

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_BYDALEK 35-20HZ PAD

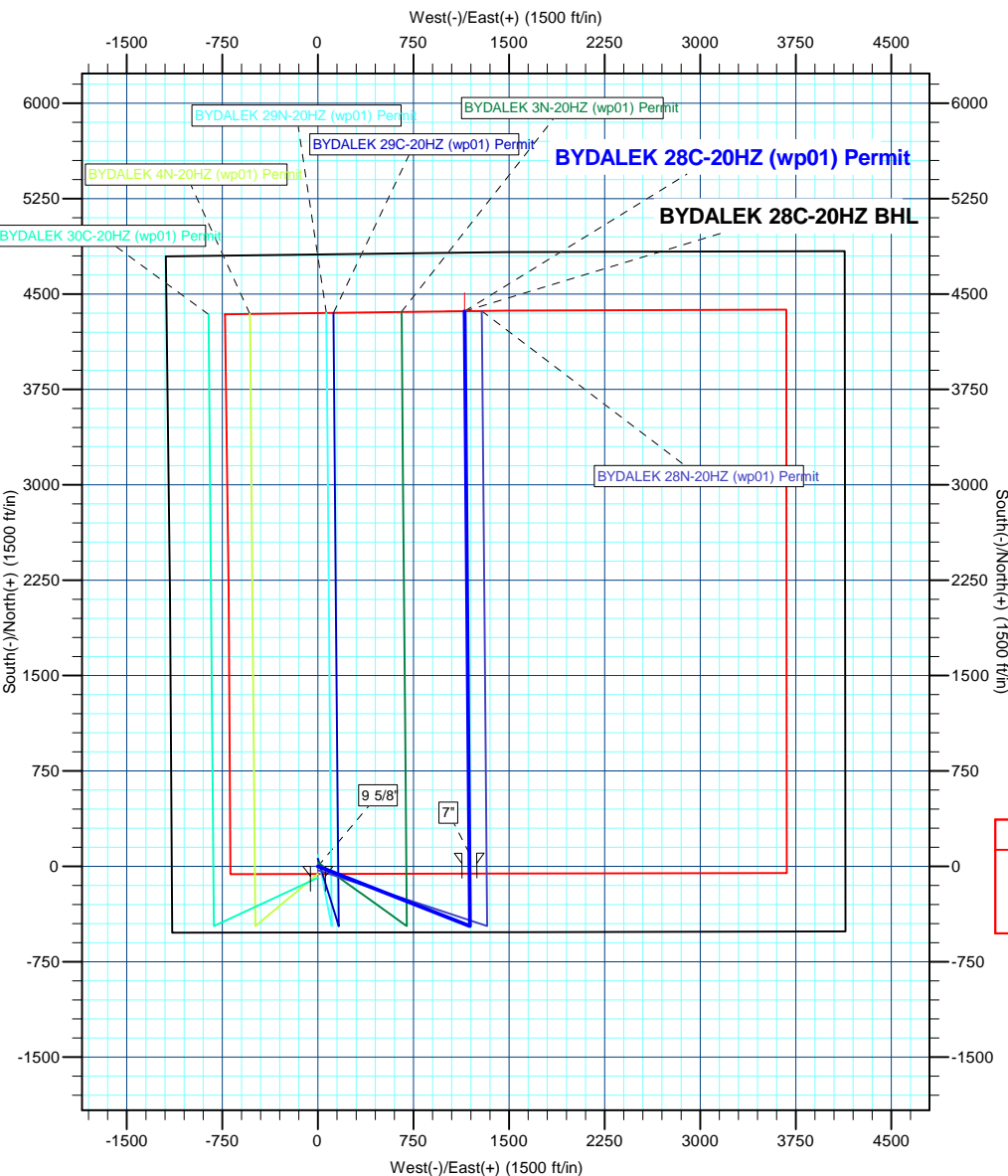
BYDALEK 28C-20HZ

BYDALEK 28C-20HZ

Plan: BYDALEK 28C-20HZ (wp01) Permit

Standard Planning Report

18 September, 2012



Project: COLORADO NORTHERN ZONE - 83
Site: WELD BYDALEK 35-20HZ PAD
Well: BYDALEK 28C-20HZ
Wellbore: BYDALEK 28C-20HZ
Section:
SHL:
Design: BYDALEK 28C-20HZ (wp01) Permit
Latitude: 40.118180
Longitude: -104.693211
GL: 4931.00
KB: 17' RKB + 4931' GL @ 4948.00ft

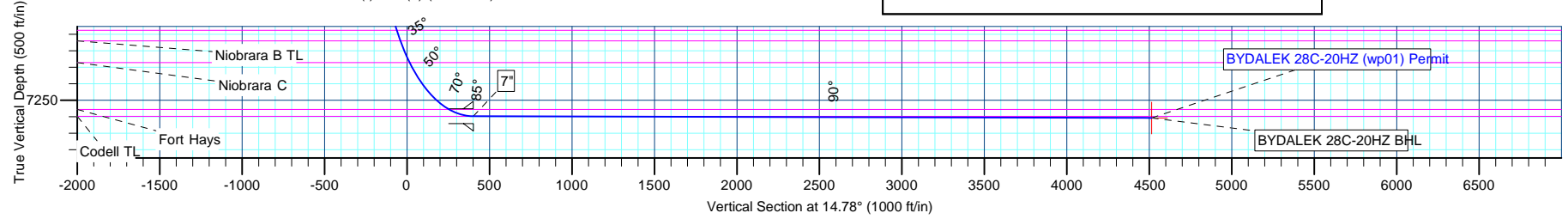
WELL DETAILS: BYDALEK 28C-20HZ						
+N/-S	+E/-W	Northing	Ground Level: Easting	4931.00 Latitude	Longitude	Slot
0.00	0.00	1286923.41	3225630.04	40.118180	-104.693211	

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
1894.51	15.39	111.52	1885.29	-37.69	95.57	2.00	111.52	-12.06
5954.82	15.39	111.52	5800.00	-433.00	1098.00	0.00	0.00	-138.53
6724.33	0.00	0.00	6560.29	-470.69	1193.57	2.00	-180.00	-150.59
6890.08	0.00	0.00	6726.04	-470.69	1193.57	0.00	0.00	-150.59
7790.08	90.00	359.51	7299.00	102.25	1188.67	10.00	359.51	402.14
8004.65	89.93	359.50	7299.13	316.81	1186.82	0.03	-174.77	609.13
12052.83	89.93	359.50	7304.00	4364.84	1151.75	0.00	0.00	4514.24

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
BYDALEK 28C-20HZ BHL	7304.00	4364.84	1151.75	40.130162	-104.689092	Point

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4092.00	4183.29	Parkman
4447.00	4551.50	Sussex
6942.00	7111.51	Sharon Springs
7002.00	7178.00	Niobrara A
7038.00	7219.96	Niobrara B
7070.00	7259.01	Niobrara B TL
7136.00	7346.93	Niobrara C
7278.00	7634.49	Fort Hays
7299.00	7790.08	Codell TL

CASING DETAILS			
TVD	MD	Name	Size
975.00	975.00	9 5/8"	9-5/8
7299.00	7790.08	7"	7



Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 28C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4931' GL @ 4948.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4931' GL @ 4948.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 28C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 28C-20HZ		
Design:	BYDALEK 28C-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 28C-20HZ			
Well Position	+N/-S	89.96 ft	Northing:	1,286,923.41 usft
	+E/-W	-0.56 ft	Easting:	3,225,630.04 usft
Position Uncertainty		0.00 ft	Wellhead Elevation:	Latitude: 40.118180
				Longitude: -104.693211
				Ground Level: 4,931.00 ft

Wellbore	BYDALEK 28C-20HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/17/2012	8.63	66.79	52,857

Design	BYDALEK 28C-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	14.78

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	
1,894.51	15.39	111.52	1,885.29	-37.69	95.57	2.00	2.00	14.49	111.52	
5,954.82	15.39	111.52	5,800.00	-433.00	1,098.00	0.00	0.00	0.00	0.00	
6,724.33	0.00	0.00	6,560.29	-470.69	1,193.57	2.00	-2.00	-14.49	180.00	
6,890.08	0.00	0.00	6,726.04	-470.69	1,193.57	0.00	0.00	0.00	0.00	
7,790.08	90.00	359.51	7,299.00	102.25	1,188.67	10.00	10.00	0.00	359.51	
8,004.65	89.93	359.50	7,299.13	316.82	1,186.82	0.03	-0.03	0.00	-174.77	
12,052.83	89.93	359.50	7,304.00	4,364.84	1,151.75	0.00	0.00	0.00	0.00	BYDALEK 28C-20HZ

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 28C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4931' GL @ 4948.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4931' GL @ 4948.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 28C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 28C-20HZ		
Design:	BYDALEK 28C-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 2.00 TFO 111.52									
1,200.00	1.50	111.52	1,199.99	-0.36	0.91	-0.12	2.00	2.00	0.00
1,300.00	3.50	111.52	1,299.89	-1.96	4.97	-0.63	2.00	2.00	0.00
1,400.00	5.50	111.52	1,399.58	-4.84	12.27	-1.55	2.00	2.00	0.00
1,500.00	7.50	111.52	1,498.93	-8.99	22.80	-2.88	2.00	2.00	0.00
1,600.00	9.50	111.52	1,597.83	-14.41	36.55	-4.61	2.00	2.00	0.00
1,700.00	11.50	111.52	1,696.15	-21.10	53.50	-6.75	2.00	2.00	0.00
1,800.00	13.50	111.52	1,793.77	-29.04	73.64	-9.29	2.00	2.00	0.00
1,894.51	15.39	111.52	1,885.29	-37.69	95.57	-12.06	2.00	2.00	0.00
Start 4060.31 hold at 1894.51 MD									
1,900.00	15.39	111.52	1,890.58	-38.22	96.92	-12.23	0.00	0.00	0.00
2,000.00	15.39	111.52	1,987.00	-47.96	121.61	-15.34	0.00	0.00	0.00
2,100.00	15.39	111.52	2,083.41	-57.69	146.30	-18.46	0.00	0.00	0.00
2,200.00	15.39	111.52	2,179.83	-67.43	170.99	-21.57	0.00	0.00	0.00
2,300.00	15.39	111.52	2,276.24	-77.17	195.68	-24.69	0.00	0.00	0.00
2,400.00	15.39	111.52	2,372.65	-86.90	220.36	-27.80	0.00	0.00	0.00
2,500.00	15.39	111.52	2,469.07	-96.64	245.05	-30.92	0.00	0.00	0.00
2,600.00	15.39	111.52	2,565.48	-106.37	269.74	-34.03	0.00	0.00	0.00
2,700.00	15.39	111.52	2,661.90	-116.11	294.43	-37.15	0.00	0.00	0.00
2,800.00	15.39	111.52	2,758.31	-125.85	319.12	-40.26	0.00	0.00	0.00
2,900.00	15.39	111.52	2,854.72	-135.58	343.81	-43.38	0.00	0.00	0.00
3,000.00	15.39	111.52	2,951.14	-145.32	368.50	-46.49	0.00	0.00	0.00
3,100.00	15.39	111.52	3,047.55	-155.05	393.19	-49.61	0.00	0.00	0.00
3,200.00	15.39	111.52	3,143.97	-164.79	417.87	-52.72	0.00	0.00	0.00
3,300.00	15.39	111.52	3,240.38	-174.53	442.56	-55.84	0.00	0.00	0.00
3,400.00	15.39	111.52	3,336.79	-184.26	467.25	-58.95	0.00	0.00	0.00
3,500.00	15.39	111.52	3,433.21	-194.00	491.94	-62.07	0.00	0.00	0.00
3,600.00	15.39	111.52	3,529.62	-203.73	516.63	-65.18	0.00	0.00	0.00
3,700.00	15.39	111.52	3,626.04	-213.47	541.32	-68.29	0.00	0.00	0.00
3,800.00	15.39	111.52	3,722.45	-223.21	566.01	-71.41	0.00	0.00	0.00
3,900.00	15.39	111.52	3,818.87	-232.94	590.69	-74.52	0.00	0.00	0.00
4,000.00	15.39	111.52	3,915.28	-242.68	615.38	-77.64	0.00	0.00	0.00
4,100.00	15.39	111.52	4,011.69	-252.41	640.07	-80.75	0.00	0.00	0.00
4,183.29	15.39	111.52	4,092.00	-260.52	660.64	-83.35	0.00	0.00	0.00
Parkman									
4,200.00	15.39	111.52	4,108.11	-262.15	664.76	-83.87	0.00	0.00	0.00
4,300.00	15.39	111.52	4,204.52	-271.89	689.45	-86.98	0.00	0.00	0.00
4,400.00	15.39	111.52	4,300.94	-281.62	714.14	-90.10	0.00	0.00	0.00
4,500.00	15.39	111.52	4,397.35	-291.36	738.83	-93.21	0.00	0.00	0.00

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 28C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4931' GL @ 4948.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4931' GL @ 4948.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 28C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 28C-20HZ		
Design:	BYDALEK 28C-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)
4,551.50	15.39	111.52	4,447.00	-296.37	751.54	-94.82	0.00	0.00	0.00
Sussex									
4,600.00	15.39	111.52	4,493.76	-301.09	763.51	-96.33	0.00	0.00	0.00
4,700.00	15.39	111.52	4,590.18	-310.83	788.20	-99.44	0.00	0.00	0.00
4,800.00	15.39	111.52	4,686.59	-320.57	812.89	-102.56	0.00	0.00	0.00
4,900.00	15.39	111.52	4,783.01	-330.30	837.58	-105.67	0.00	0.00	0.00
5,000.00	15.39	111.52	4,879.42	-340.04	862.27	-108.79	0.00	0.00	0.00
5,100.00	15.39	111.52	4,975.83	-349.77	886.96	-111.90	0.00	0.00	0.00
5,200.00	15.39	111.52	5,072.25	-359.51	911.65	-115.02	0.00	0.00	0.00
5,300.00	15.39	111.52	5,168.66	-369.25	936.33	-118.13	0.00	0.00	0.00
5,400.00	15.39	111.52	5,265.08	-378.98	961.02	-121.25	0.00	0.00	0.00
5,500.00	15.39	111.52	5,361.49	-388.72	985.71	-124.36	0.00	0.00	0.00
5,600.00	15.39	111.52	5,457.91	-398.45	1,010.40	-127.48	0.00	0.00	0.00
5,700.00	15.39	111.52	5,554.32	-408.19	1,035.09	-130.59	0.00	0.00	0.00
5,800.00	15.39	111.52	5,650.73	-417.93	1,059.78	-133.71	0.00	0.00	0.00
5,900.00	15.39	111.52	5,747.15	-427.66	1,084.47	-136.82	0.00	0.00	0.00
5,954.82	15.39	111.52	5,800.00	-433.00	1,098.00	-138.53	0.00	0.00	0.00
Start Drop -2.00									
6,000.00	14.49	111.52	5,843.65	-437.27	1,108.83	-139.90	2.00	-2.00	0.00
6,100.00	12.49	111.52	5,940.89	-445.83	1,130.53	-142.63	2.00	-2.00	0.00
6,200.00	10.49	111.52	6,038.88	-453.13	1,149.05	-144.97	2.00	-2.00	0.00
6,300.00	8.49	111.52	6,137.51	-459.18	1,164.39	-146.90	2.00	-2.00	0.00
6,400.00	6.49	111.52	6,236.65	-463.96	1,176.51	-148.43	2.00	-2.00	0.00
6,500.00	4.49	111.52	6,336.19	-467.47	1,185.40	-149.56	2.00	-2.00	0.00
6,600.00	2.49	111.52	6,436.00	-469.70	1,191.06	-150.27	2.00	-2.00	0.00
6,700.00	0.49	111.52	6,535.96	-470.65	1,193.47	-150.57	2.00	-2.00	0.00
6,724.33	0.00	0.00	6,560.29	-470.69	1,193.57	-150.59	2.00	-2.00	-458.45
Start 165.75 hold at 6724.33 MD									
6,800.00	0.00	0.00	6,635.96	-470.69	1,193.57	-150.59	0.00	0.00	0.00
6,890.08	0.00	0.00	6,726.04	-470.69	1,193.57	-150.59	0.00	0.00	0.00
Start Build 10.00									
6,900.00	0.99	359.51	6,735.96	-470.60	1,193.56	-150.50	10.00	10.00	-4.94
6,950.00	5.99	359.51	6,785.85	-467.56	1,193.54	-147.57	10.00	10.00	0.00
7,000.00	10.99	359.51	6,835.29	-460.17	1,193.48	-140.44	10.00	10.00	0.00
7,050.00	15.99	359.51	6,883.89	-448.51	1,193.38	-129.19	10.00	10.00	0.00
7,100.00	20.99	359.51	6,931.30	-432.66	1,193.24	-113.90	10.00	10.00	0.00
7,111.51	22.14	359.51	6,942.00	-428.43	1,193.20	-109.82	10.00	10.00	0.00
Sharon Springs									
7,150.00	25.99	359.51	6,977.14	-412.74	1,193.07	-94.68	10.00	10.00	0.00
7,178.00	28.79	359.51	7,002.00	-399.85	1,192.96	-82.25	10.00	10.00	0.00
Niobrara A									
7,200.00	30.99	359.51	7,021.07	-388.89	1,192.87	-71.68	10.00	10.00	0.00
7,219.97	32.99	359.51	7,038.00	-378.32	1,192.78	-61.47	10.00	10.00	0.00
Niobrara B									
7,250.00	35.99	359.51	7,062.75	-361.31	1,192.63	-45.07	10.00	10.00	0.00
7,259.01	36.89	359.51	7,070.00	-355.96	1,192.58	-39.91	10.00	10.00	0.00
Niobrara B TL									
7,300.00	40.99	359.51	7,101.87	-330.20	1,192.36	-15.06	10.00	10.00	0.00
7,346.93	45.69	359.51	7,136.00	-298.00	1,192.09	16.01	10.00	10.00	0.00
Niobrara C									
7,350.00	45.99	359.51	7,138.14	-295.80	1,192.07	18.13	10.00	10.00	0.00
7,400.00	50.99	359.51	7,171.26	-258.37	1,191.75	54.24	10.00	10.00	0.00
7,450.00	55.99	359.51	7,201.00	-218.20	1,191.41	93.00	10.00	10.00	0.00

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 28C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4931' GL @ 4948.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4931' GL @ 4948.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 28C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 28C-20HZ		
Design:	BYDALEK 28C-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)	
7,500.00	60.99	359.51	7,227.12	-175.58	1,191.04	134.11	10.00	10.00	0.00	
7,550.00	65.99	359.51	7,249.43	-130.85	1,190.66	177.26	10.00	10.00	0.00	
7,600.00	70.99	359.51	7,267.76	-84.35	1,190.26	222.12	10.00	10.00	0.00	
7,634.49	74.44	359.51	7,278.00	-51.43	1,189.98	253.88	10.00	10.00	0.00	
Fort Hays										
7,650.00	75.99	359.51	7,281.96	-36.43	1,189.85	268.35	10.00	10.00	0.00	
7,700.00	80.99	359.51	7,291.93	12.55	1,189.43	315.60	10.00	10.00	0.00	
7,750.00	85.99	359.51	7,297.60	62.21	1,189.01	363.51	10.00	10.00	0.00	
7,790.08	90.00	359.51	7,299.00	102.25	1,188.67	402.14	10.00	10.00	0.00	
Start DLS 0.03 TFO -174.77 - Codell TL - 7"										
7,800.00	90.00	359.51	7,299.00	112.17	1,188.58	411.71	0.03	-0.03	0.00	
7,900.00	89.96	359.51	7,299.03	212.17	1,187.72	508.18	0.03	-0.03	0.00	
8,004.65	89.93	359.50	7,299.13	316.81	1,186.82	609.13	0.03	-0.03	0.00	
Start 4048.18 hold at 8004.65 MD										
8,100.00	89.93	359.50	7,299.24	412.16	1,185.99	701.11	0.00	0.00	0.00	
8,200.00	89.93	359.50	7,299.36	512.16	1,185.13	797.58	0.00	0.00	0.00	
8,300.00	89.93	359.50	7,299.48	612.15	1,184.26	894.04	0.00	0.00	0.00	
8,400.00	89.93	359.50	7,299.60	712.15	1,183.39	990.51	0.00	0.00	0.00	
8,500.00	89.93	359.50	7,299.72	812.15	1,182.53	1,086.98	0.00	0.00	0.00	
8,600.00	89.93	359.50	7,299.84	912.14	1,181.66	1,183.44	0.00	0.00	0.00	
8,700.00	89.93	359.50	7,299.96	1,012.14	1,180.80	1,279.91	0.00	0.00	0.00	
8,800.00	89.93	359.50	7,300.08	1,112.14	1,179.93	1,376.37	0.00	0.00	0.00	
8,900.00	89.93	359.50	7,300.20	1,212.13	1,179.06	1,472.84	0.00	0.00	0.00	
9,000.00	89.93	359.50	7,300.32	1,312.13	1,178.20	1,569.30	0.00	0.00	0.00	
9,100.00	89.93	359.50	7,300.44	1,412.12	1,177.33	1,665.77	0.00	0.00	0.00	
9,200.00	89.93	359.50	7,300.57	1,512.12	1,176.46	1,762.24	0.00	0.00	0.00	
9,300.00	89.93	359.50	7,300.69	1,612.12	1,175.60	1,858.70	0.00	0.00	0.00	
9,400.00	89.93	359.50	7,300.81	1,712.11	1,174.73	1,955.17	0.00	0.00	0.00	
9,500.00	89.93	359.50	7,300.93	1,812.11	1,173.87	2,051.63	0.00	0.00	0.00	
9,600.00	89.93	359.50	7,301.05	1,912.10	1,173.00	2,148.10	0.00	0.00	0.00	
9,700.00	89.93	359.50	7,301.17	2,012.10	1,172.13	2,244.57	0.00	0.00	0.00	
9,800.00	89.93	359.50	7,301.29	2,112.10	1,171.27	2,341.03	0.00	0.00	0.00	
9,900.00	89.93	359.50	7,301.41	2,212.09	1,170.40	2,437.50	0.00	0.00	0.00	
10,000.00	89.93	359.50	7,301.53	2,312.09	1,169.53	2,533.96	0.00	0.00	0.00	
10,100.00	89.93	359.50	7,301.65	2,412.09	1,168.67	2,630.43	0.00	0.00	0.00	
10,200.00	89.93	359.50	7,301.77	2,512.08	1,167.80	2,726.89	0.00	0.00	0.00	
10,300.00	89.93	359.50	7,301.89	2,612.08	1,166.94	2,823.36	0.00	0.00	0.00	
10,400.00	89.93	359.50	7,302.01	2,712.07	1,166.07	2,919.83	0.00	0.00	0.00	
10,500.00	89.93	359.50	7,302.13	2,812.07	1,165.20	3,016.29	0.00	0.00	0.00	
10,600.00	89.93	359.50	7,302.25	2,912.07	1,164.34	3,112.76	0.00	0.00	0.00	
10,700.00	89.93	359.50	7,302.37	3,012.06	1,163.47	3,209.22	0.00	0.00	0.00	
10,800.00	89.93	359.50	7,302.49	3,112.06	1,162.60	3,305.69	0.00	0.00	0.00	
10,900.00	89.93	359.50	7,302.61	3,212.06	1,161.74	3,402.15	0.00	0.00	0.00	
11,000.00	89.93	359.50	7,302.73	3,312.05	1,160.87	3,498.62	0.00	0.00	0.00	
11,100.00	89.93	359.50	7,302.85	3,412.05	1,160.01	3,595.09	0.00	0.00	0.00	
11,200.00	89.93	359.50	7,302.97	3,512.04	1,159.14	3,691.55	0.00	0.00	0.00	
11,300.00	89.93	359.50	7,303.09	3,612.04	1,158.27	3,788.02	0.00	0.00	0.00	
11,400.00	89.93	359.50	7,303.21	3,712.04	1,157.41	3,884.48	0.00	0.00	0.00	
11,500.00	89.93	359.50	7,303.33	3,812.03	1,156.54	3,980.95	0.00	0.00	0.00	
11,600.00	89.93	359.50	7,303.45	3,912.03	1,155.68	4,077.42	0.00	0.00	0.00	
11,700.00	89.93	359.50	7,303.58	4,012.02	1,154.81	4,173.88	0.00	0.00	0.00	
11,800.00	89.93	359.50	7,303.70	4,112.02	1,153.94	4,270.35	0.00	0.00	0.00	
11,900.00	89.93	359.50	7,303.82	4,212.02	1,153.08	4,366.81	0.00	0.00	0.00	

Andarko Petroleum Corporation

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well BYDALEK 28C-20HZ
Company:	US ROCKIES REGION PLANNING	TVD Reference:	17' RKB + 4931' GL @ 4948.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	17' RKB + 4931' GL @ 4948.00ft
Site:	WELD_BYDALEK 35-20HZ PAD	North Reference:	True
Well:	BYDALEK 28C-20HZ	Survey Calculation Method:	Minimum Curvature
Wellbore:	BYDALEK 28C-20HZ		
Design:	BYDALEK 28C-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)
12,000.00	89.93	359.50	7,303.94	4,312.01	1,152.21	4,463.28	0.00	0.00	0.00
12,052.83	89.93	359.50	7,304.00	4,364.84	1,151.75	4,514.24	0.00	0.00	0.00
TD at 12052.83 - BYDALEK 28C-20HZ 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
BYDALEK 28C-20HZ Bt - plan hits target center - Point	0.00	0.00	7,304.00	4,364.84	1,151.75	1,291,298.54	3,226,742.03	40.130162	-104.689092

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	
7,790.08	7,299.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,183.29	4,092.00	Parkman			
4,551.50	4,447.00	Sussex			
7,111.51	6,942.00	Sharon Springs			
7,178.00	7,002.00	Niobrara A			
7,219.97	7,038.00	Niobrara B			
7,259.01	7,070.00	Niobrara B TL			
7,346.93	7,136.00	Niobrara C			
7,634.49	7,278.00	Fort Hays			
7,790.08	7,299.00	Codell TL			

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 2.00 TFO 111.52
1,894.51	1,885.29	-37.69	95.57	Start 4060.31 hold at 1894.51 MD
5,954.82	5,800.00	-433.00	1,098.00	Start Drop -2.00
6,724.33	6,560.29	-470.69	1,193.57	Start 165.75 hold at 6724.33 MD
6,890.08	6,726.04	-470.69	1,193.57	Start Build 10.00
7,790.08	7,299.00	102.25	1,188.67	Start DLS 0.03 TFO -174.77
8,004.65	7,299.13	316.81	1,186.82	Start 4048.18 hold at 8004.65 MD
12,052.83	7,304.00	4,364.84	1,151.75	TD at 12052.83