

# **MALLARD EXPLORATION**

**WELD COUNTY, COLORADO (NAD 83)**

**NW SW SEC. 32 T9N R60W 6th P.M.**

**CB6**

**ORIGINAL WELLBORE**

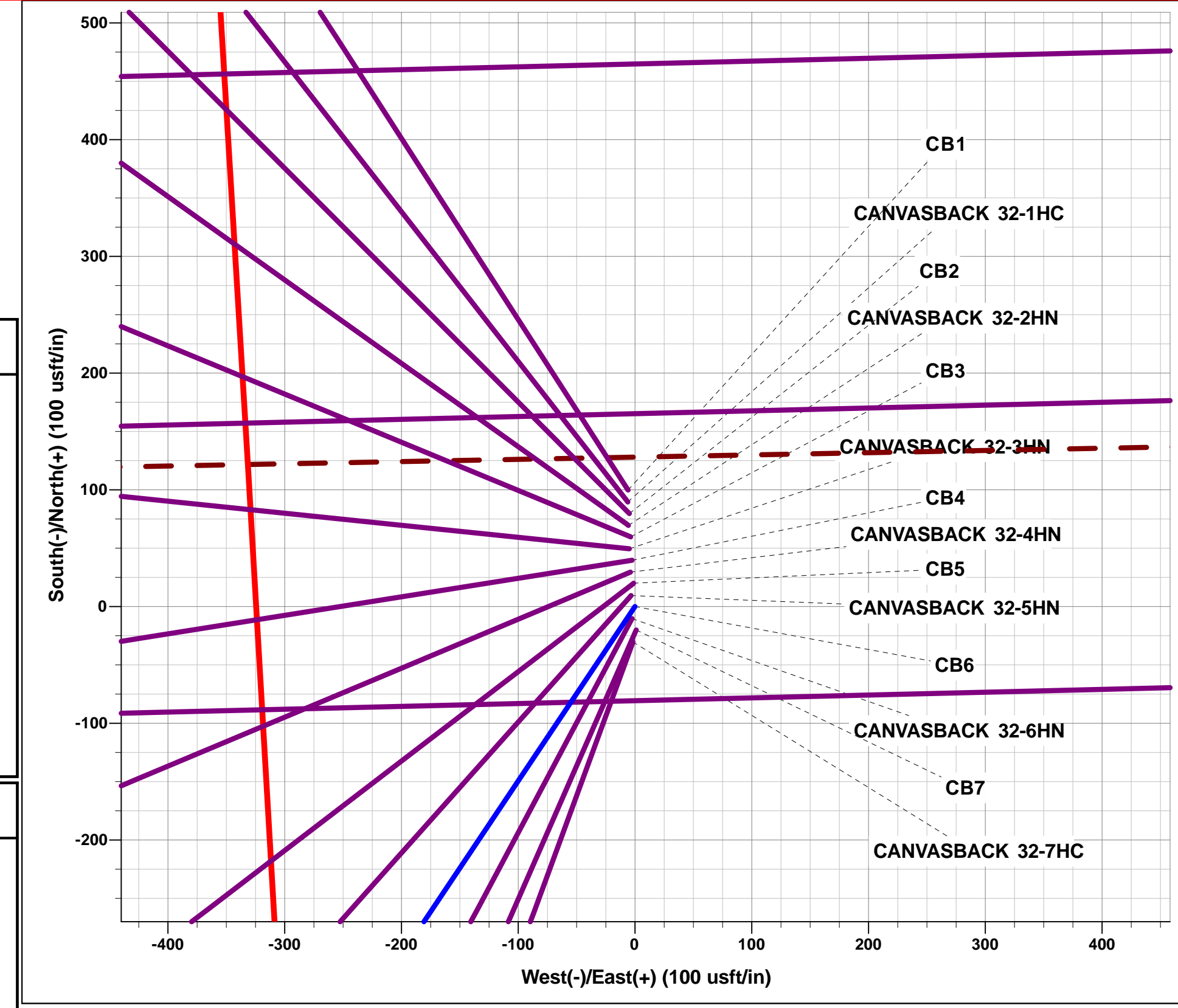
**08 November, 2018**

**Plan: PROPOSAL #1**





Project: WELD COUNTY, COLORADO (NAD 83)  
 Site: NW SW SEC. 32 T9N R60W 6th P.M.  
 Well: CB6  
 Wellbore: ORIGINAL WELLBORE  
 Design: PROPOSAL #1



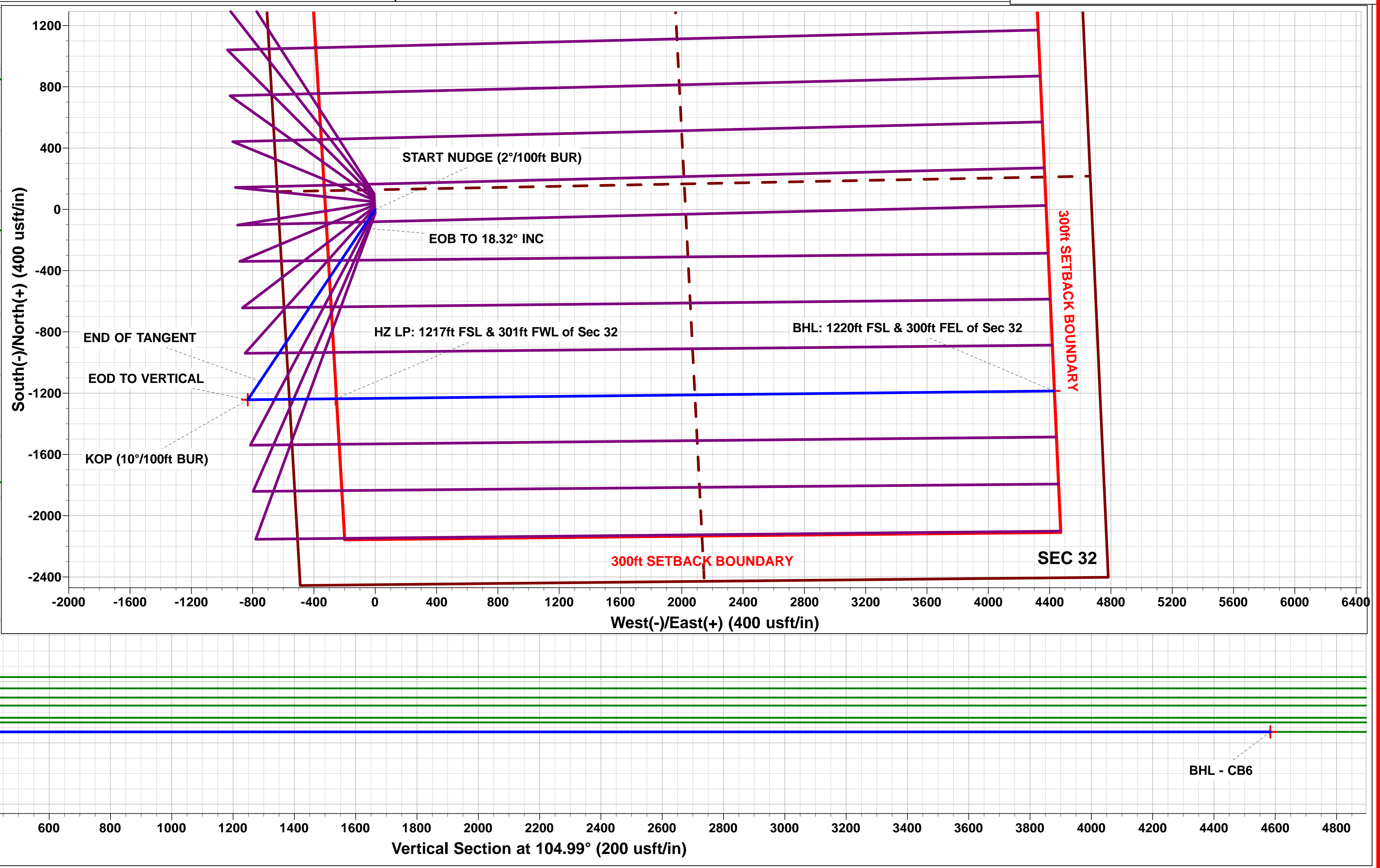
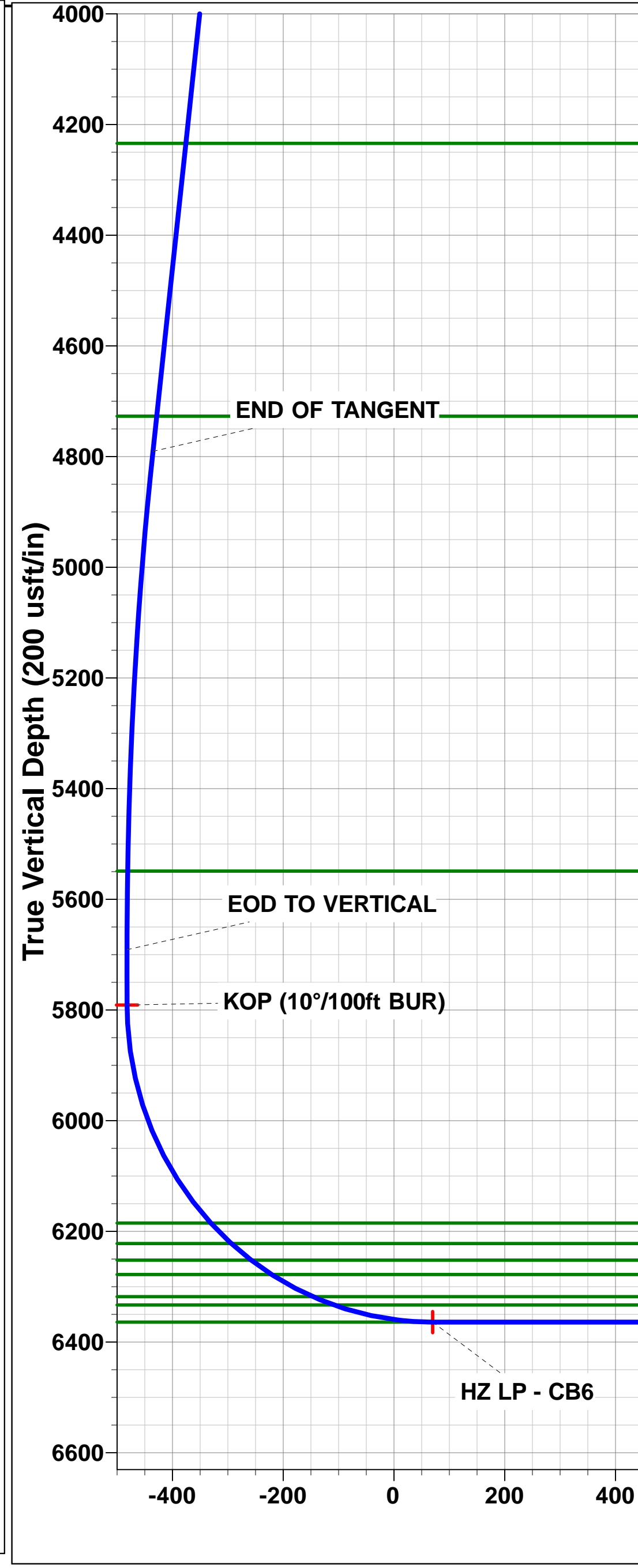
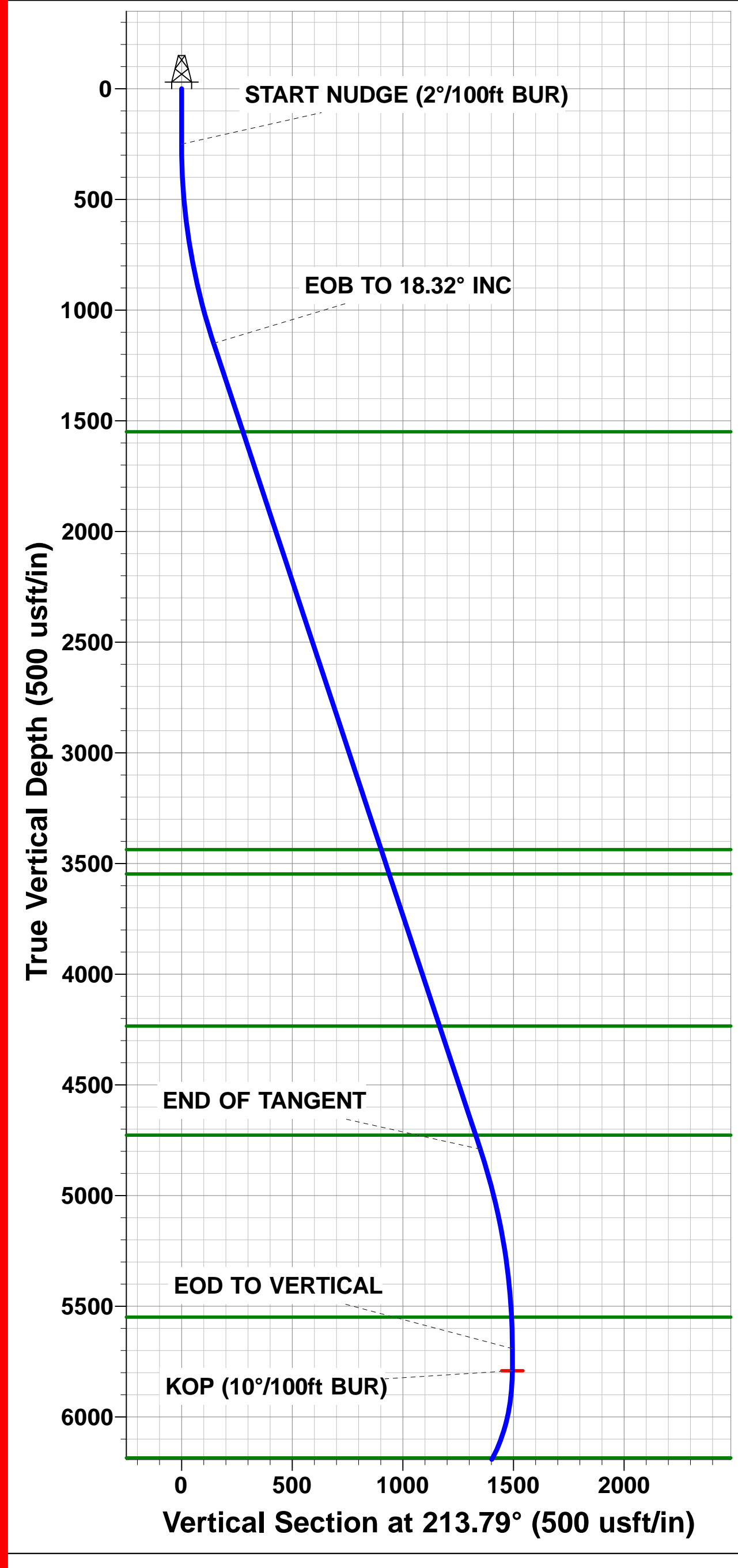
Azimuths to True North  
 Magnetic North: 7.74°  
 Magnetic Field  
 Strength: 52454.8snT  
 Dip Angle: 67.16°  
 Date: 08/11/2018  
 Model: IGRF2015

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
1550.00	1586.85	Pierre Shale Top
3437.00	3574.54	Richard Sandstone
3547.00	3690.41	Parkman Sandstone
4234.00	4414.07	Sussex Sandstone
4727.00	4933.38	Shannon Sandstone
5549.00	5774.24	TeePee Buttes
6185.00	6450.73	Sharon Springs
6222.00	6504.12	Niobrara Top
6252.00	6551.98	Niobrara A Chalk
6278.00	6598.35	Niobrara A Chalk Base
6318.00	6685.18	Niobrara B1 Chalk Top
6333.00	6727.00	Niobrara B1 Chalk Base
6364.00	6916.34	Niobrara B2 Chalk Top (Target)

ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	Vsect	Dep	Annotation		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2451ft FSL & 631ft FWL of Sec 32		
250.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDDGE (2°/100ft BUR)		
1150.24	1165.76	18.32	213.79	-120.61	-80.71	-46.77	145.12	EOB TO 18.32° INC		
4790.80	5000.58	18.32	213.79	-1122.12	-750.91	-435.17	1350.19	END OF TANGENT		
5691.04	5916.34	0.00	0.00	-1242.73	-831.62	-481.94	1495.32	EOD TO VERTICAL		
5791.04	6016.34	0.00	0.00	-1242.73	-831.62	-481.94	1495.32	KOP (10°/100ft BUR)		
6364.00	6916.34	90.00	89.38	-1236.53	-258.70	69.89	2068.27	HZ LP: 1217ft FSL & 301ft FWL of Sec 32		
6364.00	11603.35	90.00	89.37	-1185.49	4428.04	4583.98	6755.29	BHL: 1220ft FSL & 300ft FEL of Sec 32		

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CB6	5791.04	-1242.73	-831.62	40.701983	-104.126657
HZ LP - CB6	6364.00	-1236.53	-258.70	40.702000	-104.124591
BHL - CB6	6364.00	-1185.49	4428.04	40.702139	-104.107688

PROPOSED LOCAL COORDINATES:  
 SHL: 2451ft FSL & 631ft FWL of Sec 32  
 HZ LP: 1217ft FSL & 301ft FWL of Sec 32  
 BHL: 1220ft FSL & 300ft FEL of Sec 32



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CB6
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 32 T9N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CB6	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

<b>Project</b> WELD COUNTY, COLORADO (NAD 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		Using geodetic scale factor

<b>Site</b> NW SW SEC. 32 T9N R60W 6th P.M.			
<b>Site Position:</b>		<b>Northing:</b>	1,503,686.24 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,381,532.92 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.707883
		<b>Longitude:</b>	-104.123789
		<b>Grid Convergence:</b>	0.89 °

<b>Well</b> CB6			
<b>Well Position</b>	<b>+N-S</b>	-906.83 usft	<b>Northing:</b> 1,502,780.09 usft
	<b>+E-W</b>	36.32 usft	<b>Easting:</b> 3,381,583.31 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b> usft
			<b>Latitude:</b> 40.705394
			<b>Longitude:</b> -104.123658
			<b>Ground Level:</b> 4,932.00 usft

<b>Wellbore</b> ORIGINAL WELLBORE					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	08/11/2018	7.74	67.16	52,455

<b>Design</b> PROPOSAL #1				
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	6,364.00	0.00	0.00	104.99

<b>Plan Sections</b>											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,952.00	0.00	0.00	0.00	0.00	0.00	0.00	
250.00	0.00	0.00	250.00	-4,702.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,165.76	18.32	213.79	1,150.24	-3,801.76	-120.61	-80.71	2.00	2.00	0.00	213.79	
5,000.58	18.32	213.79	4,790.80	-161.20	-1,122.12	-750.91	0.00	0.00	0.00	0.00	
5,916.34	0.00	0.00	5,691.04	739.04	-1,242.73	-831.62	2.00	-2.00	0.00	180.00	
6,016.34	0.00	0.00	5,791.04	839.04	-1,242.73	-831.62	0.00	0.00	0.00	0.00	KOP - CB6
6,916.34	90.00	89.38	6,364.00	1,412.00	-1,236.53	-258.70	10.00	10.00	9.93	89.38	HZ LP - CB6
11,603.35	90.00	89.37	6,364.00	1,412.00	-1,185.49	4,428.04	0.00	0.00	0.00	-86.92	BHL - CB6

Planning Report



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<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 32 T9N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CB6	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>SHL: 2451ft FSL &amp; 631ft FWL of Sec 32</b>										
0.00	0.00	0.00	0.00	4,952.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,852.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,752.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
250.00	0.00	0.00	250.00	4,702.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	1.00	213.79	300.00	4,652.00	-0.36	-0.24	-0.14	2.00	2.00	0.00
400.00	3.00	213.79	399.93	4,552.07	-3.26	-2.18	-1.27	2.00	2.00	0.00
500.00	5.00	213.79	499.68	4,452.32	-9.06	-6.06	-3.51	2.00	2.00	0.00
600.00	7.00	213.79	599.13	4,352.87	-17.75	-11.88	-6.88	2.00	2.00	0.00
700.00	9.00	213.79	698.15	4,253.85	-29.31	-19.62	-11.37	2.00	2.00	0.00
800.00	11.00	213.79	796.63	4,155.37	-43.74	-29.27	-16.96	2.00	2.00	0.00
900.00	13.00	213.79	894.44	4,057.56	-61.02	-40.83	-23.66	2.00	2.00	0.00
1,000.00	15.00	213.79	991.46	3,960.54	-81.13	-54.29	-31.46	2.00	2.00	0.00
1,100.00	17.00	213.79	1,087.58	3,864.42	-104.03	-69.62	-40.34	2.00	2.00	0.00
<b>EOB TO 18.32° INC</b>										
1,165.76	18.32	213.79	1,150.24	3,801.76	-120.61	-80.71	-46.77	2.00	2.00	0.00
1,200.00	18.32	213.79	1,182.75	3,769.25	-129.55	-86.69	-50.24	0.00	0.00	0.00
1,300.00	18.32	213.79	1,277.68	3,674.32	-155.67	-104.17	-60.37	0.00	0.00	0.00
1,400.00	18.32	213.79	1,372.62	3,579.38	-181.78	-121.65	-70.50	0.00	0.00	0.00
1,500.00	18.32	213.79	1,467.55	3,484.45	-207.90	-139.12	-80.63	0.00	0.00	0.00
<b>Pierre Shale Top</b>										
1,586.85	18.32	213.79	1,550.00	3,402.00	-230.58	-154.30	-89.42	0.00	0.00	0.00
1,600.00	18.32	213.79	1,562.49	3,389.51	-234.02	-156.60	-90.75	0.00	0.00	0.00
1,700.00	18.32	213.79	1,657.42	3,294.58	-260.13	-174.08	-100.88	0.00	0.00	0.00
1,800.00	18.32	213.79	1,752.35	3,199.65	-286.25	-191.55	-111.01	0.00	0.00	0.00
1,900.00	18.32	213.79	1,847.29	3,104.71	-312.37	-209.03	-121.14	0.00	0.00	0.00
2,000.00	18.32	213.79	1,942.22	3,009.78	-338.48	-226.51	-131.27	0.00	0.00	0.00
2,100.00	18.32	213.79	2,037.16	2,914.84	-364.60	-243.98	-141.39	0.00	0.00	0.00
2,200.00	18.32	213.79	2,132.09	2,819.91	-390.71	-261.46	-151.52	0.00	0.00	0.00
2,300.00	18.32	213.79	2,227.03	2,724.97	-416.83	-278.94	-161.65	0.00	0.00	0.00
2,400.00	18.32	213.79	2,321.96	2,630.04	-442.95	-296.41	-171.78	0.00	0.00	0.00
2,500.00	18.32	213.79	2,416.89	2,535.11	-469.06	-313.89	-181.91	0.00	0.00	0.00
2,600.00	18.32	213.79	2,511.83	2,440.17	-495.18	-331.37	-192.03	0.00	0.00	0.00
2,700.00	18.32	213.79	2,606.76	2,345.24	-521.30	-348.84	-202.16	0.00	0.00	0.00
2,800.00	18.32	213.79	2,701.70	2,250.30	-547.41	-366.32	-212.29	0.00	0.00	0.00
2,900.00	18.32	213.79	2,796.63	2,155.37	-573.53	-383.80	-222.42	0.00	0.00	0.00
3,000.00	18.32	213.79	2,891.57	2,060.43	-599.64	-401.28	-232.55	0.00	0.00	0.00
3,100.00	18.32	213.79	2,986.50	1,965.50	-625.76	-418.75	-242.67	0.00	0.00	0.00
3,200.00	18.32	213.79	3,081.43	1,870.57	-651.88	-436.23	-252.80	0.00	0.00	0.00
3,300.00	18.32	213.79	3,176.37	1,775.63	-677.99	-453.71	-262.93	0.00	0.00	0.00
3,400.00	18.32	213.79	3,271.30	1,680.70	-704.11	-471.18	-273.06	0.00	0.00	0.00
3,500.00	18.32	213.79	3,366.24	1,585.76	-730.23	-488.66	-283.19	0.00	0.00	0.00
<b>Richard Sandstone</b>										
3,574.54	18.32	213.79	3,437.00	1,515.00	-749.69	-501.69	-290.74	0.00	0.00	0.00
3,600.00	18.32	213.79	3,461.17	1,490.83	-756.34	-506.14	-293.31	0.00	0.00	0.00
<b>Parkman Sandstone</b>										
3,690.41	18.32	213.79	3,547.00	1,405.00	-779.95	-521.94	-302.47	0.00	0.00	0.00
3,700.00	18.32	213.79	3,556.10	1,395.90	-782.46	-523.61	-303.44	0.00	0.00	0.00
3,800.00	18.32	213.79	3,651.04	1,300.96	-808.57	-541.09	-313.57	0.00	0.00	0.00
3,900.00	18.32	213.79	3,745.97	1,206.03	-834.69	-558.57	-323.70	0.00	0.00	0.00
4,000.00	18.32	213.79	3,840.91	1,111.09	-860.81	-576.04	-333.83	0.00	0.00	0.00
4,100.00	18.32	213.79	3,935.84	1,016.16	-886.92	-593.52	-343.96	0.00	0.00	0.00

Planning Report



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<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 32 T9N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CB6	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,200.00	18.32	213.79	4,030.78	921.22	-913.04	-611.00	-354.08	0.00	0.00	0.00
4,300.00	18.32	213.79	4,125.71	826.29	-939.16	-628.47	-364.21	0.00	0.00	0.00
4,400.00	18.32	213.79	4,220.64	731.36	-965.27	-645.95	-374.34	0.00	0.00	0.00
<b>Sussex Sandstone</b>										
<b>4,414.07</b>	<b>18.32</b>	<b>213.79</b>	<b>4,234.00</b>	<b>718.00</b>	<b>-968.95</b>	<b>-648.41</b>	<b>-375.76</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,500.00	18.32	213.79	4,315.58	636.42	-991.39	-663.43	-384.47	0.00	0.00	0.00
4,600.00	18.32	213.79	4,410.51	541.49	-1,017.50	-680.90	-394.60	0.00	0.00	0.00
4,700.00	18.32	213.79	4,505.45	446.55	-1,043.62	-698.38	-404.72	0.00	0.00	0.00
4,800.00	18.32	213.79	4,600.38	351.62	-1,069.74	-715.86	-414.85	0.00	0.00	0.00
4,900.00	18.32	213.79	4,695.32	256.68	-1,095.85	-733.33	-424.98	0.00	0.00	0.00
<b>Shannon Sandstone</b>										
<b>4,933.38</b>	<b>18.32</b>	<b>213.79</b>	<b>4,727.00</b>	<b>225.00</b>	<b>-1,104.57</b>	<b>-739.16</b>	<b>-428.36</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,000.00	18.32	213.79	4,790.25	161.75	-1,121.97	-750.81	-435.11	0.00	0.00	0.00
<b>END OF TANGENT</b>										
<b>5,000.58</b>	<b>18.32</b>	<b>213.79</b>	<b>4,790.80</b>	<b>161.20</b>	<b>-1,122.12</b>	<b>-750.91</b>	<b>-435.17</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,100.00	16.33	213.79	4,885.71	66.29	-1,146.72	-767.37	-444.71	2.00	-2.00	0.00
5,200.00	14.33	213.79	4,982.15	-30.15	-1,168.69	-782.07	-453.22	2.00	-2.00	0.00
5,300.00	12.33	213.79	5,079.45	-127.45	-1,187.84	-794.89	-460.65	2.00	-2.00	0.00
5,400.00	10.33	213.79	5,177.50	-225.50	-1,204.16	-805.81	-466.98	2.00	-2.00	0.00
5,500.00	8.33	213.79	5,276.17	-324.17	-1,217.63	-814.82	-472.21	2.00	-2.00	0.00
5,600.00	6.33	213.79	5,375.35	-423.35	-1,228.23	-821.92	-476.32	2.00	-2.00	0.00
5,700.00	4.33	213.79	5,474.91	-522.91	-1,235.94	-827.08	-479.31	2.00	-2.00	0.00
<b>TeePee Buttes</b>										
<b>5,774.24</b>	<b>2.84</b>	<b>213.79</b>	<b>5,549.00</b>	<b>-597.00</b>	<b>-1,239.80</b>	<b>-829.66</b>	<b>-480.80</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,800.00	2.33	213.79	5,574.74	-622.74	-1,240.77	-830.31	-481.18	2.00	-2.00	0.00
5,900.00	0.33	213.79	5,674.70	-722.70	-1,242.69	-831.59	-481.92	2.00	-2.00	0.00
<b>EOD TO VERTICAL</b>										
<b>5,916.34</b>	<b>0.00</b>	<b>0.00</b>	<b>5,691.04</b>	<b>-739.04</b>	<b>-1,242.73</b>	<b>-831.62</b>	<b>-481.94</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
6,000.00	0.00	0.00	5,774.70	-822.70	-1,242.73	-831.62	-481.94	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
<b>6,016.34</b>	<b>0.00</b>	<b>0.00</b>	<b>5,791.04</b>	<b>-839.04</b>	<b>-1,242.73</b>	<b>-831.62</b>	<b>-481.94</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,100.00	8.37	89.38	5,874.41	-922.41	-1,242.66	-825.52	-476.07	10.00	10.00	0.00
6,200.00	18.37	89.38	5,971.57	-1,019.57	-1,242.41	-802.44	-453.83	10.00	10.00	0.00
6,300.00	28.37	89.38	6,063.26	-1,111.26	-1,241.99	-762.83	-415.68	10.00	10.00	0.00
6,400.00	38.37	89.38	6,146.67	-1,194.67	-1,241.39	-707.90	-362.78	10.00	10.00	0.00
<b>Sharon Springs</b>										
<b>6,450.73</b>	<b>43.44</b>	<b>89.38</b>	<b>6,185.00</b>	<b>-1,233.00</b>	<b>-1,241.03</b>	<b>-674.70</b>	<b>-330.79</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,500.00	48.37	89.38	6,219.27	-1,267.27	-1,240.65	-639.33	-296.73	10.00	10.00	0.00
<b>Niobrara Top</b>										
<b>6,504.12</b>	<b>48.78</b>	<b>89.38</b>	<b>6,222.00</b>	<b>-1,270.00</b>	<b>-1,240.62</b>	<b>-636.24</b>	<b>-293.75</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
<b>Niobrara A Chalk</b>										
<b>6,551.98</b>	<b>53.56</b>	<b>89.38</b>	<b>6,252.00</b>	<b>-1,300.00</b>	<b>-1,240.21</b>	<b>-598.97</b>	<b>-257.85</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
<b>Niobrara A Chalk Base</b>										
<b>6,598.35</b>	<b>58.20</b>	<b>89.38</b>	<b>6,278.00</b>	<b>-1,326.00</b>	<b>-1,239.80</b>	<b>-560.59</b>	<b>-220.89</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,600.00	58.37	89.38	6,278.87	-1,326.87	-1,239.78	-559.19	-219.54	10.00	10.00	0.00
<b>Niobrara B1 Chalk Top</b>										
<b>6,685.18</b>	<b>66.88</b>	<b>89.38</b>	<b>6,318.00</b>	<b>-1,366.00</b>	<b>-1,238.96</b>	<b>-483.62</b>	<b>-146.75</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,700.00	68.37	89.38	6,323.64	-1,371.64	-1,238.81	-469.92	-133.55	10.00	10.00	0.00
<b>Niobrara B1 Chalk Base</b>										
<b>6,727.00</b>	<b>71.07</b>	<b>89.38</b>	<b>6,333.00</b>	<b>-1,381.00</b>	<b>-1,238.54</b>	<b>-444.59</b>	<b>-109.16</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,800.00	78.37	89.38	6,352.23	-1,400.23	-1,237.78	-374.23	-41.39	10.00	10.00	0.00
6,900.00	88.37	89.38	6,363.77	-1,411.77	-1,236.71	-275.03	54.16	10.00	10.00	0.00

Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CB6
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 32 T9N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CB6	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Planned Survey

MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>HZ LP: 1217ft FSL &amp; 301ft FWL of Sec 32 - Niobrara B2 Chalk Top (Target)</b>										
6,916.34	90.00	89.38	6,364.00	-1,412.00	-1,236.53	-258.70	69.89	10.00	10.00	0.00
7,000.00	90.00	89.38	6,364.00	-1,412.00	-1,235.62	-175.04	150.47	0.00	0.00	0.00
7,100.00	90.00	89.38	6,364.00	-1,412.00	-1,234.54	-75.04	246.78	0.00	0.00	0.00
7,200.00	90.00	89.38	6,364.00	-1,412.00	-1,233.46	24.95	343.09	0.00	0.00	0.00
7,300.00	90.00	89.38	6,364.00	-1,412.00	-1,232.37	124.94	439.40	0.00	0.00	0.00
7,400.00	90.00	89.38	6,364.00	-1,412.00	-1,231.29	224.94	535.72	0.00	0.00	0.00
7,500.00	90.00	89.38	6,364.00	-1,412.00	-1,230.21	324.93	632.03	0.00	0.00	0.00
7,600.00	90.00	89.38	6,364.00	-1,412.00	-1,229.12	424.93	728.34	0.00	0.00	0.00
7,700.00	90.00	89.38	6,364.00	-1,412.00	-1,228.04	524.92	824.65	0.00	0.00	0.00
7,800.00	90.00	89.38	6,364.00	-1,412.00	-1,226.95	624.92	920.96	0.00	0.00	0.00
7,900.00	90.00	89.38	6,364.00	-1,412.00	-1,225.87	724.91	1,017.28	0.00	0.00	0.00
8,000.00	90.00	89.38	6,364.00	-1,412.00	-1,224.78	824.90	1,113.59	0.00	0.00	0.00
8,100.00	90.00	89.38	6,364.00	-1,412.00	-1,223.70	924.90	1,209.90	0.00	0.00	0.00
8,200.00	90.00	89.38	6,364.00	-1,412.00	-1,222.61	1,024.89	1,306.21	0.00	0.00	0.00
8,300.00	90.00	89.38	6,364.00	-1,412.00	-1,221.53	1,124.89	1,402.52	0.00	0.00	0.00
8,400.00	90.00	89.38	6,364.00	-1,412.00	-1,220.44	1,224.88	1,498.83	0.00	0.00	0.00
8,500.00	90.00	89.38	6,364.00	-1,412.00	-1,219.35	1,324.87	1,595.15	0.00	0.00	0.00
8,600.00	90.00	89.38	6,364.00	-1,412.00	-1,218.26	1,424.87	1,691.46	0.00	0.00	0.00
8,700.00	90.00	89.38	6,364.00	-1,412.00	-1,217.18	1,524.86	1,787.77	0.00	0.00	0.00
8,800.00	90.00	89.38	6,364.00	-1,412.00	-1,216.09	1,624.86	1,884.08	0.00	0.00	0.00
8,900.00	90.00	89.38	6,364.00	-1,412.00	-1,215.00	1,724.85	1,980.39	0.00	0.00	0.00
9,000.00	90.00	89.38	6,364.00	-1,412.00	-1,213.91	1,824.84	2,076.70	0.00	0.00	0.00
9,100.00	90.00	89.38	6,364.00	-1,412.00	-1,212.83	1,924.84	2,173.01	0.00	0.00	0.00
9,200.00	90.00	89.38	6,364.00	-1,412.00	-1,211.74	2,024.83	2,269.32	0.00	0.00	0.00
9,300.00	90.00	89.38	6,364.00	-1,412.00	-1,210.65	2,124.83	2,365.63	0.00	0.00	0.00
9,400.00	90.00	89.38	6,364.00	-1,412.00	-1,209.56	2,224.82	2,461.94	0.00	0.00	0.00
9,500.00	90.00	89.38	6,364.00	-1,412.00	-1,208.47	2,324.81	2,558.25	0.00	0.00	0.00
9,600.00	90.00	89.38	6,364.00	-1,412.00	-1,207.38	2,424.81	2,654.56	0.00	0.00	0.00
9,700.00	90.00	89.38	6,364.00	-1,412.00	-1,206.29	2,524.80	2,750.88	0.00	0.00	0.00
9,800.00	90.00	89.38	6,364.00	-1,412.00	-1,205.20	2,624.80	2,847.19	0.00	0.00	0.00
9,900.00	90.00	89.38	6,364.00	-1,412.00	-1,204.11	2,724.79	2,943.50	0.00	0.00	0.00
10,000.00	90.00	89.37	6,364.00	-1,412.00	-1,203.02	2,824.79	3,039.81	0.00	0.00	0.00
10,100.00	90.00	89.37	6,364.00	-1,412.00	-1,201.93	2,924.78	3,136.12	0.00	0.00	0.00
10,200.00	90.00	89.37	6,364.00	-1,412.00	-1,200.84	3,024.77	3,232.43	0.00	0.00	0.00
10,300.00	90.00	89.37	6,364.00	-1,412.00	-1,199.74	3,124.77	3,328.74	0.00	0.00	0.00
10,400.00	90.00	89.37	6,364.00	-1,412.00	-1,198.65	3,224.76	3,425.05	0.00	0.00	0.00
10,500.00	90.00	89.37	6,364.00	-1,412.00	-1,197.56	3,324.76	3,521.36	0.00	0.00	0.00
10,600.00	90.00	89.37	6,364.00	-1,412.00	-1,196.47	3,424.75	3,617.67	0.00	0.00	0.00
10,700.00	90.00	89.37	6,364.00	-1,412.00	-1,195.37	3,524.74	3,713.98	0.00	0.00	0.00
10,800.00	90.00	89.37	6,364.00	-1,412.00	-1,194.28	3,624.74	3,810.28	0.00	0.00	0.00
10,900.00	90.00	89.37	6,364.00	-1,412.00	-1,193.19	3,724.73	3,906.59	0.00	0.00	0.00
11,000.00	90.00	89.37	6,364.00	-1,412.00	-1,192.09	3,824.73	4,002.90	0.00	0.00	0.00
11,100.00	90.00	89.37	6,364.00	-1,412.00	-1,191.00	3,924.72	4,099.21	0.00	0.00	0.00
11,200.00	90.00	89.37	6,364.00	-1,412.00	-1,189.91	4,024.71	4,195.52	0.00	0.00	0.00
11,300.00	90.00	89.37	6,364.00	-1,412.00	-1,188.81	4,124.71	4,291.83	0.00	0.00	0.00
11,400.00	90.00	89.37	6,364.00	-1,412.00	-1,187.72	4,224.70	4,388.14	0.00	0.00	0.00
11,500.00	90.00	89.37	6,364.00	-1,412.00	-1,186.62	4,324.70	4,484.45	0.00	0.00	0.00
11,600.00	90.00	89.37	6,364.00	-1,412.00	-1,185.53	4,424.69	4,580.76	0.00	0.00	0.00
<b>BHL: 1220ft FSL &amp; 300ft FEL of Sec 32</b>										
11,603.35	90.00	89.37	6,364.00	-1,412.00	-1,185.49	4,428.04	4,583.98	0.00	0.00	0.00

Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CB6
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 20' @ 4952.00usft (Original Well Elev)
<b>Site:</b>	NW SW SEC. 32 T9N R60W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CB6	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #1		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,586.85	1,550.00	Pierre Shale Top				
3,574.54	3,437.00	Richard Sandstone				
3,690.41	3,547.00	Parkman Sandstone				
4,414.07	4,234.00	Sussex Sandstone				
4,933.38	4,727.00	Shannon Sandstone				
5,774.24	5,549.00	TeePee Buttes				
6,450.73	6,185.00	Sharon Springs				
6,504.12	6,222.00	Niobrara Top				
6,551.98	6,252.00	Niobrara A Chalk				
6,598.35	6,278.00	Niobrara A Chalk Base				
6,685.18	6,318.00	Niobrara B1 Chalk Top				
6,727.00	6,333.00	Niobrara B1 Chalk Base				
6,916.34	6,364.00	Niobrara B2 Chalk Top (Target)				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 2451ft FSL & 631ft FWL of Sec 32
250.00	250.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,165.76	1,150.24	-120.61	-80.71	EOB TO 18.32° INC
5,000.58	4,790.80	-1,122.12	-750.91	END OF TANGENT
5,916.34	5,691.04	-1,242.73	-831.62	EOD TO VERTICAL
6,016.34	5,791.04	-1,242.73	-831.62	KOP (10°/100ft BUR)
6,916.34	6,364.00	-1,236.53	-258.70	HZ LP: 1217ft FSL & 301ft FWL of Sec 32
11,603.35	6,364.00	-1,185.49	4,428.04	BHL: 1220ft FSL & 300ft FEL of Sec 32