

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_HEDGE 1-27 PAD**

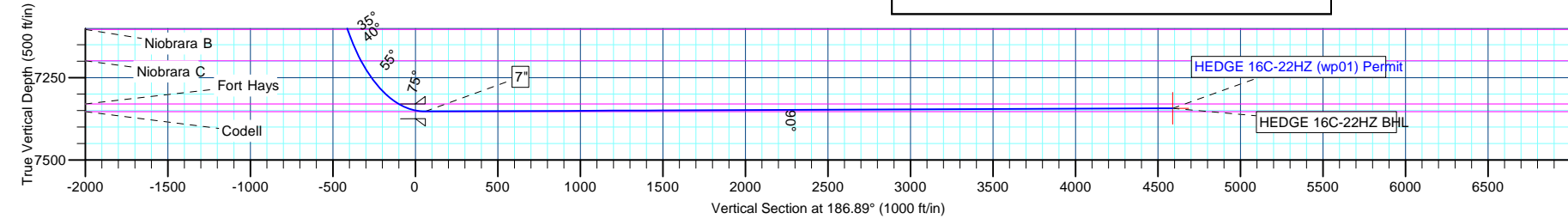
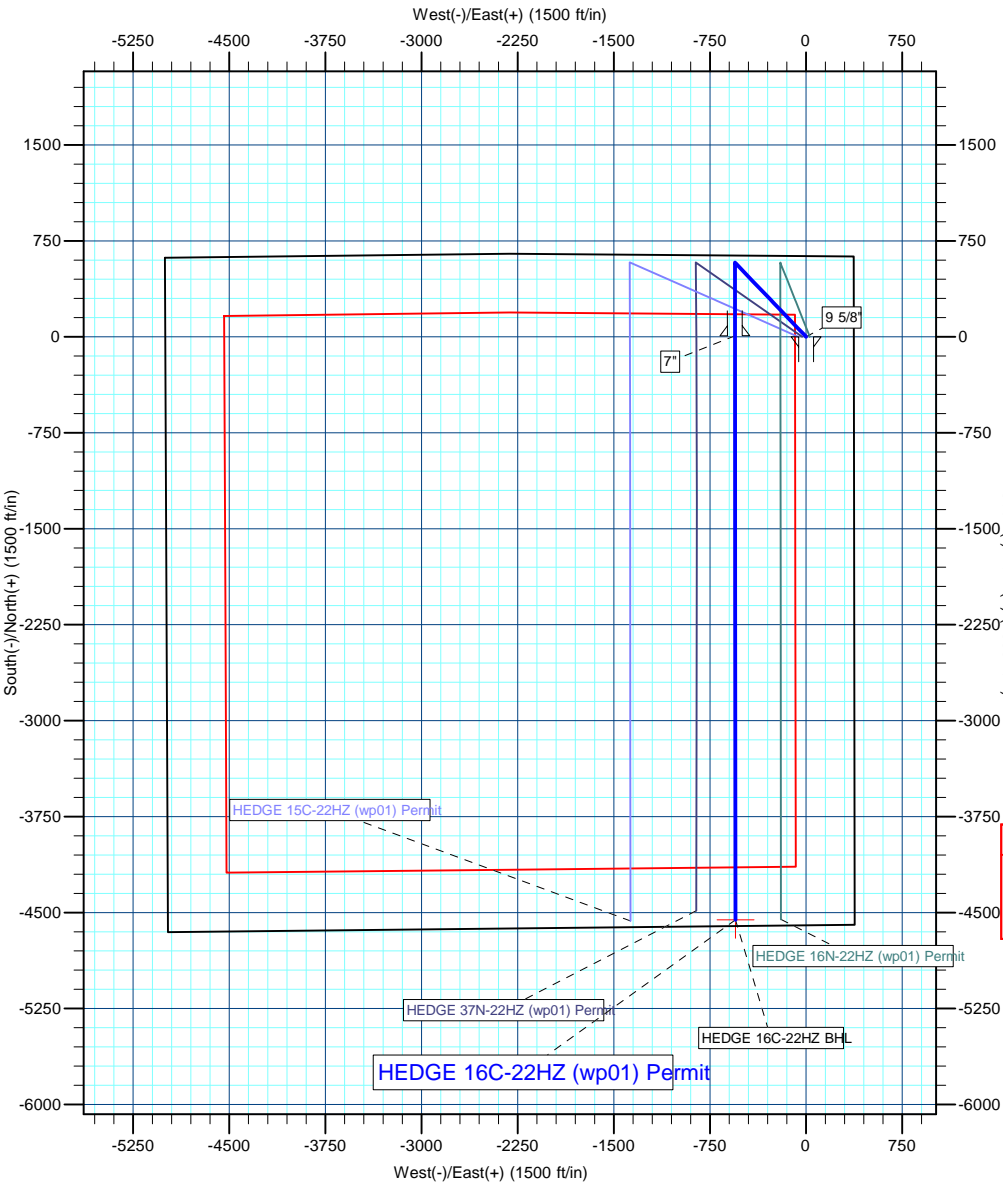
**HEDGE 16C-22HZ**

**HEDGE 16C-22HZ**

**Plan: HEDGE 16C-22HZ (wp01) Permit**

## **Standard Planning Report**

**20 September, 2012**



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Azimuths to True North

Magnetic North: 8.67°

Magnetic Field

Strength: 52902.0snT

Dip Angle: 66.86°

Date: 9/19/2012

Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83

Site: WELD\_HEDGE 1-27 PAD

Well: HEDGE 16C-22HZ

Wellbore: HEDGE 16C-22HZ

Section:

SHL:

Design: HEDGE 16C-22HZ (wp01) Permit

Latitude: 40.216081

Longitude: -104.755140

GL: 4906.00

KB: 16' RKB + 4906' GL @ 4922.00ft

WELL DETAILS: HEDGE 16C-22HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4906.00 Latitude	Longitude	Slot
0.00	0.00	1322434.14	3208011.57	40.216081	-104.755140	

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
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00
1617.93	10.36	316.28	1615.11	33.75	-32.27	2.00	316.28	-29.63
5567.18	10.36	316.28	5500.00	547.00	-523.00	0.00	0.00	-480.32
6085.11	0.00	0.00	6015.11	580.75	-555.27	2.00	180.00	-509.95
6850.04	0.00	0.00	6780.04	580.75	-555.27	0.00	0.00	-509.95
7751.34	90.13	179.95	7353.00	6.49	-554.77	10.00	179.95	60.10
7764.66	90.13	179.95	7352.97	-6.83	-554.75	0.04	-145.17	73.32
12314.66	90.13	179.95	7343.00	-4556.82	-550.54	0.00	0.00	4589.95

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
HEDGE 16C-22HZ BHL	7343.00	-4556.82	-550.54	40.203572	-104.757111	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
691.00	691.00	Fox Hills
3919.00	3959.99	Parkman
4450.00	4499.79	Sussex
7002.00	7077.96	Sharon Springs
7062.00	7144.83	Niobrara A
7104.00	7194.35	Niobrara B
7199.00	7319.93	Niobrara C
7330.00	7587.15	Fort Hays
7353.00	7750.31	Codell

CASING DETAILS			
TVD	MD	Name	Size
937.00	937.00	9 5/8"	9-5/8
7353.00	7751.34	7"	7

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well HEDGE 16C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

<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		

Site		WELD_HEDGE 1-27 PAD			
Site Position:		Northing:	1,322,434.03 usft	Latitude:	40.216080
From:	Lat/Long	Easting:	3,208,041.18 usft	Longitude:	-104.755034
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.48 °

Well	HEDGE 16C-22HZ					
Well Position	+N/-S	0.35 ft	Northing:	1,322,434.14 usft	Latitude:	40.216081
	+E/-W	-29.60 ft	Easting:	3,208,011.57 usft	Longitude:	-104.755140
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,906.00 ft

<b>Wellbore</b>	HEDGE 16C-22HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	9/19/2012	8.67	66.86	52,902

<b>Design</b>	HEDGE 16C-22HZ (wp01) Permit			
<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	186.89

<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	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,617.93	10.36	316.28	1,615.11	33.75	-32.27	2.00	2.00	-8.44	316.28	
5,567.18	10.36	316.28	5,500.00	547.00	-523.00	0.00	0.00	0.00	0.00	
6,085.11	0.00	0.00	6,015.11	580.75	-555.27	2.00	-2.00	8.44	180.00	
6,850.04	0.00	0.00	6,780.04	580.75	-555.27	0.00	0.00	0.00	0.00	
7,751.34	90.13	179.95	7,353.00	6.49	-554.77	10.00	10.00	0.00	179.95	
7,764.66	90.13	179.95	7,352.97	-6.83	-554.75	0.04	-0.03	-0.02	-145.17	
12,314.66	90.13	179.95	7,343.00	-4,556.82	-550.54	0.00	0.00	0.00	0.00	HEDGE 16C-22HZ BI

# Andarko Petroleum Corporation

## Planning Report

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

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
691.00	0.00	0.00	691.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Fox Hills</b>									
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
937.00	0.00	0.00	937.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>9 5/8"</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start DLS 2.00 TFO 316.28</b>									
1,200.00	2.00	316.28	1,199.98	1.26	-1.21	-1.11	2.00	2.00	0.00
1,300.00	4.00	316.28	1,299.84	5.04	-4.82	-4.43	2.00	2.00	0.00
1,400.00	6.00	316.28	1,399.45	11.34	-10.85	-9.96	2.00	2.00	0.00
1,500.00	8.00	316.28	1,498.70	20.15	-19.27	-17.69	2.00	2.00	0.00
1,600.00	10.00	316.28	1,597.47	31.46	-30.08	-27.62	2.00	2.00	0.00
1,617.93	10.36	316.28	1,615.11	33.75	-32.27	-29.63	2.00	2.00	0.00
<b>Start 3949.26 hold at 1617.93 MD</b>									
1,700.00	10.36	316.28	1,695.85	44.41	-42.47	-39.00	0.00	0.00	0.00
1,800.00	10.36	316.28	1,794.22	57.41	-54.89	-50.41	0.00	0.00	0.00
1,900.00	10.36	316.28	1,892.59	70.41	-67.32	-61.82	0.00	0.00	0.00
2,000.00	10.36	316.28	1,990.96	83.40	-79.74	-73.24	0.00	0.00	0.00
2,100.00	10.36	316.28	2,089.33	96.40	-92.17	-84.65	0.00	0.00	0.00
2,200.00	10.36	316.28	2,187.70	109.39	-104.59	-96.06	0.00	0.00	0.00
2,300.00	10.36	316.28	2,286.07	122.39	-117.02	-107.47	0.00	0.00	0.00
2,400.00	10.36	316.28	2,384.44	135.39	-129.45	-118.88	0.00	0.00	0.00
2,500.00	10.36	316.28	2,482.81	148.38	-141.87	-130.30	0.00	0.00	0.00
2,600.00	10.36	316.28	2,581.18	161.38	-154.30	-141.71	0.00	0.00	0.00
2,700.00	10.36	316.28	2,679.55	174.38	-166.72	-153.12	0.00	0.00	0.00
2,800.00	10.36	316.28	2,777.92	187.37	-179.15	-164.53	0.00	0.00	0.00
2,900.00	10.36	316.28	2,876.29	200.37	-191.58	-175.94	0.00	0.00	0.00
3,000.00	10.36	316.28	2,974.66	213.36	-204.00	-187.36	0.00	0.00	0.00
3,100.00	10.36	316.28	3,073.03	226.36	-216.43	-198.77	0.00	0.00	0.00
3,200.00	10.36	316.28	3,171.40	239.36	-228.85	-210.18	0.00	0.00	0.00
3,300.00	10.36	316.28	3,269.77	252.35	-241.28	-221.59	0.00	0.00	0.00
3,400.00	10.36	316.28	3,368.14	265.35	-253.71	-233.00	0.00	0.00	0.00
3,500.00	10.36	316.28	3,466.51	278.35	-266.13	-244.41	0.00	0.00	0.00
3,600.00	10.36	316.28	3,564.88	291.34	-278.56	-255.83	0.00	0.00	0.00
3,700.00	10.36	316.28	3,663.25	304.34	-290.98	-267.24	0.00	0.00	0.00
3,800.00	10.36	316.28	3,761.62	317.33	-303.41	-278.65	0.00	0.00	0.00
3,900.00	10.36	316.28	3,859.99	330.33	-315.84	-290.06	0.00	0.00	0.00
3,959.99	10.36	316.28	3,919.00	338.13	-323.29	-296.91	0.00	0.00	0.00
<b>Parkman</b>									
4,000.00	10.36	316.28	3,958.36	343.33	-328.26	-301.47	0.00	0.00	0.00
4,100.00	10.36	316.28	4,056.73	356.32	-340.69	-312.89	0.00	0.00	0.00
4,200.00	10.36	316.28	4,155.10	369.32	-353.11	-324.30	0.00	0.00	0.00
4,300.00	10.36	316.28	4,253.47	382.31	-365.54	-335.71	0.00	0.00	0.00
4,400.00	10.36	316.28	4,351.84	395.31	-377.97	-347.12	0.00	0.00	0.00

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## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

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)
4,499.79	10.36	316.28	4,450.00	408.28	-390.37	-358.51	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	10.36	316.28	4,450.21	408.31	-390.39	-358.53	0.00	0.00	0.00
4,600.00	10.36	316.28	4,548.58	421.30	-402.82	-369.95	0.00	0.00	0.00
4,700.00	10.36	316.28	4,646.95	434.30	-415.24	-381.36	0.00	0.00	0.00
4,800.00	10.36	316.28	4,745.32	447.30	-427.67	-392.77	0.00	0.00	0.00
4,900.00	10.36	316.28	4,843.69	460.29	-440.10	-404.18	0.00	0.00	0.00
5,000.00	10.36	316.28	4,942.06	473.29	-452.52	-415.59	0.00	0.00	0.00
5,100.00	10.36	316.28	5,040.43	486.28	-464.95	-427.01	0.00	0.00	0.00
5,200.00	10.36	316.28	5,138.80	499.28	-477.37	-438.42	0.00	0.00	0.00
5,300.00	10.36	316.28	5,237.17	512.28	-489.80	-449.83	0.00	0.00	0.00
5,400.00	10.36	316.28	5,335.54	525.27	-502.23	-461.24	0.00	0.00	0.00
5,500.00	10.36	316.28	5,433.91	538.27	-514.65	-472.65	0.00	0.00	0.00
5,567.18	10.36	316.28	5,500.00	547.00	-523.00	-480.32	0.00	0.00	0.00
<b>Start DLS 2.00 TFO 180.00</b>									
5,600.00	9.70	316.28	5,532.32	551.13	-526.95	-483.95	2.00	-2.00	0.00
5,700.00	7.70	316.28	5,631.16	562.07	-537.41	-493.55	2.00	-2.00	0.00
5,800.00	5.70	316.28	5,730.47	570.50	-545.47	-500.96	2.00	-2.00	0.00
5,900.00	3.70	316.28	5,830.13	576.43	-551.14	-506.16	2.00	-2.00	0.00
6,000.00	1.70	316.28	5,930.01	579.83	-554.39	-509.15	2.00	-2.00	0.00
6,085.11	0.00	0.00	6,015.11	580.75	-555.27	-509.95	2.00	-2.00	0.00
<b>Start 764.93 hold at 6085.11 MD</b>									
6,100.00	0.00	0.00	6,030.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,200.00	0.00	0.00	6,130.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,300.00	0.00	0.00	6,230.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,400.00	0.00	0.00	6,330.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,500.00	0.00	0.00	6,430.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,600.00	0.00	0.00	6,530.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,700.00	0.00	0.00	6,630.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,800.00	0.00	0.00	6,730.00	580.75	-555.27	-509.95	0.00	0.00	0.00
6,850.04	0.00	0.00	6,780.04	580.75	-555.27	-509.95	0.00	0.00	0.00
<b>Start Build 10.00</b>									
6,900.00	5.00	179.95	6,829.94	578.57	-555.26	-507.79	10.00	10.00	360.18
6,950.00	10.00	179.95	6,879.49	572.05	-555.26	-501.32	10.00	10.00	0.00
7,000.00	15.00	179.95	6,928.29	561.23	-555.25	-490.58	10.00	10.00	0.00
7,050.00	20.00	179.95	6,975.97	546.21	-555.24	-475.67	10.00	10.00	0.00
7,077.96	22.79	179.95	7,002.00	536.01	-555.23	-465.54	10.00	10.00	0.00
<b>Sharon Springs</b>									
7,100.00	25.00	179.95	7,022.15	527.08	-555.22	-456.68	10.00	10.00	0.00
7,144.83	29.48	179.95	7,062.00	506.57	-555.20	-436.32	10.00	10.00	0.00
<b>Niobrara A</b>									
7,150.00	30.00	179.95	7,066.49	504.01	-555.20	-433.77	10.00	10.00	0.00
7,194.35	34.43	179.95	7,104.00	480.37	-555.18	-410.31	10.00	10.00	0.00
<b>Niobrara B</b>									
7,200.00	35.00	179.95	7,108.64	477.15	-555.18	-407.12	10.00	10.00	0.00
7,250.00	40.00	179.95	7,148.30	446.73	-555.15	-376.91	10.00	10.00	0.00
7,300.00	45.00	179.95	7,185.16	412.96	-555.12	-343.40	10.00	10.00	0.00
7,319.93	46.99	179.95	7,199.00	398.63	-555.11	-329.17	10.00	10.00	0.00
<b>Niobrara C</b>									
7,350.00	50.00	179.95	7,218.93	376.11	-555.09	-306.82	10.00	10.00	0.00
7,400.00	55.00	179.95	7,249.36	336.46	-555.05	-267.45	10.00	10.00	0.00
7,450.00	60.00	179.95	7,276.22	294.30	-555.02	-225.61	10.00	10.00	0.00
7,500.00	65.00	179.95	7,299.30	249.97	-554.98	-181.60	10.00	10.00	0.00

# Andarko Petroleum Corporation

## Planning Report

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

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)
7,550.00	70.00	179.95	7,318.43	203.79	-554.94	-135.76	10.00	10.00	0.00
7,587.15	73.71	179.95	7,330.00	168.49	-554.91	-100.72	10.00	10.00	0.00
<b>Fort Hays</b>									
7,600.00	75.00	179.95	7,333.47	156.12	-554.90	-88.44	10.00	10.00	0.00
7,650.00	80.00	179.95	7,344.29	107.32	-554.85	-40.00	10.00	10.00	0.00
7,700.00	85.00	179.95	7,350.82	57.77	-554.81	9.20	10.00	10.00	0.00
7,750.31	90.13	179.95	7,353.00	7.52	-554.77	59.08	10.20	10.20	0.00
<b>Codell</b>									
7,751.34	90.13	179.95	7,353.00	6.49	-554.77	60.10	0.01	-0.01	0.00
<b>Start DLS 0.04 TFO -145.17 - 7"</b>									
7,764.66	90.13	179.95	7,352.97	-6.83	-554.75	73.32	0.04	-0.03	-0.02
<b>Start 4550.00 hold at 7764.66 MD</b>									
7,800.00	90.13	179.95	7,352.89	-42.17	-554.72	108.40	0.00	0.00	0.00
7,900.00	90.13	179.95	7,352.67	-142.17	-554.63	207.67	0.00	0.00	0.00
8,000.00	90.13	179.95	7,352.45	-242.17	-554.54	306.93	0.00	0.00	0.00
8,100.00	90.13	179.95	7,352.23	-342.17	-554.44	406.20	0.00	0.00	0.00
8,200.00	90.13	179.95	7,352.01	-442.17	-554.35	505.47	0.00	0.00	0.00
8,300.00	90.13	179.95	7,351.80	-542.17	-554.26	604.73	0.00	0.00	0.00
8,400.00	90.13	179.95	7,351.58	-642.17	-554.16	704.00	0.00	0.00	0.00
8,500.00	90.13	179.95	7,351.36	-742.17	-554.07	803.27	0.00	0.00	0.00
8,600.00	90.13	179.95	7,351.14	-842.17	-553.98	902.53	0.00	0.00	0.00
8,700.00	90.13	179.95	7,350.92	-942.17	-553.89	1,001.80	0.00	0.00	0.00
8,800.00	90.13	179.95	7,350.70	-1,042.17	-553.79	1,101.07	0.00	0.00	0.00
8,900.00	90.13	179.95	7,350.48	-1,142.17	-553.70	1,200.33	0.00	0.00	0.00
9,000.00	90.13	179.95	7,350.26	-1,242.17	-553.61	1,299.60	0.00	0.00	0.00
9,100.00	90.13	179.95	7,350.04	-1,342.17	-553.52	1,398.87	0.00	0.00	0.00
9,200.00	90.13	179.95	7,349.82	-1,442.17	-553.42	1,498.13	0.00	0.00	0.00
9,300.00	90.13	179.95	7,349.60	-1,542.17	-553.33	1,597.40	0.00	0.00	0.00
9,400.00	90.13	179.95	7,349.39	-1,642.17	-553.24	1,696.67	0.00	0.00	0.00
9,500.00	90.13	179.95	7,349.17	-1,742.17	-553.14	1,795.93	0.00	0.00	0.00
9,600.00	90.13	179.95	7,348.95	-1,842.17	-553.05	1,895.20	0.00	0.00	0.00
9,700.00	90.13	179.95	7,348.73	-1,942.16	-552.96	1,994.47	0.00	0.00	0.00
9,800.00	90.13	179.95	7,348.51	-2,042.16	-552.87	2,093.73	0.00	0.00	0.00
9,900.00	90.13	179.95	7,348.29	-2,142.16	-552.77	2,193.00	0.00	0.00	0.00
10,000.00	90.13	179.95	7,348.07	-2,242.16	-552.68	2,292.27	0.00	0.00	0.00
10,100.00	90.13	179.95	7,347.85	-2,342.16	-552.59	2,391.53	0.00	0.00	0.00
10,200.00	90.13	179.95	7,347.63	-2,442.16	-552.50	2,490.80	0.00	0.00	0.00
10,300.00	90.13	179.95	7,347.41	-2,542.16	-552.40	2,590.07	0.00	0.00	0.00
10,400.00	90.13	179.95	7,347.19	-2,642.16	-552.31	2,689.33	0.00	0.00	0.00
10,500.00	90.13	179.95	7,346.98	-2,742.16	-552.22	2,788.60	0.00	0.00	0.00
10,600.00	90.13	179.95	7,346.76	-2,842.16	-552.13	2,887.87	0.00	0.00	0.00
10,700.00	90.13	179.95	7,346.54	-2,942.16	-552.03	2,987.13	0.00	0.00	0.00
10,800.00	90.13	179.95	7,346.32	-3,042.16	-551.94	3,086.40	0.00	0.00	0.00
10,900.00	90.13	179.95	7,346.10	-3,142.16	-551.85	3,185.67	0.00	0.00	0.00
11,000.00	90.13	179.95	7,345.88	-3,242.16	-551.75	3,284.93	0.00	0.00	0.00
11,100.00	90.13	179.95	7,345.66	-3,342.16	-551.66	3,384.20	0.00	0.00	0.00
11,200.00	90.13	179.95	7,345.44	-3,442.16	-551.57	3,483.47	0.00	0.00	0.00
11,300.00	90.13	179.95	7,345.22	-3,542.16	-551.48	3,582.73	0.00	0.00	0.00
11,400.00	90.13	179.95	7,345.00	-3,642.16	-551.38	3,682.00	0.00	0.00	0.00
11,500.00	90.13	179.95	7,344.78	-3,742.16	-551.29	3,781.27	0.00	0.00	0.00
11,600.00	90.13	179.95	7,344.57	-3,842.16	-551.20	3,880.53	0.00	0.00	0.00
11,700.00	90.13	179.95	7,344.35	-3,942.16	-551.11	3,979.80	0.00	0.00	0.00
11,800.00	90.13	179.95	7,344.13	-4,042.16	-551.01	4,079.07	0.00	0.00	0.00

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well HEDGE 16C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

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)
11,900.00	90.13	179.95	7,343.91	-4,142.16	-550.92	4,178.33	0.00	0.00	0.00
12,000.00	90.13	179.95	7,343.69	-4,242.16	-550.83	4,277.60	0.00	0.00	0.00
12,100.00	90.13	179.95	7,343.47	-4,342.16	-550.73	4,376.87	0.00	0.00	0.00
12,200.00	90.13	179.95	7,343.25	-4,442.16	-550.64	4,476.13	0.00	0.00	0.00
12,300.00	90.13	179.95	7,343.03	-4,542.16	-550.55	4,575.40	0.00	0.00	0.00
12,314.66	90.13	179.95	7,343.00	-4,556.82	-550.54	4,589.95	0.00	0.00	0.00
TD at 12314.66 - HEDGE 16C-22HZ BHL									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
HEDGE 16C-22HZ BHL - plan hits target center - Point	0.00	0.00	7,343.00	-4,556.82	-550.54	1,317,872.87	3,207,499.33	40.203572	-104.757111

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
937.00	937.00	9 5/8"	9-5/8	12-1/4	
7,751.34	7,353.00	7"	7	7-1/2	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
691.00	691.00	Fox Hills				
3,959.99	3,919.00	Parkman				
4,499.79	4,450.00	Sussex				
7,077.96	7,002.00	Sharon Springs				
7,144.83	7,062.00	Niobrara A				
7,194.35	7,104.00	Niobrara B				
7,319.93	7,199.00	Niobrara C				
7,587.15	7,330.00	Fort Hays				
7,750.31	7,353.00	Codell				

# Andarko Petroleum Corporation

## Planning Report

<b>Database:</b>	edmp	<b>Local Co-ordinate Reference:</b>	Well HEDGE 16C-22HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	16' RKB + 4906' GL @ 4922.00ft
<b>Site:</b>	WELD_HEDGE 1-27 PAD	<b>North Reference:</b>	True
<b>Well:</b>	HEDGE 16C-22HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HEDGE 16C-22HZ		
<b>Design:</b>	HEDGE 16C-22HZ (wp01) Permit		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.00	1,100.00	0.00	0.00	Start DLS 2.00 TFO 316.28
1,617.93	1,615.11	33.75	-32.27	Start 3949.26 hold at 1617.93 MD
5,567.18	5,500.00	547.00	-523.00	Start DLS 2.00 TFO 180.00
6,085.11	6,015.11	580.75	-555.27	Start 764.93 hold at 6085.11 MD
6,850.04	6,780.04	580.75	-555.27	Start Build 10.00
7,751.34	7,353.00	6.49	-554.77	Start DLS 0.04 TFO -145.17
7,764.66	7,352.97	-6.83	-554.75	Start 4550.00 hold at 7764.66 MD
12,314.66	7,343.00	-4,556.82	-550.54	TD at 12314.66