

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_BYDALEK 35-20HZ PAD

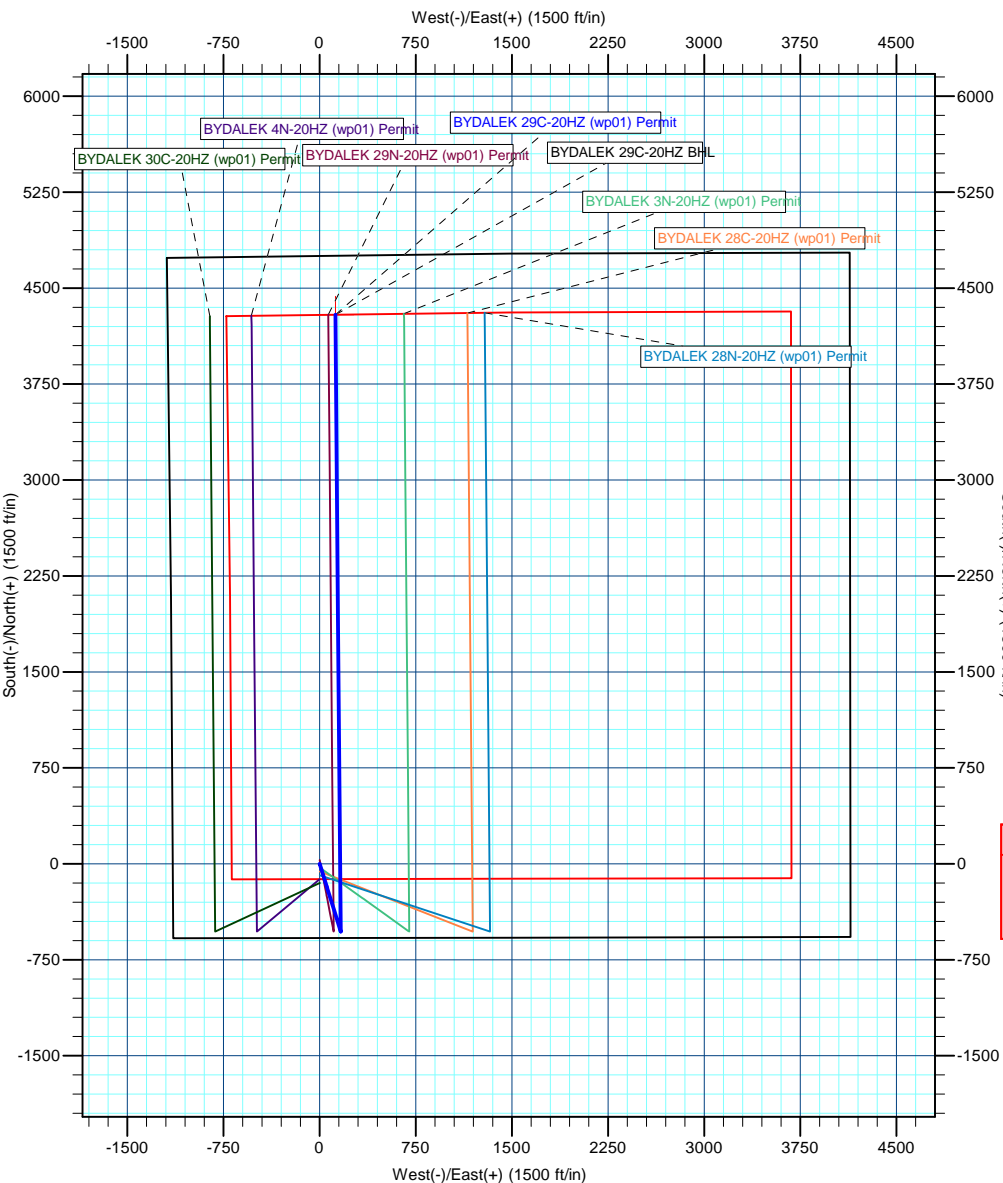
BYDALEK 29C-20HZ

BYDALEK 29C-20HZ

Plan: BYDALEK 29C-20HZ (wp01) Permit

Standard Planning Report

18 September, 2012



Azimuths to True North
Magnetic North: 8.63°

Magnetic Field
Strength: 52857.4snT
Dip Angle: 66.79°
Date: 9/17/2012
Model: IGRF2010



Project: COLORADO NORTHERN ZONE - 83
Site: WELD BYDALEK 35-20HZ PAD
Well: BYDALEK 29C-20HZ
Wellbore: BYDALEK 29C-20HZ
Section:
SHL:
Design: BYDALEK 29C-20HZ (wp01) Permit
Latitude: 40.118345
Longitude: -104.693212
GL: 4932.00
KB: 17' RKB + 4932' GL @ 4949.00ft

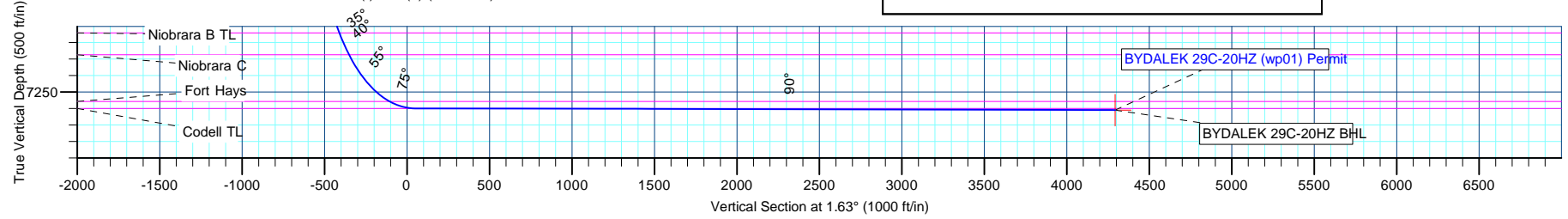
WELL DETAILS: BYDALEK 29C-20HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4932.00 Latitude	Longitude	Slot
0.00	0.00	1286983.51	3225629.21	40.118345	-104.693212	

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
1125.00	0.00	0.00	1125.00	0.00	0.00	0.00	0.00	0.00
4666.73	9.99	162.81	4648.81	-294.26	91.05	0.28	162.81	-291.55
5835.65	9.99	162.81	5800.00	-488.00	151.00	0.00	0.00	-483.52
6335.21	0.00	0.00	6297.04	-529.51	163.84	2.00	-180.00	-524.64
6765.22	0.00	0.00	6727.05	-529.51	163.84	0.00	0.00	-524.64
7665.23	90.00	359.50	7300.00	43.43	158.84	10.00	359.50	47.92
7877.66	89.93	359.50	7300.13	255.86	156.99	0.03	178.34	260.21
11913.55	89.93	359.50	7305.00	4291.59	121.91	0.00	0.00	4293.33

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape Point
BYDALEK 29C-20HZ BHL	7305.00	4291.59	121.91	40.130126	-104.692776	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4093.00	4103.67	Parkman
4448.00	4463.01	Sussex
6943.00	6986.65	Sharon Springs
7003.00	7053.14	Top Niobrara
7039.00	7095.10	Niobrara B
7071.00	7134.15	Niobrara B TL
7137.00	7222.07	Niobrara C
7279.00	7509.60	Fort Hays
7300.00	7662.85	Codell TL

CASING DETAILS			
TVD	MD	Name	Size
975.00	975.00	9 5/8"	9-5/8
7300.00	7665.23	7"	7



Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 29C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4932' GL @ 4949.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4932' GL @ 4949.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 29C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 29C-20HZ		
Design:	BYDALEK 29C-20HZ (wp01) Permit		

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_BYDALEK 35-20HZ PAD			
Site Position:		Northing:	1,286,833.46 usft	Latitude: 40.117933
From:	Lat/Long	Easting:	3,225,631.42 usft	Longitude: -104.693209
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.52 °

Well	BYDALEK 29C-20HZ			
Well Position	+N/-S	150.07 ft	Northing:	1,286,983.51 usft
	+E/-W	-0.84 ft	Easting:	3,225,629.22 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 40.118345
				Longitude: -104.693212
				Ground Level: 4,932.00 ft

Wellbore	BYDALEK 29C-20HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/17/2012	8.63	66.79	52,857

Design	BYDALEK 29C-20HZ (wp01) Permit			
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	0.00	0.00	1.63

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	0.00	0.00	0.00	0.00	0.00	0.00	
1,125.00	0.00	0.00	1,125.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,666.73	9.99	162.81	4,648.81	-294.26	91.05	0.28	0.28	4.60	162.81	
5,835.65	9.99	162.81	5,800.00	-488.00	151.00	0.00	0.00	0.00	0.00	
6,335.21	0.00	0.00	6,297.04	-529.51	163.84	2.00	-2.00	-32.59	-180.00	
6,765.22	0.00	0.00	6,727.05	-529.51	163.84	0.00	0.00	0.00	0.00	
7,665.23	90.00	359.50	7,300.01	43.43	158.84	10.00	10.00	0.00	359.50	
7,877.66	89.93	359.50	7,300.13	255.86	156.99	0.03	-0.03	0.00	178.34	
11,913.55	89.93	359.50	7,305.00	4,291.59	121.91	0.00	0.00	0.00	0.00	BYDALEK 29C-20HZ

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Wellbore:	BYDALEK 29C-20HZ		
Design:	BYDALEK 29C-20HZ (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
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
975.00	0.00	0.00	975.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
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
1,125.00	0.00	0.00	1,125.00	0.00	0.00	0.00	0.00	0.00	0.00
Start DLS 0.28 TFO 162.81									
1,200.00	0.21	162.81	1,200.00	-0.13	0.04	-0.13	0.28	0.28	0.00
1,300.00	0.49	162.81	1,300.00	-0.72	0.22	-0.71	0.28	0.28	0.00
1,400.00	0.78	162.81	1,399.99	-1.78	0.55	-1.76	0.28	0.28	0.00
1,500.00	1.06	162.81	1,499.98	-3.31	1.02	-3.28	0.28	0.28	0.00
1,600.00	1.34	162.81	1,599.96	-5.31	1.64	-5.26	0.28	0.28	0.00
1,700.00	1.62	162.81	1,699.92	-7.78	2.41	-7.70	0.28	0.28	0.00
1,800.00	1.90	162.81	1,799.88	-10.71	3.32	-10.62	0.28	0.28	0.00
1,900.00	2.19	162.81	1,899.81	-14.12	4.37	-13.99	0.28	0.28	0.00
2,000.00	2.47	162.81	1,999.73	-18.00	5.57	-17.84	0.28	0.28	0.00
2,100.00	2.75	162.81	2,099.63	-22.35	6.92	-22.15	0.28	0.28	0.00
2,200.00	3.03	162.81	2,199.50	-27.17	8.41	-26.92	0.28	0.28	0.00
2,300.00	3.31	162.81	2,299.34	-32.46	10.04	-32.16	0.28	0.28	0.00
2,400.00	3.60	162.81	2,399.16	-38.22	11.83	-37.87	0.28	0.28	0.00
2,500.00	3.88	162.81	2,498.95	-44.45	13.75	-44.04	0.28	0.28	0.00
2,600.00	4.16	162.81	2,598.70	-51.14	15.83	-50.67	0.28	0.28	0.00
2,700.00	4.44	162.81	2,698.42	-58.31	18.04	-57.77	0.28	0.28	0.00
2,800.00	4.73	162.81	2,798.10	-65.94	20.41	-65.34	0.28	0.28	0.00
2,900.00	5.01	162.81	2,897.74	-74.05	22.91	-73.37	0.28	0.28	0.00
3,000.00	5.29	162.81	2,997.34	-82.62	25.57	-81.86	0.28	0.28	0.00
3,100.00	5.57	162.81	3,096.89	-91.66	28.36	-90.82	0.28	0.28	0.00
3,200.00	5.85	162.81	3,196.39	-101.17	31.30	-100.24	0.28	0.28	0.00
3,300.00	6.14	162.81	3,295.85	-111.15	34.39	-110.13	0.28	0.28	0.00
3,400.00	6.42	162.81	3,395.25	-121.59	37.62	-120.47	0.28	0.28	0.00
3,500.00	6.70	162.81	3,494.59	-132.50	41.00	-131.29	0.28	0.28	0.00
3,600.00	6.98	162.81	3,593.88	-143.88	44.52	-142.56	0.28	0.28	0.00
3,700.00	7.26	162.81	3,693.11	-155.73	48.19	-154.30	0.28	0.28	0.00
3,800.00	7.55	162.81	3,792.27	-168.04	52.00	-166.50	0.28	0.28	0.00
3,900.00	7.83	162.81	3,891.37	-180.82	55.95	-179.16	0.28	0.28	0.00
4,000.00	8.11	162.81	3,990.41	-194.07	60.05	-192.28	0.28	0.28	0.00
4,100.00	8.39	162.81	4,089.37	-207.78	64.29	-205.87	0.28	0.28	0.00
4,103.67	8.40	162.81	4,093.00	-208.29	64.45	-206.37	0.28	0.28	0.00
Parkman									
4,200.00	8.67	162.81	4,188.27	-221.95	68.68	-219.91	0.28	0.28	0.00
4,300.00	8.96	162.81	4,287.08	-236.59	73.21	-234.42	0.28	0.28	0.00
4,400.00	9.24	162.81	4,385.83	-251.70	77.88	-249.38	0.28	0.28	0.00
4,463.01	9.42	162.81	4,448.00	-261.45	80.90	-259.05	0.28	0.28	0.00
Sussex									
4,500.00	9.52	162.81	4,484.49	-267.27	82.70	-264.81	0.28	0.28	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4932' GL @ 4949.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 29C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 29C-20HZ		
Design:	BYDALEK 29C-20HZ (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)
4,600.00	9.80	162.81	4,583.07	-283.30	87.66	-280.70	0.28	0.28	0.00
4,666.73	9.99	162.81	4,648.81	-294.26	91.05	-291.55	0.28	0.28	0.00
Start 1168.92 hold at 4666.73 MD									
4,700.00	9.99	162.81	4,681.57	-299.77	92.76	-297.02	0.00	0.00	0.00
4,800.00	9.99	162.81	4,780.06	-316.35	97.89	-313.44	0.00	0.00	0.00
4,900.00	9.99	162.81	4,878.54	-332.92	103.01	-329.86	0.00	0.00	0.00
5,000.00	9.99	162.81	4,977.02	-349.50	108.14	-346.28	0.00	0.00	0.00
5,100.00	9.99	162.81	5,075.51	-366.07	113.27	-362.71	0.00	0.00	0.00
5,200.00	9.99	162.81	5,173.99	-382.64	118.40	-379.13	0.00	0.00	0.00
5,300.00	9.99	162.81	5,272.47	-399.22	123.53	-395.55	0.00	0.00	0.00
5,400.00	9.99	162.81	5,370.96	-415.79	128.66	-411.97	0.00	0.00	0.00
5,500.00	9.99	162.81	5,469.44	-432.37	133.79	-428.39	0.00	0.00	0.00
5,600.00	9.99	162.81	5,567.92	-448.94	138.91	-444.82	0.00	0.00	0.00
5,700.00	9.99	162.81	5,666.41	-465.52	144.04	-461.24	0.00	0.00	0.00
5,800.00	9.99	162.81	5,764.89	-482.09	149.17	-477.66	0.00	0.00	0.00
5,835.65	9.99	162.81	5,800.00	-488.00	151.00	-483.52	0.00	0.00	0.00
Start DLS 2.00 TFO -180.00									
5,900.00	8.70	162.81	5,863.49	-497.98	154.09	-493.41	2.00	-2.00	0.00
6,000.00	6.70	162.81	5,962.59	-510.79	158.05	-506.10	2.00	-2.00	0.00
6,100.00	4.70	162.81	6,062.09	-520.29	160.99	-515.50	2.00	-2.00	0.00
6,200.00	2.70	162.81	6,161.87	-526.46	162.90	-521.62	2.00	-2.00	0.00
6,300.00	0.70	162.81	6,261.82	-529.30	163.78	-524.43	2.00	-2.00	0.00
6,335.21	0.00	0.00	6,297.04	-529.51	163.84	-524.64	2.00	-2.00	0.00
Start 430.01 hold at 6335.21 MD									
6,400.00	0.00	0.00	6,361.82	-529.51	163.84	-524.64	0.00	0.00	0.00
6,500.00	0.00	0.00	6,461.82	-529.51	163.84	-524.64	0.00	0.00	0.00
6,600.00	0.00	0.00	6,561.82	-529.51	163.84	-524.64	0.00	0.00	0.00
6,700.00	0.00	0.00	6,661.82	-529.51	163.84	-524.64	0.00	0.00	0.00
6,765.22	0.00	0.00	6,727.05	-529.51	163.84	-524.64	0.00	0.00	0.00
Start Build 10.00									
6,800.00	3.48	359.50	6,761.80	-528.45	163.83	-523.58	10.00	10.00	-1.44
6,850.00	8.48	359.50	6,811.51	-523.25	163.79	-518.38	10.00	10.00	0.00
6,900.00	13.48	359.50	6,860.58	-513.73	163.71	-508.87	10.00	10.00	0.00
6,950.00	18.48	359.50	6,908.64	-499.97	163.59	-495.12	10.00	10.00	0.00
6,986.65	22.14	359.50	6,943.00	-487.25	163.47	-482.41	10.00	10.00	0.00
Sharon Springs									
7,000.00	23.48	359.50	6,955.31	-482.08	163.43	-477.24	10.00	10.00	0.00
7,050.00	28.48	359.50	7,000.24	-460.18	163.24	-455.36	10.00	10.00	0.00
7,053.14	28.79	359.50	7,003.00	-458.68	163.22	-453.86	10.00	10.00	0.00
Top Niobrara									
7,095.10	32.99	359.50	7,039.00	-437.14	163.04	-432.33	10.00	10.00	0.00
Niobrara B									
7,100.00	33.48	359.50	7,043.10	-434.46	163.01	-429.65	10.00	10.00	0.00
7,134.15	36.89	359.50	7,071.00	-414.78	162.84	-409.99	10.00	10.00	0.00
Niobrara B TL									
7,150.00	38.48	359.50	7,083.55	-405.09	162.76	-400.31	10.00	10.00	0.00
7,200.00	43.48	359.50	7,121.28	-372.32	162.47	-367.55	10.00	10.00	0.00
7,222.07	45.68	359.50	7,137.00	-356.83	162.34	-352.07	10.00	10.00	0.00
Niobrara C									
7,250.00	48.48	359.50	7,156.02	-336.38	162.16	-331.64	10.00	10.00	0.00
7,300.00	53.48	359.50	7,187.49	-297.55	161.82	-292.83	10.00	10.00	0.00
7,350.00	58.48	359.50	7,215.46	-256.12	161.46	-251.43	10.00	10.00	0.00
7,400.00	63.48	359.50	7,239.71	-212.41	161.08	-207.75	10.00	10.00	0.00

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7,450.00	68.48	359.50	7,260.05	-166.76	160.68	-162.13	10.00	10.00	0.00
7,500.00	73.48	359.50	7,276.35	-119.51	160.26	-114.91	10.00	10.00	0.00
7,509.60	74.44	359.50	7,279.00	-110.28	160.18	-105.69	10.00	10.00	0.00
Fort Hays									
7,550.00	78.48	359.50	7,288.46	-71.01	159.84	-66.45	10.00	10.00	0.00
7,600.00	83.48	359.50	7,296.30	-21.65	159.41	-17.12	10.00	10.00	0.00
7,650.00	88.48	359.50	7,299.80	28.21	158.98	32.71	10.00	10.00	0.00
7,662.85	89.76	359.50	7,300.00	41.05	158.86	45.55	10.00	10.00	0.00
Codell TL									
7,665.23	90.00	359.50	7,300.01	43.44	158.84	47.93	9.98	9.98	0.00
Start DLS 0.03 TFO 178.34 - 7"									
7,700.00	89.99	359.50	7,300.01	78.20	158.54	82.68	0.03	-0.03	0.00
7,800.00	89.96	359.50	7,300.06	178.20	157.67	182.61	0.03	-0.03	0.00
7,877.66	89.93	359.50	7,300.13	255.86	156.99	260.21	0.03	-0.03	0.00
Start 4035.89 hold at 7877.66 MD									
7,900.00	89.93	359.50	7,300.16	278.20	156.80	282.54	0.00	0.00	0.00
8,000.00	89.93	359.50	7,300.28	378.19	155.93	382.47	0.00	0.00	0.00
8,100.00	89.93	359.50	7,300.40	478.19	155.06	482.40	0.00	0.00	0.00
8,200.00	89.93	359.50	7,300.52	578.19	154.19	582.33	0.00	0.00	0.00
8,300.00	89.93	359.50	7,300.64	678.18	153.32	682.26	0.00	0.00	0.00
8,400.00	89.93	359.50	7,300.76	778.18	152.45	782.19	0.00	0.00	0.00
8,500.00	89.93	359.50	7,300.88	878.17	151.58	882.12	0.00	0.00	0.00
8,600.00	89.93	359.50	7,301.00	978.17	150.71	982.06	0.00	0.00	0.00
8,700.00	89.93	359.50	7,301.12	1,078.17	149.85	1,081.99	0.00	0.00	0.00
8,800.00	89.93	359.50	7,301.25	1,178.16	148.98	1,181.92	0.00	0.00	0.00
8,900.00	89.93	359.50	7,301.37	1,278.16	148.11	1,281.85	0.00	0.00	0.00
9,000.00	89.93	359.50	7,301.49	1,378.15	147.24	1,381.78	0.00	0.00	0.00
9,100.00	89.93	359.50	7,301.61	1,478.15	146.37	1,481.71	0.00	0.00	0.00
9,200.00	89.93	359.50	7,301.73	1,578.15	145.50	1,581.64	0.00	0.00	0.00
9,300.00	89.93	359.50	7,301.85	1,678.14	144.63	1,681.57	0.00	0.00	0.00
9,400.00	89.93	359.50	7,301.97	1,778.14	143.76	1,781.50	0.00	0.00	0.00
9,500.00	89.93	359.50	7,302.09	1,878.14	142.89	1,881.44	0.00	0.00	0.00
9,600.00	89.93	359.50	7,302.21	1,978.13	142.02	1,981.37	0.00	0.00	0.00
9,700.00	89.93	359.50	7,302.33	2,078.13	141.15	2,081.30	0.00	0.00	0.00
9,800.00	89.93	359.50	7,302.45	2,178.12	140.28	2,181.23	0.00	0.00	0.00
9,900.00	89.93	359.50	7,302.57	2,278.12	139.42	2,281.16	0.00	0.00	0.00
10,000.00	89.93	359.50	7,302.69	2,378.12	138.55	2,381.09	0.00	0.00	0.00
10,100.00	89.93	359.50	7,302.81	2,478.11	137.68	2,481.02	0.00	0.00	0.00
10,200.00	89.93	359.50	7,302.93	2,578.11	136.81	2,580.95	0.00	0.00	0.00
10,300.00	89.93	359.50	7,303.05	2,678.10	135.94	2,680.88	0.00	0.00	0.00
10,400.00	89.93	359.50	7,303.17	2,778.10	135.07	2,780.82	0.00	0.00	0.00
10,500.00	89.93	359.50	7,303.30	2,878.10	134.20	2,880.75	0.00	0.00	0.00
10,600.00	89.93	359.50	7,303.42	2,978.09	133.33	2,980.68	0.00	0.00	0.00
10,700.00	89.93	359.50	7,303.54	3,078.09	132.46	3,080.61	0.00	0.00	0.00
10,800.00	89.93	359.50	7,303.66	3,178.09	131.59	3,180.54	0.00	0.00	0.00
10,900.00	89.93	359.50	7,303.78	3,278.08	130.72	3,280.47	0.00	0.00	0.00
11,000.00	89.93	359.50	7,303.90	3,378.08	129.85	3,380.40	0.00	0.00	0.00
11,100.00	89.93	359.50	7,304.02	3,478.07	128.99	3,480.33	0.00	0.00	0.00
11,200.00	89.93	359.50	7,304.14	3,578.07	128.12	3,580.27	0.00	0.00	0.00
11,300.00	89.93	359.50	7,304.26	3,678.07	127.25	3,680.20	0.00	0.00	0.00
11,400.00	89.93	359.50	7,304.38	3,778.06	126.38	3,780.13	0.00	0.00	0.00
11,500.00	89.93	359.50	7,304.50	3,878.06	125.51	3,880.06	0.00	0.00	0.00
11,600.00	89.93	359.50	7,304.62	3,978.05	124.64	3,979.99	0.00	0.00	0.00

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 29C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4932' GL @ 4949.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4932' GL @ 4949.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 29C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 29C-20HZ		
Design:	BYDALEK 29C-20HZ (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)
11,700.00	89.93	359.50	7,304.74	4,078.05	123.77	4,079.92	0.00	0.00	0.00
11,800.00	89.93	359.50	7,304.86	4,178.05	122.90	4,179.85	0.00	0.00	0.00
11,900.00	89.93	359.50	7,304.98	4,278.04	122.03	4,279.78	0.00	0.00	0.00
11,913.55	89.93	359.50	7,305.00	4,291.59	121.91	4,293.33	0.00	0.00	0.00
TD at 11913.55 - BYDALEK 29C-20HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
BYDALEK 29C-20HZ Bt	0.00	0.00	7,305.00	4,291.59	121.91	1,291,276.03	3,225,712.08	40.130126	-104.692776
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
975.00	975.00	9 5/8"	9-5/8	12-1/4	
7,665.23	7,300.01	7"	7	8-3/4	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,103.67	4,093.00	Parkman				
4,463.01	4,448.00	Sussex				
6,986.65	6,943.00	Sharon Springs				
7,053.14	7,003.00	Top Niobrara				
7,095.10	7,039.00	Niobrara B				
7,134.15	7,071.00	Niobrara B TL				
7,222.07	7,137.00	Niobrara C				
7,509.60	7,279.00	Fort Hays				
7,662.85	7,300.00	Codell TL				

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 29C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4932' GL @ 4949.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4932' GL @ 4949.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 29C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 29C-20HZ		
Design:	BYDALEK 29C-20HZ (wp01) Permit		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,125.00	1,125.00	0.00	0.00	Start DLS 0.28 TFO 162.81
4,666.73	4,648.81	-294.26	91.05	Start 1168.92 hold at 4666.73 MD
5,835.65	5,800.00	-488.00	151.00	Start DLS 2.00 TFO -180.00
6,335.21	6,297.04	-529.51	163.84	Start 430.01 hold at 6335.21 MD
6,765.22	6,727.05	-529.51	163.84	Start Build 10.00
7,665.23	7,300.01	43.43	158.84	Start DLS 0.03 TFO 178.34
7,877.66	7,300.13	255.86	156.99	Start 4035.89 hold at 7877.66 MD
11,913.55	7,305.00	4,291.59	121.91	TD at 11913.55