95	-827.33	650.43	-650.58	0.00	0.00	0.00	0.00
5,600.00	20.60	141.83	5,413.56	-855.00	672.18	-672.33	0.00	0.00	0.00	0.00
5,700.00	20.60	141.83	5,507.16	-882.66	693.93	-694.09	0.00	0.00	0.00	0.00
5,800.00	20.60	141.83	5,600.76	-910.33	715.68	-715.84	0.00	0.00	0.00	0.00
5,900.00	20.60	141.83	5,694.37	-937.99	737.43	-737.59	0.00	0.00	0.00	0.00
6,000.00	20.60	141.83	5,787.97	-965.66	759.18	-759.35	0.00	0.00	0.00	0.00
6,100.00	20.60	141.83	5,881.57	-993.32	780.93	-781.10	0.00	0.00	0.00	0.00
6,200.00	20.60	141.83	5,975.18	-1,020.99	802.68	-802.86	0.00	0.00	0.00	0.00
6,300.00	20.60	141.83	6,068.78	-1,048.65	824.43	-824.61	0.00	0.00	0.00	0.00
6,400.00	20.60	141.83	6,162.38	-1,076.32	846.18	-846.37	0.00	0.00	0.00	0.00
6,500.00	20.60	141.83	6,255.99	-1,103.98	867.93	-868.12	0.00	0.00	0.00	0.00
6,553.12	20.60	141.83	6,305.71	-1,118.68	879.48	-879.68	0.00	0.00	0.00	0.00
<b>Top of 4.5" Liner @ 6553.12ft</b>										
6,600.00	20.60	141.83	6,349.59	-1,131.65	889.68	-889.88	0.00	0.00	0.00	0.00
6,653.12	20.60	141.83	6,399.31	-1,146.34	901.23	-901.43	0.00	0.00	0.00	0.00
<b>KOP @ 6653.12ft</b>										
6,700.00	18.21	154.00	6,443.54	-1,159.42	909.55	-909.75	10.00	-5.11	25.97	126.27
6,800.00	16.62	187.45	6,539.19	-1,187.71	914.55	-914.76	10.00	-1.59	33.45	114.78
6,900.00	20.38	217.11	6,634.22	-1,215.85	902.16	-902.38	10.00	3.76	29.66	82.78
7,000.00	27.36	235.04	6,725.73	-1,242.97	872.75	-872.97	10.00	6.98	17.93	54.58
7,100.00	35.72	245.62	6,810.95	-1,268.24	827.22	-827.44	10.00	8.36	10.58	38.13
<b>DLS = 10°/100'</b>										
7,200.00	44.69	252.52	6,887.28	-1,290.91	766.94	-767.16	10.00	8.97	6.89	29.08
7,255.58	49.81	255.45	6,925.00	-1,302.13	727.72	-727.95	10.00	9.22	5.28	23.79
<b>SSPG</b>										
7,300.00	53.96	257.49	6,952.41	-1,310.29	693.74	-693.97	10.00	9.33	4.59	21.80
7,394.76	62.89	261.21	7,002.00	-1,325.07	614.48	-614.71	10.00	9.43	3.93	20.54
<b>NBRR</b>										
7,400.00	63.39	261.39	7,004.37	-1,325.78	609.86	-610.10	10.00	9.48	3.57	18.59
7,500.00	72.91	264.70	7,041.56	-1,336.91	517.85	-518.08	10.00	9.52	3.31	18.50
7,544.29	77.14	266.05	7,053.00	-1,340.35	475.21	-475.45	10.00	9.56	3.04	17.27
<b>N470_B_CK</b>										
7,600.00	82.47	267.68	7,062.86	-1,343.35	420.48	-420.72	10.00	9.58	2.93	16.92
7,681.53	90.29	270.01	7,068.00	-1,344.98	339.20	-339.43	10.00	9.59	2.85	16.63
<b>End Build @ 7681.53ft - Landing Target (Heel) - 7" - DOUTHIT 38N-27HZ_CP</b>										
7,700.00	90.29	270.01	7,067.91	-1,344.98	320.73	-320.97	0.00	0.00	0.00	16.48
7,800.00	90.29	270.01	7,067.40	-1,344.97	220.73	-220.97	0.00	0.00	0.00	0.00
7,900.00	90.29	270.01	7,066.90	-1,344.96	120.73	-120.97	0.00	0.00	0.00	0.00
8,000.00	90.29	270.01	7,066.39	-1,344.95	20.73	-20.97	0.00	0.00	0.00	0.00
8,100.00	90.29	270.01	7,065.89	-1,344.94	-79.26	79.03	0.00	0.00	0.00	0.00
8,200.00	90.29	270.01	7,065.38	-1,344.93	-179.26	179.03	0.00	0.00	0.00	0.00
8,300.00	90.29	270.01	7,064.87	-1,344.92	-279.26	279.03	0.00	0.00	0.00	0.00
8,400.00	90.29	270.01	7,064.37	-1,344.91	-379.26	379.03	0.00	0.00	0.00	0.00
8,500.00	90.29	270.01	7,063.86	-1,344.90	-479.26	479.02	0.00	0.00	0.00	0.00
8,600.00	90.29	270.01	7,063.36	-1,344.89	-579.26	579.02	0.00	0.00	0.00	0.00
8,700.00	90.29	270.01	7,062.85	-1,344.88	-679.26	679.02	0.00	0.00	0.00	0.00
8,800.00	90.29	270.01	7,062.35	-1,344.87	-779.26	779.02	0.00	0.00	0.00	0.00
8,900.00	90.29	270.01	7,061.84	-1,344.86	-879.25	879.02	0.00	0.00	0.00	0.00
9,000.00	90.29	270.01	7,061.34	-1,344.85	-979.25	979.02	0.00	0.00	0.00	0.00
9,100.00	90.29	270.01	7,060.83	-1,344.84	-1,079.25	1,079.02	0.00	0.00	0.00	0.00
9,200.00	90.29	270.01	7,060.33	-1,344.83	-1,179.25	1,179.02	0.00	0.00	0.00	0.00
9,300.00	90.29	270.01	7,059.82	-1,344.82	-1,279.25	1,279.01	0.00	0.00	0.00	0.00

**Plan Report for DOUTHIT 38N-27HZ - Rev A0 Permit**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
9,400.00	90.29	270.01	7,059.32	-1,344.81	-1,379.25	1,379.01	0.00	0.00	0.00	0.00
9,500.00	90.29	270.01	7,058.81	-1,344.80	-1,479.25	1,479.01	0.00	0.00	0.00	0.00
9,600.00	90.29	270.01	7,058.31	-1,344.79	-1,579.25	1,579.01	0.00	0.00	0.00	0.00
9,700.00	90.29	270.01	7,057.80	-1,344.78	-1,679.24	1,679.01	0.00	0.00	0.00	0.00
9,800.00	90.29	270.01	7,057.30	-1,344.77	-1,779.24	1,779.01	0.00	0.00	0.00	0.00
9,900.00	90.29	270.01	7,056.79	-1,344.77	-1,879.24	1,879.01	0.00	0.00	0.00	0.00
10,000.00	90.29	270.01	7,056.28	-1,344.76	-1,979.24	1,979.01	0.00	0.00	0.00	0.00
10,100.00	90.29	270.01	7,055.78	-1,344.75	-2,079.24	2,079.00	0.00	0.00	0.00	0.00
10,200.00	90.29	270.01	7,055.27	-1,344.74	-2,179.24	2,179.00	0.00	0.00	0.00	0.00
10,300.00	90.29	270.01	7,054.77	-1,344.73	-2,279.24	2,279.00	0.00	0.00	0.00	0.00
10,400.00	90.29	270.01	7,054.26	-1,344.72	-2,379.23	2,379.00	0.00	0.00	0.00	0.00
10,500.00	90.29	270.01	7,053.76	-1,344.71	-2,479.23	2,479.00	0.00	0.00	0.00	0.00
10,600.00	90.29	270.01	7,053.25	-1,344.70	-2,579.23	2,579.00	0.00	0.00	0.00	0.00
10,700.00	90.29	270.01	7,052.75	-1,344.69	-2,679.23	2,679.00	0.00	0.00	0.00	0.00
10,800.00	90.29	270.01	7,052.24	-1,344.68	-2,779.23	2,779.00	0.00	0.00	0.00	0.00
10,900.00	90.29	270.01	7,051.74	-1,344.67	-2,879.23	2,878.99	0.00	0.00	0.00	0.00
11,000.00	90.29	270.01	7,051.23	-1,344.66	-2,979.23	2,978.99	0.00	0.00	0.00	0.00
11,100.00	90.29	270.01	7,050.73	-1,344.65	-3,079.23	3,078.99	0.00	0.00	0.00	0.00
11,200.00	90.29	270.01	7,050.22	-1,344.64	-3,179.22	3,178.99	0.00	0.00	0.00	0.00
11,300.00	90.29	270.01	7,049.72	-1,344.63	-3,279.22	3,278.99	0.00	0.00	0.00	0.00
11,400.00	90.29	270.01	7,049.21	-1,344.62	-3,379.22	3,378.99	0.00	0.00	0.00	0.00
11,500.00	90.29	270.01	7,048.70	-1,344.61	-3,479.22	3,478.99	0.00	0.00	0.00	0.00
11,600.00	90.29	270.01	7,048.20	-1,344.60	-3,579.22	3,578.98	0.00	0.00	0.00	0.00
11,700.00	90.29	270.01	7,047.69	-1,344.59	-3,679.22	3,678.98	0.00	0.00	0.00	0.00
11,800.00	90.29	270.01	7,047.19	-1,344.58	-3,779.22	3,778.98	0.00	0.00	0.00	0.00
11,900.00	90.29	270.01	7,046.68	-1,344.57	-3,879.22	3,878.98	0.00	0.00	0.00	0.00
12,000.00	90.29	270.01	7,046.18	-1,344.56	-3,979.21	3,978.98	0.00	0.00	0.00	0.00
12,100.00	90.29	270.01	7,045.67	-1,344.55	-4,079.21	4,078.98	0.00	0.00	0.00	0.00
12,200.00	90.29	270.01	7,045.17	-1,344.54	-4,179.21	4,178.98	0.00	0.00	0.00	0.00
12,300.00	90.29	270.01	7,044.66	-1,344.53	-4,279.21	4,278.98	0.00	0.00	0.00	0.00
12,400.00	90.29	270.01	7,044.16	-1,344.52	-4,379.21	4,378.97	0.00	0.00	0.00	0.00
12,500.00	90.29	270.01	7,043.65	-1,344.51	-4,479.21	4,478.97	0.00	0.00	0.00	0.00
12,600.00	90.29	270.01	7,043.15	-1,344.50	-4,579.21	4,578.97	0.00	0.00	0.00	0.00
12,700.00	90.29	270.01	7,042.64	-1,344.49	-4,679.21	4,678.97	0.00	0.00	0.00	0.00
12,800.00	90.29	270.01	7,042.14	-1,344.48	-4,779.20	4,778.97	0.00	0.00	0.00	0.00
12,900.00	90.29	270.01	7,041.63	-1,344.47	-4,879.20	4,878.97	0.00	0.00	0.00	0.00
13,000.00	90.29	270.01	7,041.12	-1,344.46	-4,979.20	4,978.97	0.00	0.00	0.00	0.00
13,100.00	90.29	270.01	7,040.62	-1,344.45	-5,079.20	5,078.97	0.00	0.00	0.00	0.00
13,200.00	90.29	270.01	7,040.11	-1,344.44	-5,179.20	5,178.96	0.00	0.00	0.00	0.00
13,222.63	90.29	270.01	7,040.00	-1,344.44	-5,201.83	5,201.59	0.00	0.00	0.00	0.00

TD Well @ 13222.63ft - Total Depth (Toe) - DOUTHIT 38N-27HZ\_BHL

**Plan Annotations**

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,000.00	2,000.00	0.00	0.00	Begin Nudge @ 2000.00ft
3,030.21	3,008.15	-144.06	113.26	End Nudge @ 3030.21ft
6,553.12	6,305.71	-1,118.68	879.48	Top of 4.5" Liner @ 6553.12ft
6,653.12	6,399.31	-1,146.34	901.23	KOP @ 6653.12ft
7,100.00	6,810.95	-1,268.24	827.22	DLS = 10°/100'
7,681.53	7,068.00	-1,344.98	339.20	End Build @ 7681.53ft
13,222.63	7,040.00	-1,344.44	-5,201.83	TD Well @ 13222.63ft

**Plan Report for DOUTHIT 38N-27HZ - Rev A0 Permit****Vertical Section Information**

Angle Type	Target	Azimuth (°)	Origin Type	Origin +N/_S (usft)	Origin +E/-W (usft)	Start TVD (usft)
User	No Target (Freehand)	270.01	Slot	0.00	0.00	0.00

**Survey tool program**

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,681.53	Rev A0 Permit	MWD
7,681.53	13,222.63	Rev A0 Permit	MWD

**Casing Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,000.00	2,000.00	9 5/8"	9-5/8	13-1/2
7,681.53	7,068.00	7"	7	8-3/4

**Formation Details**

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,040.00	1,040.00	Fox Hills Base		0.00	
3,762.93	3,694.00	Parkman		0.00	
4,200.95	4,104.00	Sussex		0.00	
7,255.58	6,925.00	SSPG		0.00	
7,394.76	7,002.00	NBRR		0.00	
7,544.29	7,053.00	N470_B_CK		0.00	
7,681.53	7,068.00	Landing Target (Heel)		0.00	
13,222.63	7,040.00	Total Depth (Toe)		0.00	

**Targets associated with this wellbore**

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
DOUTHIT 38N-27HZ_SHL	0.00	0.00	0.00	Point
DOUTHIT 38N-27HZ_SEC	0.00	0.00	0.00	Polygon
DOUTHIT 38N-27HZ_BHL	7,040.00	-1,344.44	-5,201.83	Point
DOUTHIT 38N-27HZ_CP	7,068.00	-1,344.98	339.20	Point

**Directional Difficulty Index**

Average Dogleg over Survey:	0.00 °/100usft	Maximum Dogleg over Survey:	0.00 °/100usft at 0.00 usft
Net Tortosity applicable to Plans:	0.00 °/100usft	Directional Difficulty Index:	6.410

**Plan Report for DOUTHIT 38N-27HZ - Rev A0 Permit**

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*Audit Info*

**North Reference Sheet for Sec. 26-T3N-R68W - DOUTHIT 38N-27HZ - Plan A**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.  
Vertical Depths are relative to RKB = 17' @ 4942.00usft (Drilling Rig). Northing and Easting are relative to DOUTHIT 38N-27HZ  
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 -105.50°, Longitude Origin:0° 0' 0.000 E°, Latitude Origin:40° 47' 0.000 N°  
False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99995733

Grid Coordinates of Well: 1,314,035.13 usft N, 3,150,259.05 usft E  
Geographical Coordinates of Well: 40° 11' 39.02" N, 104° 57' 43.63" W  
Grid Convergence at Surface is: 0.35°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,222.63usft  
the Bottom Hole Displacement is 5,372.76usft in the Direction of 255.51° ( True).

Magnetic Convergence at surface is: -8.27° ( 8 April 2014, , BGGM2013)

Magnetic Model: BGGM2013  
Date: 08-Apr-14  
Declination: 8.62°  
Inclination/Dip: 66.74°  
Field Strength: 52624

Grid North is 0.35° East of True North (Grid Convergence)  
Magnetic North is 8.62° East of True North (Magnetic Declination)  
Magnetic North is 8.27° East of Grid North (Magnetic Convergence)

To convert a True Direction to a Grid Direction, Subtract 0.35°  
To convert a Magnetic Direction to a True Direction, Add 8.62° East  
To convert a Magnetic Direction to a Grid Direction, Add 8.27°