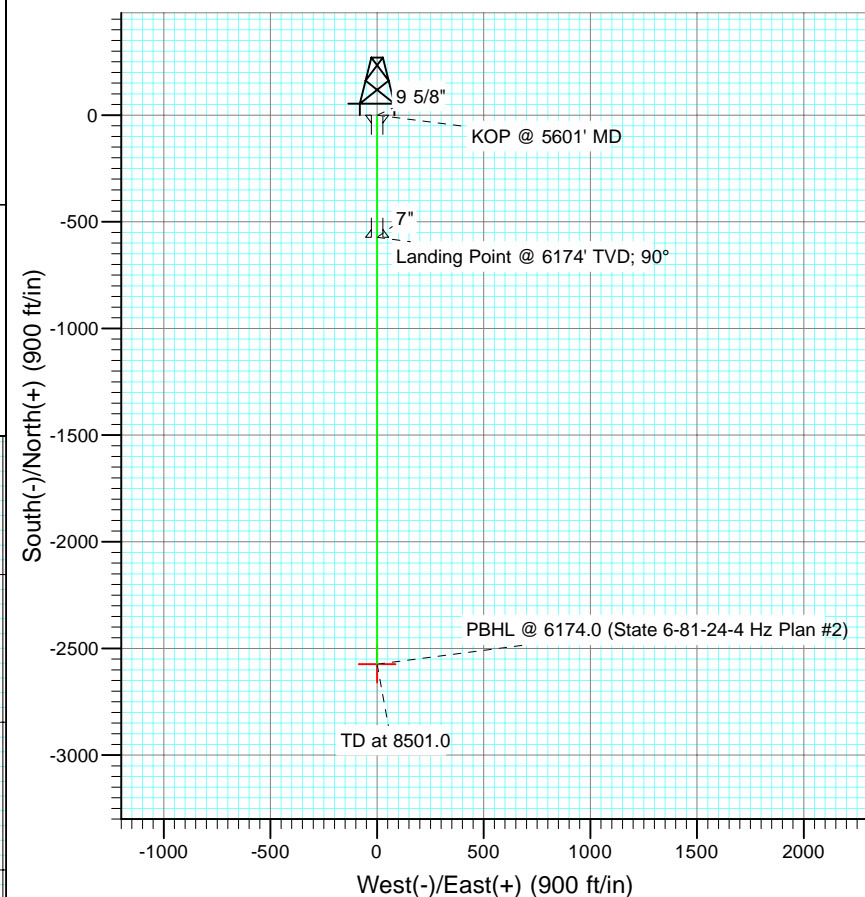
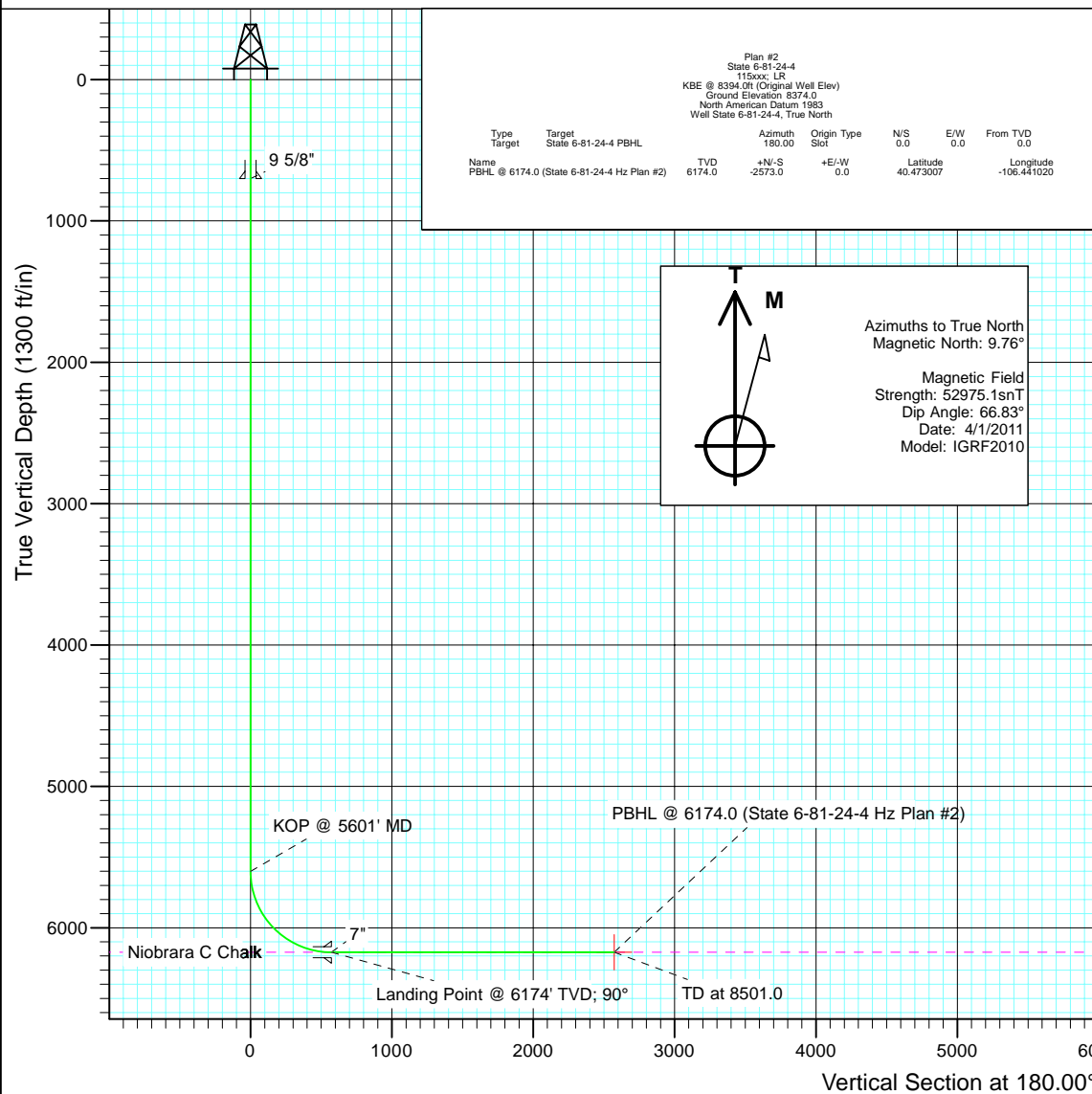


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	5601.0	0.00	0.00	5601.0	0.0	0.0	0.00	0.00	0.0	
3	6501.0	90.00	180.00	6174.0	-573.0	0.0	10.00	180.00	573.0	
4	8501.0	90.00	180.00	6174.0	-2573.0	0.0	0.00	0.00	2573.0	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6174.0	6501.0	Niobrara C Chalk

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well State 6-81-24-4
Company:	Dakota Exploration	TVD Reference:	KBE @ 8394.0ft (Original Well Elev)
Project:	Jackson County, CO	MD Reference:	KBE @ 8394.0ft (Original Well Elev)
Site:	SEC 24 6-81-24-4	North Reference:	True
Well:	State 6-81-24-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Project	Jackson County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		SEC 24 6-81-24-4			
Site Position:		Northing:	1,419,121.71 ft	Latitude:	40.480070
From:	Lat/Long	Easting:	2,738,236.12 ft	Longitude:	-106.441020
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-0.61 °

Well	State 6-81-24-4					
Well Position	+N/-S	0.0 ft	Northing:	1,419,121.71 ft	Latitude:	40.480070
	+E/-W	0.0 ft	Easting:	2,738,236.12 ft	Longitude:	-106.441020
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	8,374.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	4/1/2011	9.76	66.83	52,975

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	180.00

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
5,601.0	0.00	0.00	5,601.0	0.0	0.0	0.00	0.00	0.00	0.00	
6,501.0	90.00	180.00	6,174.0	-573.0	0.0	10.00	10.00	0.00	180.00	
8,501.0	90.00	180.00	6,174.0	-2,573.0	0.0	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project:	Jackson County, CO	MD Reference:	KBE @ 8394.0ft (Original Well Elev)
Site:	SEC 24 6-81-24-4	North Reference:	True
Well:	State 6-81-24-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well State 6-81-24-4
Company:	Dakota Exploration	TVD Reference:	KBE @ 8394.0ft (Original Well Elev)
Project:	Jackson County, CO	MD Reference:	KBE @ 8394.0ft (Original Well Elev)
Site:	SEC 24 6-81-24-4	North Reference:	True
Well:	State 6-81-24-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	
5,601.0	0.00	0.00	5,601.0	0.0	0.0	0.0	0.00	0.00	KOP @ 5601' MD
5,700.0	9.90	180.00	5,699.5	-8.5	0.0	8.5	10.00	10.00	
5,800.0	19.90	180.00	5,796.0	-34.2	0.0	34.2	10.00	10.00	
5,900.0	29.90	180.00	5,886.6	-76.3	0.0	76.3	10.00	10.00	
6,000.0	39.90	180.00	5,968.5	-133.4	0.0	133.4	10.00	10.00	
6,100.0	49.90	180.00	6,039.3	-203.9	0.0	203.9	10.00	10.00	
6,200.0	59.90	180.00	6,096.7	-285.6	0.0	285.6	10.00	10.00	
6,300.0	69.90	180.00	6,139.1	-376.1	0.0	376.1	10.00	10.00	
6,400.0	79.90	180.00	6,165.1	-472.5	0.0	472.5	10.00	10.00	
6,500.0	89.90	180.00	6,174.0	-572.0	0.0	572.0	10.00	10.00	
6,501.0	90.00	180.00	6,174.0	-573.0	0.0	573.0	10.00	10.00	Landing Point @ 6174' TVD; 90° - Niobrara C C
6,600.0	90.00	180.00	6,174.0	-672.0	0.0	672.0	0.00	0.00	
6,700.0	90.00	180.00	6,174.0	-772.0	0.0	772.0	0.00	0.00	
6,800.0	90.00	180.00	6,174.0	-872.0	0.0	872.0	0.00	0.00	
6,900.0	90.00	180.00	6,174.0	-972.0	0.0	972.0	0.00	0.00	
7,000.0	90.00	180.00	6,174.0	-1,072.0	0.0	1,072.0	0.00	0.00	
7,100.0	90.00	180.00	6,174.0	-1,172.0	0.0	1,172.0	0.00	0.00	
7,200.0	90.00	180.00	6,174.0	-1,272.0	0.0	1,272.0	0.00	0.00	
7,300.0	90.00	180.00	6,174.0	-1,372.0	0.0	1,372.0	0.00	0.00	
7,400.0	90.00	180.00	6,174.0	-1,472.0	0.0	1,472.0	0.00	0.00	
7,500.0	90.00	180.00	6,174.0	-1,572.0	0.0	1,572.0	0.00	0.00	
7,600.0	90.00	180.00	6,174.0	-1,672.0	0.0	1,672.0	0.00	0.00	
7,700.0	90.00	180.00	6,174.0	-1,772.0	0.0	1,772.0	0.00	0.00	
7,800.0	90.00	180.00	6,174.0	-1,872.0	0.0	1,872.0	0.00	0.00	
7,900.0	90.00	180.00	6,174.0	-1,972.0	0.0	1,972.0	0.00	0.00	
8,000.0	90.00	180.00	6,174.0	-2,072.0	0.0	2,072.0	0.00	0.00	
8,100.0	90.00	180.00	6,174.0	-2,172.0	0.0	2,172.0	0.00	0.00	
8,200.0	90.00	180.00	6,174.0	-2,272.0	0.0	2,272.0	0.00	0.00	
8,300.0	90.00	180.00	6,174.0	-2,372.0	0.0	2,372.0	0.00	0.00	
8,400.0	90.00	180.00	6,174.0	-2,472.0	0.0	2,472.0	0.00	0.00	
8,500.0	90.00	180.00	6,174.0	-2,572.0	0.0	2,572.0	0.00	0.00	
8,501.0	90.00	180.00	6,174.0	-2,573.0	0.0	2,573.0	0.00	0.00	TD at 8501.0 - PBHL @ 6174.0 (State 6-81-24-

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL @ 6174.0 (State 6-81-24-4)	0.00	0.00	6,174.0	-2,573.0	0.0	1,416,548.89	2,738,208.82	40.473007	-106.441020
- plan hits target center									
- Point									
State 6-81-24-4 PBHL	0.00	0.00	6,174.0	-3,072.9	0.0	1,416,048.98	2,738,203.51	40.471635	-106.441020
- plan misses target center by 499.9ft at 8501.0ft MD (6174.0 TVD, -2573.0 N, 0.0 E)									
- Point									

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well State 6-81-24-4
Company:	Dakota Exploration	TVD Reference:	KBE @ 8394.0ft (Original Well Elev)
Project:	Jackson County, CO	MD Reference:	KBE @ 8394.0ft (Original Well Elev)
Site:	SEC 24 6-81-24-4	North Reference:	True
Well:	State 6-81-24-4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,501.0	6,174.0	7"	7.000	8.750	
700.0	700.0	9 5/8"	9.625	12.250	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,501.0	6,174.0	Niobrara C Chalk		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
5,601.0	5,601.0	0.0	0.0	KOP @ 5601' MD	
6,501.0	6,174.0	-573.0	0.0	Landing Point @ 6174' TVD; 90°	
8,501.0	6,174.0	-2,573.0	0.0	TD at 8501.0	