

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_UNDERHILL 16-17HZ PAD**

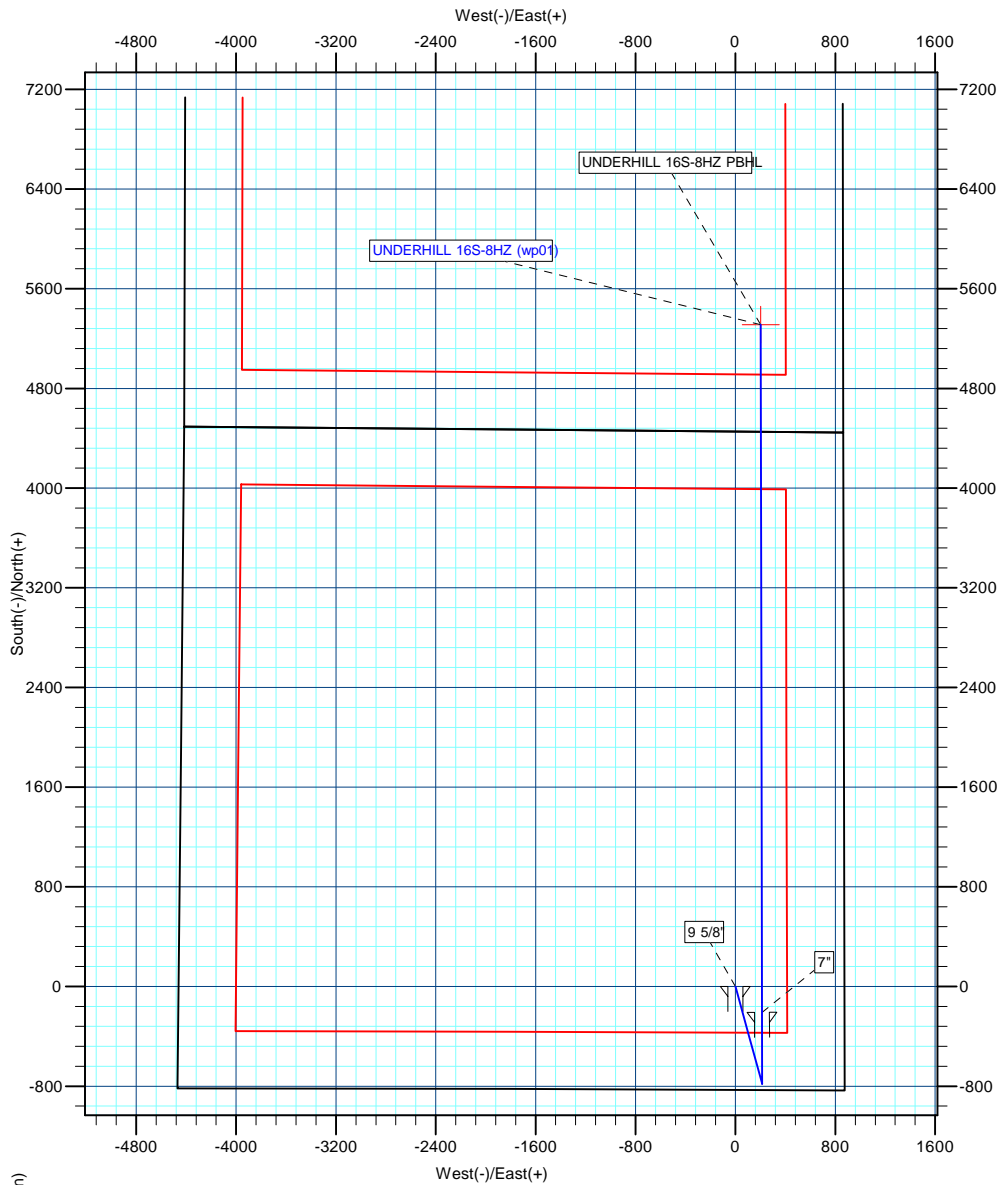
**UNDERHILL 16S-8HZ**

**UNDERHILL 16S-8HZ**

**Plan: UNDERHILL 16S-8HZ (wp01)**

## **Standard Planning Report**

**05 November, 2012**



Azimuths to True North  
Magnetic North: 8.72°

Magnetic Field  
Strength: 52782.0snT  
Dip Angle: 66.69°  
Date: 10/31/2012  
Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83  
Site: WELD UNDERHILL 16-17HZ PAD  
Well: UNDERHILL 16S-8HZ  
Wellbore: UNDERHILL 16S-8HZ  
Section: Sec. 17 T1N R67W  
SHL: 831' FSL 874' FEL  
Design: UNDERHILL 16S-8HZ (wp01)  
Latitude: 40.046063  
Longitude: -104.908179  
GL: 5102.00  
KB: 17' RKB + 5102' GL @ 5119.00ft

#### WELL DETAILS: UNDERHILL 16S-8HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	5102.00 Latitude	Longitude	Slot
0.00	0.00	1260179.32	3165687.56	40.046063	-104.908179	

#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
917.00	0.00	0.00	917.00	0.00	0.00	0.00	0.00	0.00
1838.75	20.74	164.66	1818.75	-159.13	43.66	2.25	164.66	-157.35
3190.86	20.74	164.66	3083.25	-620.87	170.34	0.00	0.00	-613.92
4112.61	0.00	0.00	3985.00	-780.00	214.00	2.25	180.00	-771.27
4412.61	0.00	0.00	4285.00	-780.00	214.00	0.00	0.00	-771.27
4416.65	0.00	0.00	4289.04	-780.00	214.00	0.00	0.00	-771.27
5315.85	89.92	359.89	4862.00	-207.84	212.90	10.00	359.89	-199.57
0834.87	89.91	359.90	4870.00	5311.16	202.65	0.00	130.55	5315.03

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

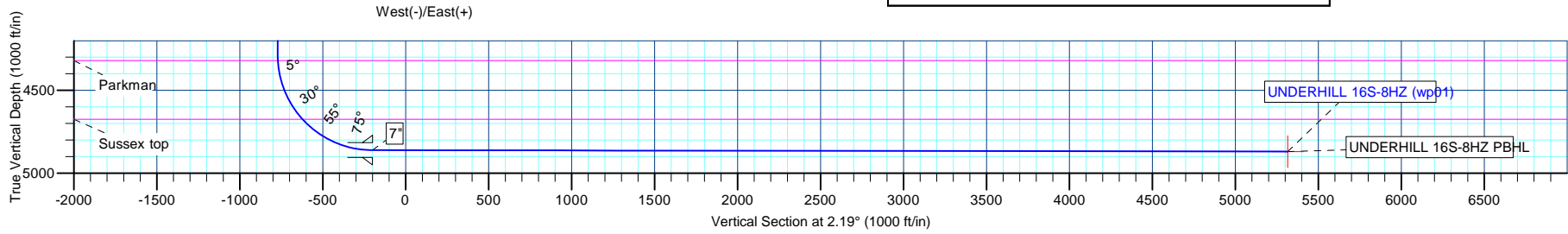
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
UNDERHILL 16S-8HZ PBHL	4870.00	5311.16	202.65	40.060643	-104.907455	Point

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4321.00	4448.63	Parkman
4675.00	4840.13	Sussex top

#### CASING DETAILS

TVD	MD	Name	Size
917.00	917.00	9 5/8"	9-5/8
4862.00	5315.85	7"	7



# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well UNDERHILL 16S-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Site:</b>	WELD_UNDERHILL 16-17HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	UNDERHILL 16S-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	UNDERHILL 16S-8HZ		
<b>Design:</b>	UNDERHILL 16S-8HZ (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	WELD_UNDERHILL 16-17HZ PAD, Sec. 17 T1N R67W			
<b>Site Position:</b>		<b>Northing:</b>	1,260,179.32 usft	<b>Latitude:</b> 40.046063
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,165,687.56 usft	<b>Longitude:</b> -104.908179
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "	<b>Grid Convergence:</b> 0.38 °

<b>Well</b>	UNDERHILL 16S-8HZ			
<b>Well Position</b>	<b>+N/-S</b>	-0.01 ft	<b>Northing:</b>	1,260,179.31 usft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,165,687.56 usft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40.046063
				<b>Longitude:</b> -104.908179
				<b>Ground Level:</b> 5,102.00 ft

<b>Wellbore</b>	UNDERHILL 16S-8HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/31/2012	8.72	66.69	52,782

<b>Design</b>	UNDERHILL 16S-8HZ (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	2.19

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
917.00	0.00	0.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,838.75	20.74	164.66	1,818.75	-159.13	43.66	2.25	2.25	0.00	164.66	
3,190.86	20.74	164.66	3,083.25	-620.87	170.34	0.00	0.00	0.00	0.00	
4,112.61	0.00	0.00	3,985.00	-780.00	214.00	2.25	-2.25	0.00	180.00	
4,412.61	0.00	0.00	4,285.00	-780.00	214.00	0.00	0.00	0.00	0.00	
4,416.65	0.00	0.00	4,289.04	-780.00	214.00	0.00	0.00	0.00	0.00	
5,315.85	89.92	359.89	4,862.00	-207.84	212.90	10.00	10.00	0.00	359.89	
10,834.87	89.91	359.90	4,870.00	5,311.16	202.65	0.00	0.00	0.00	130.55	UNDERHILL 16S-8HZ

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well UNDERHILL 16S-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Site:</b>	WELD_UNDERHILL 16-17HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	UNDERHILL 16S-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	UNDERHILL 16S-8HZ		
<b>Design:</b>	UNDERHILL 16S-8HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	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
300.00	0.00	0.00	300.00	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
500.00	0.00	0.00	500.00	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
700.00	0.00	0.00	700.00	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
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
917.00	0.00	0.00	917.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.25 - 9 5/8"									
1,000.00	1.87	164.66	999.99	-1.30	0.36	-1.29	2.25	2.25	0.00
1,100.00	4.12	164.66	1,099.84	-6.34	1.74	-6.27	2.25	2.25	0.00
1,200.00	6.37	164.66	1,199.42	-15.15	4.16	-14.98	2.25	2.25	0.00
1,300.00	8.62	164.66	1,298.56	-27.72	7.61	-27.41	2.25	2.25	0.00
1,400.00	10.87	164.66	1,397.11	-44.04	12.08	-43.55	2.25	2.25	0.00
1,500.00	13.12	164.66	1,494.92	-64.08	17.58	-63.36	2.25	2.25	0.00
1,600.00	15.37	164.66	1,591.84	-87.80	24.09	-86.82	2.25	2.25	0.00
1,700.00	17.62	164.66	1,687.72	-115.18	31.60	-113.89	2.25	2.25	0.00
1,800.00	19.87	164.66	1,782.41	-146.16	40.10	-144.53	2.25	2.25	0.00
1,838.75	20.74	164.66	1,818.75	-159.13	43.66	-157.35	2.25	2.25	0.00
Start 1352.11 hold at 1838.75 MD									
1,900.00	20.74	164.66	1,876.03	-180.05	49.40	-178.03	0.00	0.00	0.00
2,000.00	20.74	164.66	1,969.55	-214.20	58.77	-211.80	0.00	0.00	0.00
2,100.00	20.74	164.66	2,063.07	-248.35	68.14	-245.57	0.00	0.00	0.00
2,200.00	20.74	164.66	2,156.59	-282.49	77.51	-279.33	0.00	0.00	0.00
2,300.00	20.74	164.66	2,250.11	-316.64	86.87	-313.10	0.00	0.00	0.00
2,400.00	20.74	164.66	2,343.63	-350.79	96.24	-346.87	0.00	0.00	0.00
2,500.00	20.74	164.66	2,437.15	-384.94	105.61	-380.64	0.00	0.00	0.00
2,600.00	20.74	164.66	2,530.67	-419.09	114.98	-414.41	0.00	0.00	0.00
2,700.00	20.74	164.66	2,624.20	-453.24	124.35	-448.17	0.00	0.00	0.00
2,800.00	20.74	164.66	2,717.72	-487.39	133.72	-481.94	0.00	0.00	0.00
2,900.00	20.74	164.66	2,811.24	-521.54	143.09	-515.71	0.00	0.00	0.00
3,000.00	20.74	164.66	2,904.76	-555.69	152.46	-549.48	0.00	0.00	0.00
3,100.00	20.74	164.66	2,998.28	-589.84	161.83	-583.24	0.00	0.00	0.00
3,190.86	20.74	164.66	3,083.25	-620.87	170.34	-613.92	0.00	0.00	0.00
Start Drop -2.25									
3,200.00	20.53	164.66	3,091.80	-623.98	171.19	-617.00	2.25	-2.25	0.00
3,300.00	18.28	164.66	3,186.11	-656.02	179.99	-648.68	2.25	-2.25	0.00
3,400.00	16.03	164.66	3,281.66	-684.47	187.79	-676.81	2.25	-2.25	0.00
3,500.00	13.78	164.66	3,378.28	-709.28	194.60	-701.34	2.25	-2.25	0.00
3,600.00	11.53	164.66	3,475.85	-730.41	200.40	-722.24	2.25	-2.25	0.00
3,700.00	9.28	164.66	3,574.19	-747.83	205.17	-739.47	2.25	-2.25	0.00
3,800.00	7.03	164.66	3,673.18	-761.52	208.93	-753.00	2.25	-2.25	0.00
3,900.00	4.78	164.66	3,772.64	-771.45	211.65	-762.81	2.25	-2.25	0.00
4,000.00	2.53	164.66	3,872.43	-777.60	213.34	-768.90	2.25	-2.25	0.00
4,100.00	0.28	164.66	3,972.39	-779.97	213.99	-771.24	2.25	-2.25	0.00
4,112.61	0.00	0.00	3,985.00	-780.00	214.00	-771.27	2.25	-2.25	0.00
Start 300.00 hold at 4112.61 MD									
4,200.00	0.00	0.00	4,072.39	-780.00	214.00	-771.27	0.00	0.00	0.00
4,300.00	0.00	0.00	4,172.39	-780.00	214.00	-771.27	0.00	0.00	0.00
4,400.00	0.00	0.00	4,272.39	-780.00	214.00	-771.27	0.00	0.00	0.00
4,412.61	0.00	0.00	4,285.00	-780.00	214.00	-771.27	0.00	0.00	0.00

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well UNDERHILL 16S-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Site:</b>	WELD_UNDERHILL 16-17HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	UNDERHILL 16S-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	UNDERHILL 16S-8HZ		
<b>Design:</b>	UNDERHILL 16S-8HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>Start 4.04 hold at 4412.61 MD</b>									
4,416.65	0.00	0.00	4,289.04	-780.00	214.00	-771.27	0.00	0.00	0.00
<b>Start Build 10.00</b>									
4,448.63	3.20	359.89	4,321.00	-779.11	214.00	-770.38	10.00	10.00	0.00
<b>Parkman</b>									
4,450.00	3.34	359.89	4,322.37	-779.03	214.00	-770.30	10.00	10.00	0.00
4,500.00	8.34	359.89	4,372.10	-773.95	213.99	-765.23	10.00	10.00	0.00
4,550.00	13.34	359.89	4,421.19	-764.55	213.97	-755.84	10.00	10.00	0.00
4,600.00	18.34	359.89	4,469.28	-750.91	213.94	-742.21	10.00	10.00	0.00
4,650.00	23.34	359.89	4,515.99	-733.13	213.91	-724.45	10.00	10.00	0.00
4,700.00	28.34	359.89	4,560.98	-711.35	213.87	-702.68	10.00	10.00	0.00
4,750.00	33.34	359.89	4,603.90	-685.73	213.82	-677.08	10.00	10.00	0.00
4,800.00	38.34	359.89	4,644.42	-656.47	213.76	-647.84	10.00	10.00	0.00
4,840.13	42.35	359.89	4,675.00	-630.50	213.71	-621.89	10.00	10.00	0.00
<b>Sussex top</b>									
4,850.00	43.34	359.89	4,682.24	-623.79	213.70	-615.18	10.00	10.00	0.00
4,900.00	48.34	359.89	4,717.07	-587.93	213.63	-579.36	10.00	10.00	0.00
4,950.00	53.33	359.89	4,748.63	-549.18	213.56	-540.63	10.00	10.00	0.00
5,000.00	58.33	359.89	4,776.70	-507.82	213.48	-499.31	10.00	10.00	0.00
5,050.00	63.33	359.89	4,801.06	-464.17	213.39	-455.70	10.00	10.00	0.00
5,100.00	68.33	359.89	4,821.52	-418.57	213.31	-410.13	10.00	10.00	0.00
5,150.00	73.33	359.89	4,837.93	-371.35	213.22	-362.95	10.00	10.00	0.00
5,200.00	78.33	359.89	4,850.17	-322.89	213.12	-314.53	10.00	10.00	0.00
5,250.00	83.33	359.89	4,858.13	-273.54	213.03	-265.22	10.00	10.00	0.00
5,300.00	88.33	359.89	4,861.76	-223.69	212.93	-215.41	10.00	10.00	0.00
5,315.85	89.92	359.89	4,862.00	-207.84	212.90	-199.57	10.00	10.00	0.00
<b>Start DLS 0.00 TFO 130.55 - 7"</b>									
5,400.00	89.92	359.89	4,862.12	-123.69	212.74	-115.49	0.00	0.00	0.00
5,500.00	89.92	359.89	4,862.26	-23.69	212.55	-15.57	0.00	0.00	0.00
5,600.00	89.92	359.89	4,862.40	76.31	212.36	84.35	0.00	0.00	0.00
5,700.00	89.92	359.89	4,862.54	176.31	212.17	184.27	0.00	0.00	0.00
5,800.00	89.92	359.89	4,862.68	276.31	211.97	284.19	0.00	0.00	0.00
5,900.00	89.92	359.89	4,862.82	376.31	211.78	384.11	0.00	0.00	0.00
6,000.00	89.92	359.89	4,862.96	476.31	211.59	484.03	0.00	0.00	0.00
6,100.00	89.92	359.89	4,863.10	576.30	211.40	583.95	0.00	0.00	0.00
6,200.00	89.92	359.89	4,863.24	676.30	211.21	683.87	0.00	0.00	0.00
6,300.00	89.92	359.89	4,863.38	776.30	211.02	783.79	0.00	0.00	0.00
6,400.00	89.92	359.89	4,863.52	876.30	210.83	883.71	0.00	0.00	0.00
6,500.00	89.92	359.89	4,863.67	976.30	210.64	983.63	0.00	0.00	0.00
6,600.00	89.92	359.89	4,863.81	1,076.30	210.45	1,083.55	0.00	0.00	0.00
6,700.00	89.92	359.89	4,863.95	1,176.30	210.27	1,183.46	0.00	0.00	0.00
6,800.00	89.92	359.89	4,864.09	1,276.30	210.08	1,283.38	0.00	0.00	0.00
6,900.00	89.92	359.89	4,864.23	1,376.30	209.89	1,383.30	0.00	0.00	0.00
7,000.00	89.92	359.89	4,864.38	1,476.30	209.70	1,483.22	0.00	0.00	0.00
7,100.00	89.92	359.89	4,864.52	1,576.30	209.51	1,583.14	0.00	0.00	0.00
7,200.00	89.92	359.89	4,864.66	1,676.30	209.32	1,683.06	0.00	0.00	0.00
7,300.00	89.92	359.89	4,864.81	1,776.30	209.14	1,782.98	0.00	0.00	0.00
7,400.00	89.92	359.89	4,864.95	1,876.30	208.95	1,882.90	0.00	0.00	0.00
7,500.00	89.92	359.89	4,865.09	1,976.30	208.76	1,982.82	0.00	0.00	0.00
7,600.00	89.92	359.89	4,865.24	2,076.30	208.58	2,082.74	0.00	0.00	0.00
7,700.00	89.92	359.89	4,865.38	2,176.30	208.39	2,182.66	0.00	0.00	0.00
7,800.00	89.92	359.89	4,865.53	2,276.30	208.20	2,282.58	0.00	0.00	0.00
7,900.00	89.92	359.89	4,865.67	2,376.30	208.02	2,382.50	0.00	0.00	0.00

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well UNDERHILL 16S-8HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	17' RKB + 5102' GL @ 5119.00ft
<b>Site:</b>	WELD_UNDERHILL 16-17HZ PAD	<b>North Reference:</b>	True
<b>Well:</b>	UNDERHILL 16S-8HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	UNDERHILL 16S-8HZ		
<b>Design:</b>	UNDERHILL 16S-8HZ (wp01)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,000.00	89.92	359.89	4,865.82	2,476.30	207.83	2,482.42	0.00	0.00	0.00	
8,100.00	89.92	359.89	4,865.96	2,576.30	207.64	2,582.34	0.00	0.00	0.00	
8,200.00	89.92	359.89	4,866.11	2,676.30	207.46	2,682.26	0.00	0.00	0.00	
8,300.00	89.92	359.89	4,866.25	2,776.30	207.27	2,782.18	0.00	0.00	0.00	
8,400.00	89.92	359.89	4,866.40	2,876.30	207.09	2,882.10	0.00	0.00	0.00	
8,500.00	89.92	359.89	4,866.54	2,976.30	206.90	2,982.02	0.00	0.00	0.00	
8,600.00	89.92	359.89	4,866.69	3,076.30	206.72	3,081.94	0.00	0.00	0.00	
8,700.00	89.92	359.89	4,866.83	3,176.30	206.53	3,181.86	0.00	0.00	0.00	
8,800.00	89.92	359.89	4,866.98	3,276.30	206.35	3,281.78	0.00	0.00	0.00	
8,900.00	89.92	359.89	4,867.13	3,376.30	206.17	3,381.70	0.00	0.00	0.00	
9,000.00	89.92	359.89	4,867.27	3,476.30	205.98	3,481.62	0.00	0.00	0.00	
9,100.00	89.92	359.89	4,867.42	3,576.30	205.80	3,581.54	0.00	0.00	0.00	
9,200.00	89.92	359.90	4,867.57	3,676.30	205.62	3,681.46	0.00	0.00	0.00	
9,300.00	89.92	359.90	4,867.72	3,776.30	205.43	3,781.38	0.00	0.00	0.00	
9,400.00	89.92	359.90	4,867.86	3,876.30	205.25	3,881.30	0.00	0.00	0.00	
9,500.00	89.92	359.90	4,868.01	3,976.30	205.07	3,981.22	0.00	0.00	0.00	
9,600.00	89.92	359.90	4,868.16	4,076.30	204.88	4,081.14	0.00	0.00	0.00	
9,700.00	89.92	359.90	4,868.31	4,176.29	204.70	4,181.06	0.00	0.00	0.00	
9,800.00	89.92	359.90	4,868.45	4,276.29	204.52	4,280.98	0.00	0.00	0.00	
9,900.00	89.91	359.90	4,868.60	4,376.29	204.34	4,380.90	0.00	0.00	0.00	
10,000.00	89.91	359.90	4,868.75	4,476.29	204.16	4,480.82	0.00	0.00	0.00	
10,100.00	89.91	359.90	4,868.90	4,576.29	203.98	4,580.74	0.00	0.00	0.00	
10,200.00	89.91	359.90	4,869.05	4,676.29	203.80	4,680.66	0.00	0.00	0.00	
10,300.00	89.91	359.90	4,869.20	4,776.29	203.61	4,780.58	0.00	0.00	0.00	
10,400.00	89.91	359.90	4,869.35	4,876.29	203.43	4,880.50	0.00	0.00	0.00	
10,500.00	89.91	359.90	4,869.50	4,976.29	203.25	4,980.42	0.00	0.00	0.00	
10,600.00	89.91	359.90	4,869.65	5,076.29	203.07	5,080.34	0.00	0.00	0.00	
10,700.00	89.91	359.90	4,869.80	5,176.29	202.89	5,180.26	0.00	0.00	0.00	
10,800.00	89.91	359.90	4,869.95	5,276.29	202.71	5,280.18	0.00	0.00	0.00	
10,834.87	89.91	359.90	4,870.00	5,311.16	202.65	5,315.03	0.00	0.00	0.00	
TD at 10834.87 - UNDERHILL 16S-8HZ PBHL										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
UNDERHILL 16S-8HZ P	0.00	0.00	4,870.00	5,311.16	202.65	1,265,491.70	3,165,854.76	40.060643	-104.907455
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
917.00	917.00	9 5/8"	9-5/8	12-1/4	
5,315.85	4,862.00	7"	7	7-1/2	

# Andarko Petroleum Corporation

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<b>Design:</b>	UNDERHILL 16S-8HZ (wp01)		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,448.63	-798.00	Parkman			
4,840.13	-444.00	Sussex top			

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
917.00	917.00	0.00	0.00	Start Build 2.25	
1,838.75	1,818.75	-159.13	43.66	Start 1352.11 hold at 1838.75 MD	
3,190.86	3,083.25	-620.87	170.34	Start Drop -2.25	
4,112.61	3,985.00	-780.00	214.00	Start 300.00 hold at 4112.61 MD	
4,412.61	4,285.00	-780.00	214.00	Start 4.04 hold at 4412.61 MD	
4,416.65	4,289.04	-780.00	214.00	Start Build 10.00	
5,315.85	4,862.00	-207.84	212.90	Start DLS 0.00 TFO 130.55	
10,834.87	4,870.00	5,311.16	202.65	TD at 10834.87	