

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_UNDERHILL 15-17HZ PAD

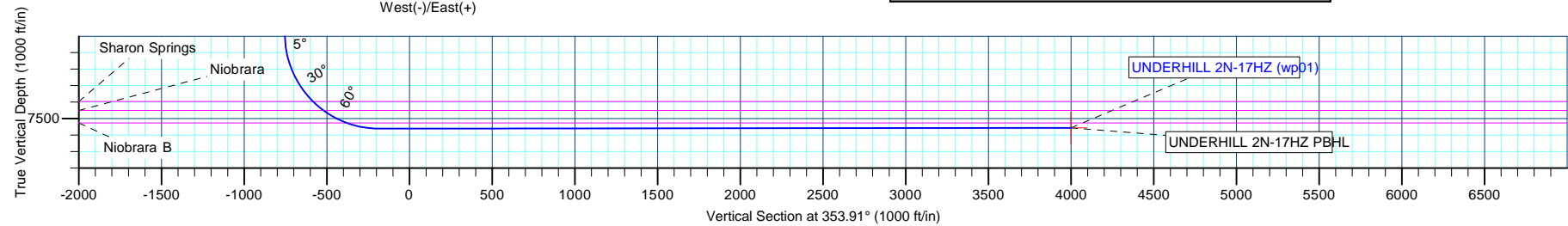
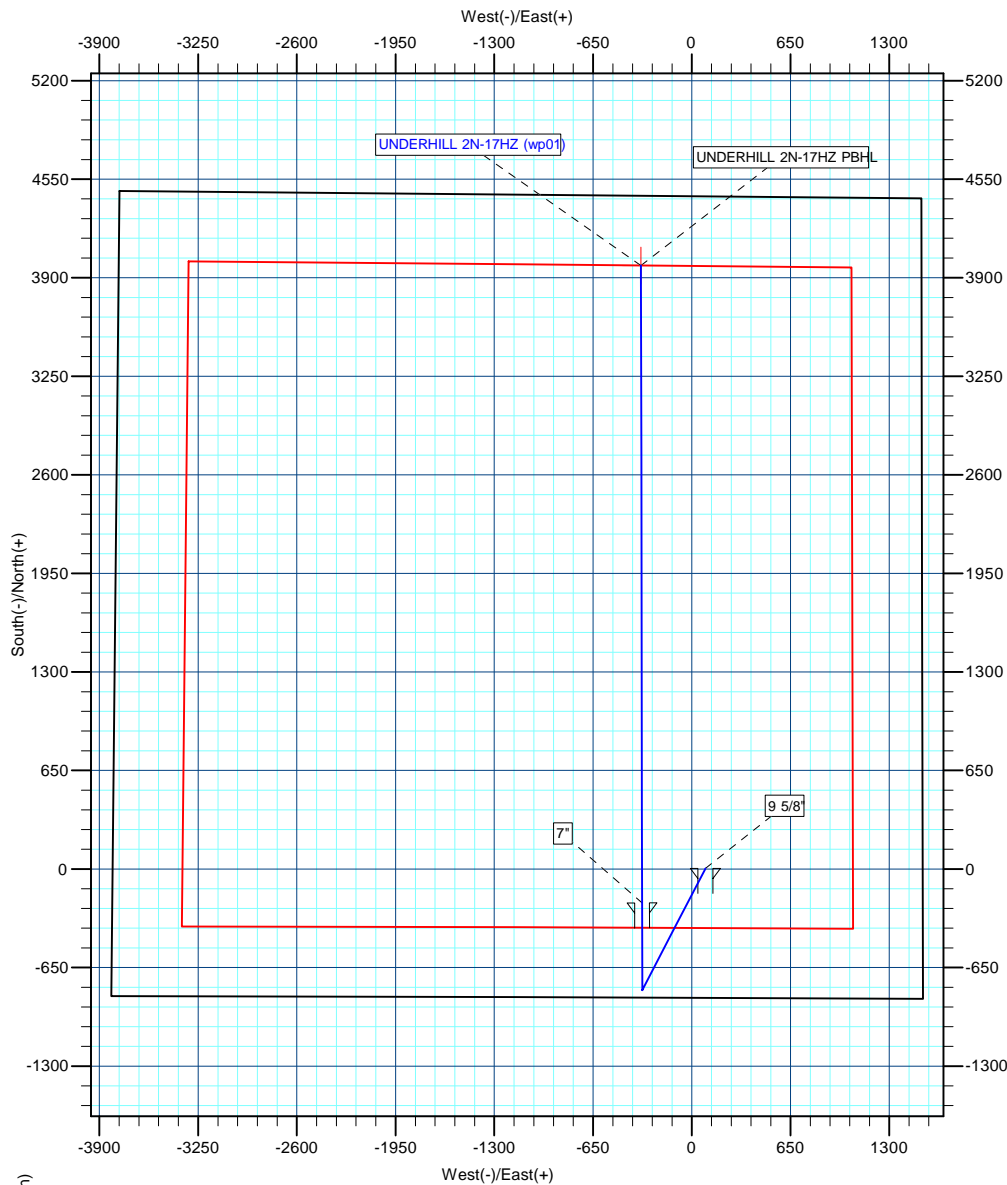
UNDERHILL 2N-17HZ

UNDERHILL 2N-17HZ

Plan: UNDERHILL 2N-17HZ (wp01)

Standard Planning Report

05 November, 2012



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Azimuths to True North

Magnetic North: 8.72°

Magnetic Field

Strength: 52781.8nT

Dip Angle: 66.69°

Date: 10/31/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD UNDERHILL 15-17HZ PAD

Well: UNDERHILL 2N-17HZ

Wellbore: UNDERHILL 2N-17HZ

Section: SEC. 17 T1N R67W

SHL: 853' FSL 1430' FEL

Design: UNDERHILL 2N-17HZ (wp01)

Latitude: 40.046131

Longitude: -104.910168

GL: 5110.00

KB: 17' RKB + 5110' GL @ 5127.00ft

WELL DETAILS: UNDERHILL 2N-17HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	5110.00 Latitude 40.046131	Longitude -104.910168	Slot
3.63	89.87	1260200.37	3165130.56			

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	0.00	3.63	89.87	0.00	0.00	0.00
1050.00	0.00	0.00	1050.00	3.63	89.87	0.00	0.00	0.00
1593.51	10.87	207.42	1590.25	-42.00	66.20	2.00	207.42	-42.86
5839.18	10.87	207.42	5759.75	-752.74	-302.46	0.00	0.00	-710.47
6382.69	0.00	0.00	6300.00	-798.37	-326.13	2.00	180.00	-753.34
7071.73	0.00	0.00	6989.04	-798.37	-326.13	0.00	0.00	-753.34
7972.43	90.07	359.90	7562.00	-224.71	-327.13	10.00	359.90	-182.81
2177.97	90.07	359.90	7557.00	3980.82	-334.50	0.00	-167.26	3999.76

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
UNDERHILL 2N-17HZ PBHL	7557.00	3980.82	-334.50	40.057049	-104.911684	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4652.00	4711.20	Sussex
5261.00	5331.32	Shannon
7397.00	7525.73	Sharon Springs
7451.00	7609.06	Niobrara
7527.00	7770.43	Niobrara B

CASING DETAILS			
TVD	MD	Name	Size
917.00	917.00	9 5/8"	9-5/8
7562.00	7972.43	7"	7

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Site WELD_UNDERHILL 15-17HZ PAD
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5110' GL @ 5127.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5110' GL @ 5127.00ft
Site:	WELD_UNDERHILL 15-17HZ PAD	North Reference:	True
Well:	UNDERHILL 2N-17HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	UNDERHILL 2N-17HZ		
Design:	UNDERHILL 2N-17HZ (wp01)		

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

Site		WELD_UNDERHILL 15-17HZ PAD, SEC. 17 T1N R67W			
Site Position:		Northing:	1,260,196.14 usft	Latitude:	40.046121
From:	Lat/Long	Easting:	3,165,040.72 usft	Longitude:	-104.910489
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.38 °

Well	UNDERHILL 2N-17HZ					
Well Position	+N/-S	3.63 ft	Northing:	1,260,200.37 usft	Latitude:	40.046131
	+E/-W	89.87 ft	Easting:	3,165,130.56 usft	Longitude:	-104.910168
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,110.00 ft

Wellbore	UNDERHILL 2N-17HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/31/2012	8.73	66.69	52,782

Design	UNDERHILL 2N-17HZ (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	3.63	89.87	353.91

Plan Sections										
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	3.63	89.87	0.00	0.00	0.00	0.00	
1,050.00	0.00	0.00	1,050.00	3.63	89.87	0.00	0.00	0.00	0.00	
1,593.51	10.87	207.42	1,590.25	-42.00	66.20	2.00	2.00	0.00	207.42	
5,839.18	10.87	207.42	5,759.75	-752.74	-302.46	0.00	0.00	0.00	0.00	
6,382.69	0.00	0.00	6,300.00	-798.37	-326.13	2.00	-2.00	0.00	180.00	
7,071.73	0.00	0.00	6,989.04	-798.37	-326.13	0.00	0.00	0.00	0.00	
7,972.43	90.07	359.90	7,562.00	-224.71	-327.13	10.00	10.00	0.00	359.90	
12,177.97	90.07	359.90	7,557.00	3,980.82	-334.50	0.00	0.00	0.00	-167.26	UNDERHILL 2N-17H

Andarko Petroleum Corporation

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Site:	WELD_UNDERHILL 15-17HZ PAD	North Reference:	True
Well:	UNDERHILL 2N-17HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	UNDERHILL 2N-17HZ		
Design:	UNDERHILL 2N-17HZ (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	3.63	89.87	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	3.63	89.87	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	3.63	89.87	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	3.63	89.87	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	3.63	89.87	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	3.63	89.87	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	3.63	89.87	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	3.63	89.87	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	3.63	89.87	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	3.63	89.87	0.00	0.00	0.00	0.00
917.00	0.00	0.00	917.00	3.63	89.87	0.00	0.00	0.00	0.00
9 5/8"									
1,000.00	0.00	0.00	1,000.00	3.63	89.87	0.00	0.00	0.00	0.00
1,050.00	0.00	0.00	1,050.00	3.63	89.87	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	1.00	207.42	1,100.00	3.24	89.67	-0.36	2.00	2.00	0.00
1,200.00	3.00	207.42	1,199.93	0.15	88.06	-3.27	2.00	2.00	0.00
1,300.00	5.00	207.42	1,299.68	-6.05	84.85	-9.09	2.00	2.00	0.00
1,400.00	7.00	207.42	1,399.13	-15.33	80.04	-17.81	2.00	2.00	0.00
1,500.00	9.00	207.42	1,498.15	-27.68	73.63	-29.41	2.00	2.00	0.00
1,593.51	10.87	207.42	1,590.25	-42.00	66.20	-42.86	2.00	2.00	0.00
Start 4245.67 hold at 1593.51 MD									
1,600.00	10.87	207.42	1,596.63	-43.09	65.64	-43.88	0.00	0.00	0.00
1,700.00	10.87	207.42	1,694.83	-59.83	56.95	-59.61	0.00	0.00	0.00
1,800.00	10.87	207.42	1,793.04	-76.57	48.27	-75.33	0.00	0.00	0.00
1,900.00	10.87	207.42	1,891.25	-93.31	39.59	-91.06	0.00	0.00	0.00
2,000.00	10.87	207.42	1,989.45	-110.05	30.90	-106.78	0.00	0.00	0.00
2,100.00	10.87	207.42	2,087.66	-126.79	22.22	-122.50	0.00	0.00	0.00
2,200.00	10.87	207.42	2,185.86	-143.53	13.54	-138.23	0.00	0.00	0.00
2,300.00	10.87	207.42	2,284.07	-160.27	4.85	-153.95	0.00	0.00	0.00
2,400.00	10.87	207.42	2,382.27	-177.01	-3.83	-169.68	0.00	0.00	0.00
2,500.00	10.87	207.42	2,480.48	-193.75	-12.51	-185.40	0.00	0.00	0.00
2,600.00	10.87	207.42	2,578.69	-210.49	-21.20	-201.13	0.00	0.00	0.00
2,700.00	10.87	207.42	2,676.89	-227.23	-29.88	-216.85	0.00	0.00	0.00
2,800.00	10.87	207.42	2,775.10	-243.97	-38.56	-232.58	0.00	0.00	0.00
2,900.00	10.87	207.42	2,873.30	-260.71	-47.25	-248.30	0.00	0.00	0.00
3,000.00	10.87	207.42	2,971.51	-277.45	-55.93	-264.03	0.00	0.00	0.00
3,100.00	10.87	207.42	3,069.71	-294.19	-64.61	-279.75	0.00	0.00	0.00
3,200.00	10.87	207.42	3,167.92	-310.93	-73.30	-295.47	0.00	0.00	0.00
3,300.00	10.87	207.42	3,266.13	-327.67	-81.98	-311.20	0.00	0.00	0.00
3,400.00	10.87	207.42	3,364.33	-344.41	-90.66	-326.92	0.00	0.00	0.00
3,500.00	10.87	207.42	3,462.54	-361.15	-99.35	-342.65	0.00	0.00	0.00
3,600.00	10.87	207.42	3,560.74	-377.89	-108.03	-358.37	0.00	0.00	0.00
3,700.00	10.87	207.42	3,658.95	-394.63	-116.71	-374.10	0.00	0.00	0.00
3,800.00	10.87	207.42	3,757.15	-411.37	-125.40	-389.82	0.00	0.00	0.00
3,900.00	10.87	207.42	3,855.36	-428.11	-134.08	-405.55	0.00	0.00	0.00
4,000.00	10.87	207.42	3,953.57	-444.85	-142.76	-421.27	0.00	0.00	0.00
4,100.00	10.87	207.42	4,051.77	-461.60	-151.45	-437.00	0.00	0.00	0.00
4,200.00	10.87	207.42	4,149.98	-478.34	-160.13	-452.72	0.00	0.00	0.00
4,300.00	10.87	207.42	4,248.18	-495.08	-168.81	-468.45	0.00	0.00	0.00
4,400.00	10.87	207.42	4,346.39	-511.82	-177.50	-484.17	0.00	0.00	0.00
4,500.00	10.87	207.42	4,444.59	-528.56	-186.18	-499.89	0.00	0.00	0.00
4,600.00	10.87	207.42	4,542.80	-545.30	-194.86	-515.62	0.00	0.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5110' GL @ 5127.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5110' GL @ 5127.00ft
Site:	WELD_UNDERHILL 15-17HZ PAD	North Reference:	True
Well:	UNDERHILL 2N-17HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	UNDERHILL 2N-17HZ		
Design:	UNDERHILL 2N-17HZ (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)
4,700.00	10.87	207.42	4,641.01	-562.04	-203.54	-531.34	0.00	0.00	0.00
4,711.20	10.87	207.42	4,652.00	-563.91	-204.52	-533.10	0.00	0.00	0.00
Sussex									
4,800.00	10.87	207.42	4,739.21	-578.78	-212.23	-547.07	0.00	0.00	0.00
4,900.00	10.87	207.42	4,837.42	-595.52	-220.91	-562.79	0.00	0.00	0.00
5,000.00	10.87	207.42	4,935.62	-612.26	-229.59	-578.52	0.00	0.00	0.00
5,100.00	10.87	207.42	5,033.83	-629.00	-238.28	-594.24	0.00	0.00	0.00
5,200.00	10.87	207.42	5,132.03	-645.74	-246.96	-609.97	0.00	0.00	0.00
5,300.00	10.87	207.42	5,230.24	-662.48	-255.64	-625.69	0.00	0.00	0.00
5,331.32	10.87	207.42	5,261.00	-667.72	-258.36	-630.62	0.00	0.00	0.00
Shannon									
5,400.00	10.87	207.42	5,328.45	-679.22	-264.33	-641.42	0.00	0.00	0.00
5,500.00	10.87	207.42	5,426.65	-695.96	-273.01	-657.14	0.00	0.00	0.00
5,600.00	10.87	207.42	5,524.86	-712.70	-281.69	-672.86	0.00	0.00	0.00
5,700.00	10.87	207.42	5,623.06	-729.44	-290.38	-688.59	0.00	0.00	0.00
5,800.00	10.87	207.42	5,721.27	-746.18	-299.06	-704.31	0.00	0.00	0.00
5,839.18	10.87	207.42	5,759.75	-752.74	-302.46	-710.47	0.00	0.00	0.00
Start Drop -2.00									
5,900.00	9.65	207.42	5,819.59	-762.36	-307.45	-719.51	2.00	-2.00	0.00
6,000.00	7.65	207.42	5,918.45	-775.71	-314.38	-732.05	2.00	-2.00	0.00
6,100.00	5.65	207.42	6,017.77	-786.00	-319.71	-741.72	2.00	-2.00	0.00
6,200.00	3.65	207.42	6,117.43	-793.20	-323.45	-748.48	2.00	-2.00	0.00
6,300.00	1.65	207.42	6,217.32	-797.31	-325.58	-752.34	2.00	-2.00	0.00
6,382.69	0.00	0.00	6,300.00	-798.37	-326.13	-753.34	2.00	-2.00	0.00
Start 689.04 hold at 6382.69 MD									
6,400.00	0.00	0.00	6,317.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
6,500.00	0.00	0.00	6,417.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
6,600.00	0.00	0.00	6,517.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
6,700.00	0.00	0.00	6,617.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
6,800.00	0.00	0.00	6,717.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
6,900.00	0.00	0.00	6,817.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
7,000.00	0.00	0.00	6,917.31	-798.37	-326.13	-753.34	0.00	0.00	0.00
7,071.73	0.00	0.00	6,989.04	-798.37	-326.13	-753.34	0.00	0.00	0.00
Start Build 10.00									
7,100.00	2.83	359.90	7,017.30	-797.67	-326.13	-752.64	10.00	10.00	0.00
7,150.00	7.83	359.90	7,067.07	-793.03	-326.14	-748.03	10.00	10.00	0.00
7,200.00	12.83	359.90	7,116.24	-784.07	-326.16	-739.12	10.00	10.00	0.00
7,250.00	17.83	359.90	7,164.45	-770.86	-326.18	-725.98	10.00	10.00	0.00
7,300.00	22.83	359.90	7,211.32	-753.50	-326.21	-708.71	10.00	10.00	0.00
7,350.00	27.83	359.90	7,256.50	-732.11	-326.25	-687.44	10.00	10.00	0.00
7,400.00	32.83	359.90	7,299.64	-706.87	-326.29	-662.34	10.00	10.00	0.00
7,450.00	37.83	359.90	7,340.42	-677.97	-326.34	-633.59	10.00	10.00	0.00
7,500.00	42.83	359.90	7,378.53	-645.62	-326.40	-601.42	10.00	10.00	0.00
7,525.73	45.40	359.90	7,397.00	-627.72	-326.43	-583.62	10.00	10.00	0.00
Sharon Springs									
7,550.00	47.83	359.90	7,413.67	-610.08	-326.46	-566.07	10.00	10.00	0.00
7,600.00	52.83	359.90	7,445.58	-571.61	-326.53	-527.81	10.00	10.00	0.00
7,609.06	53.73	359.90	7,451.00	-564.34	-326.54	-520.59	10.00	10.00	0.00
Niobrara									
7,650.00	57.83	359.90	7,474.02	-530.50	-326.60	-486.93	10.00	10.00	0.00
7,700.00	62.83	359.90	7,498.76	-487.07	-326.67	-443.74	10.00	10.00	0.00
7,750.00	67.83	359.90	7,519.63	-441.65	-326.75	-398.56	10.00	10.00	0.00
7,770.43	69.87	359.90	7,527.00	-422.59	-326.79	-379.61	10.00	10.00	0.00

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Wellbore:	UNDERHILL 2N-17HZ		
Design:	UNDERHILL 2N-17HZ (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)
Niobrara B									
7,800.00	72.83	359.90	7,536.46	-394.58	-326.84	-351.75	10.00	10.00	0.00
7,850.00	77.83	359.90	7,549.12	-346.23	-326.92	-303.66	10.00	10.00	0.00
7,900.00	82.83	359.90	7,557.51	-296.96	-327.01	-254.66	10.00	10.00	0.00
7,950.00	87.83	359.90	7,561.59	-247.14	-327.09	-205.11	10.00	10.00	0.00
7,972.43	90.07	359.90	7,562.00	-224.71	-327.13	-182.81	10.00	10.00	0.00
Start DLS 0.00 TFO -173.00 - 7"									
8,000.00	90.07	359.90	7,561.97	-197.14	-327.18	-155.39	0.00	0.00	0.00
8,100.00	90.07	359.90	7,561.84	-97.14	-327.36	-55.94	0.00	0.00	0.00
8,200.00	90.07	359.90	7,561.72	2.86	-327.53	43.52	0.00	0.00	0.00
8,300.00	90.07	359.90	7,561.60	102.86	-327.70	142.97	0.00	0.00	0.00
8,400.00	90.07	359.90	7,561.48	202.86	-327.88	242.42	0.00	0.00	0.00
8,500.00	90.07	359.90	7,561.36	302.86	-328.05	341.88	0.00	0.00	0.00
8,600.00	90.07	359.90	7,561.24	402.86	-328.23	441.33	0.00	0.00	0.00
8,700.00	90.07	359.90	7,561.11	502.86	-328.40	540.79	0.00	0.00	0.00
8,800.00	90.07	359.90	7,560.99	602.86	-328.58	640.24	0.00	0.00	0.00
8,900.00	90.07	359.90	7,560.87	702.86	-328.75	739.69	0.00	0.00	0.00
9,000.00	90.07	359.90	7,560.75	802.86	-328.93	839.15	0.00	0.00	0.00
9,100.00	90.07	359.90	7,560.63	902.86	-329.10	938.60	0.00	0.00	0.00
9,200.00	90.07	359.90	7,560.51	1,002.85	-329.28	1,038.06	0.00	0.00	0.00
9,300.00	90.07	359.90	7,560.39	1,102.85	-329.45	1,137.51	0.00	0.00	0.00
9,400.00	90.07	359.90	7,560.27	1,202.85	-329.63	1,236.96	0.00	0.00	0.00
9,500.00	90.07	359.90	7,560.15	1,302.85	-329.80	1,336.42	0.00	0.00	0.00
9,600.00	90.07	359.90	7,560.03	1,402.85	-329.98	1,435.87	0.00	0.00	0.00
9,700.00	90.07	359.90	7,559.91	1,502.85	-330.15	1,535.33	0.00	0.00	0.00
9,800.00	90.07	359.90	7,559.79	1,602.85	-330.33	1,634.78	0.00	0.00	0.00
9,900.00	90.07	359.90	7,559.67	1,702.85	-330.50	1,734.23	0.00	0.00	0.00
10,000.00	90.07	359.90	7,559.55	1,802.85	-330.68	1,833.69	0.00	0.00	0.00
10,100.00	90.07	359.90	7,559.44	1,902.85	-330.85	1,933.14	0.00	0.00	0.00
10,200.00	90.07	359.90	7,559.32	2,002.85	-331.03	2,032.59	0.00	0.00	0.00
10,300.00	90.07	359.90	7,559.20	2,102.85	-331.20	2,132.05	0.00	0.00	0.00
10,400.00	90.07	359.90	7,559.08	2,202.85	-331.38	2,231.50	0.00	0.00	0.00
10,500.00	90.07	359.90	7,558.96	2,302.85	-331.56	2,330.96	0.00	0.00	0.00
10,600.00	90.07	359.90	7,558.84	2,402.85	-331.73	2,430.41	0.00	0.00	0.00
10,700.00	90.07	359.90	7,558.73	2,502.85	-331.91	2,529.86	0.00	0.00	0.00
10,800.00	90.07	359.90	7,558.61	2,602.85	-332.08	2,629.32	0.00	0.00	0.00
10,900.00	90.07	359.90	7,558.49	2,702.85	-332.26	2,728.77	0.00	0.00	0.00
11,000.00	90.07	359.90	7,558.37	2,802.85	-332.43	2,828.23	0.00	0.00	0.00
11,100.00	90.07	359.90	7,558.25	2,902.85	-332.61	2,927.68	0.00	0.00	0.00
11,200.00	90.07	359.90	7,558.14	3,002.85	-332.78	3,027.13	0.00	0.00	0.00
11,300.00	90.07	359.90	7,558.02	3,102.85	-332.96	3,126.59	0.00	0.00	0.00
11,400.00	90.07	359.90	7,557.90	3,202.85	-333.14	3,226.04	0.00	0.00	0.00
11,500.00	90.07	359.90	7,557.79	3,302.85	-333.31	3,325.50	0.00	0.00	0.00
11,600.00	90.07	359.90	7,557.67	3,402.85	-333.49	3,424.95	0.00	0.00	0.00
11,700.00	90.07	359.90	7,557.55	3,502.85	-333.66	3,524.40	0.00	0.00	0.00
11,800.00	90.07	359.90	7,557.44	3,602.85	-333.84	3,623.86	0.00	0.00	0.00
11,900.00	90.07	359.90	7,557.32	3,702.85	-334.01	3,723.31	0.00	0.00	0.00
12,000.00	90.07	359.90	7,557.21	3,802.85	-334.19	3,822.77	0.00	0.00	0.00
12,100.00	90.07	359.90	7,557.09	3,902.85	-334.37	3,922.22	0.00	0.00	0.00
12,177.97	90.07	359.90	7,557.00	3,980.82	-334.50	3,999.76	0.00	0.00	0.00
TD at 12177.97 - UNDERHILL 2N-17HZ PBHL									

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Site WELD_UNDERHILL 15-17HZ PAD
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 5110' GL @ 5127.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 5110' GL @ 5127.00ft
Site:	WELD_UNDERHILL 15-17HZ PAD	North Reference:	True
Well:	UNDERHILL 2N-17HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	UNDERHILL 2N-17HZ		
Design:	UNDERHILL 2N-17HZ (wp01)		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
UNDERHILL 2N-17HZ F	0.00	0.00	7,557.00	3,980.82	-334.50	1,264,174.64	3,164,679.76	40.057049	-104.911684
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(ft)	(ft)			(")	(")
917.00	917.00	9 5/8"		9-5/8	12-1/4
7,972.43	7,562.00	7"		7	7-1/2

Formations					
Measured Depth	Vertical Depth	Name		Dip	Dip Direction
(ft)	(ft)			(°)	(°)
4,711.20	4,653.00	Sussex			
5,331.32	5,262.00	Shannon			
7,525.73	7,398.00	Sharon Springs			
7,609.06	7,452.00	Niobrara			
7,770.43	7,528.00	Niobrara B			

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
(ft)	(ft)	(ft)	(ft)		
1,050.00	1,050.00	3.63	89.87	Start Build 2.00	
1,593.51	1,590.25	-42.00	66.20	Start 4245.67 hold at 1593.51 MD	
5,839.18	5,759.75	-752.74	-302.46	Start Drop -2.00	
6,382.69	6,300.00	-798.37	-326.13	Start 689.04 hold at 6382.69 MD	
7,071.73	6,989.04	-798.37	-326.13	Start Build 10.00	
7,972.43	7,562.00	-224.71	-327.13	Start DLS 0.00 TFO -173.00	
12,177.97	7,557.00	3,980.82	-334.50	TD at 12177.97	