

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE B N35-20-4N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

13 February, 2018



Project: Broomfield County
Site: Sec 10-T1S-R68W
Well: INTERCHANGE B N35-20-4N
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1

PROJECT DETAILS: Broomfield County

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 8.25°
Magnetic Field
Strength: 52094.0snT
Dip Angle: 66.47°
Date: 11/28/2017
Model: IGRF2015

WELL DETAILS: INTERCHANGE B N35-20-4N

+N/-S	+E/-W	Northing	Easting	5236.00	Latitude	Longitude	Slot
+N/-S	+E/-W	1235588.59	3142510.25		39° 58' 44.231 N	104° 59' 29.285 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
3	2126.45	28.53	31.11	2068.23	297.63	179.73	2.00	31.11	315.42	
4	6452.24	28.53	31.11	5868.77	2066.72	1247.17	0.00	0.00	2188.79	
5	7878.69	0.00	0.00	7237.00	2364.55	1426.90	2.00	180.00	2504.21	
6	7908.69	0.00	0.00	7267.00	2364.55	1426.90	0.00	0.00	2504.21	
7	8808.77	90.00	359.66	7840.00	2937.55	1423.45	10.00	359.66	3073.52	INTERCHANGE B N35 4N - LP
8	16308.77	90.00	359.66	7839.88	10437.41	1378.31	0.00	0.00	10525.09	
9	16466.52	90.00	356.50	7839.88	10595.06	1373.02	2.00	-90.02	10681.26	
10	16816.52	90.00	356.50	7839.88	10944.41	1351.65	0.00	0.00	11026.29	
11	17028.29	90.00	0.74	7839.88	11156.06	1346.54	2.00	90.00	11236.16	INTERCHANGE B N35 4N - PBHL
12	18503.59	89.99	0.74	7840.00	12631.24					

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4915.00	5366.66	PARKMAN
5030.00	5497.55	SUSSEX
7624.00	8294.10	SHANNON
7664.00	8347.28	NIORARA
7830.00	8701.55	NIO B TARGET

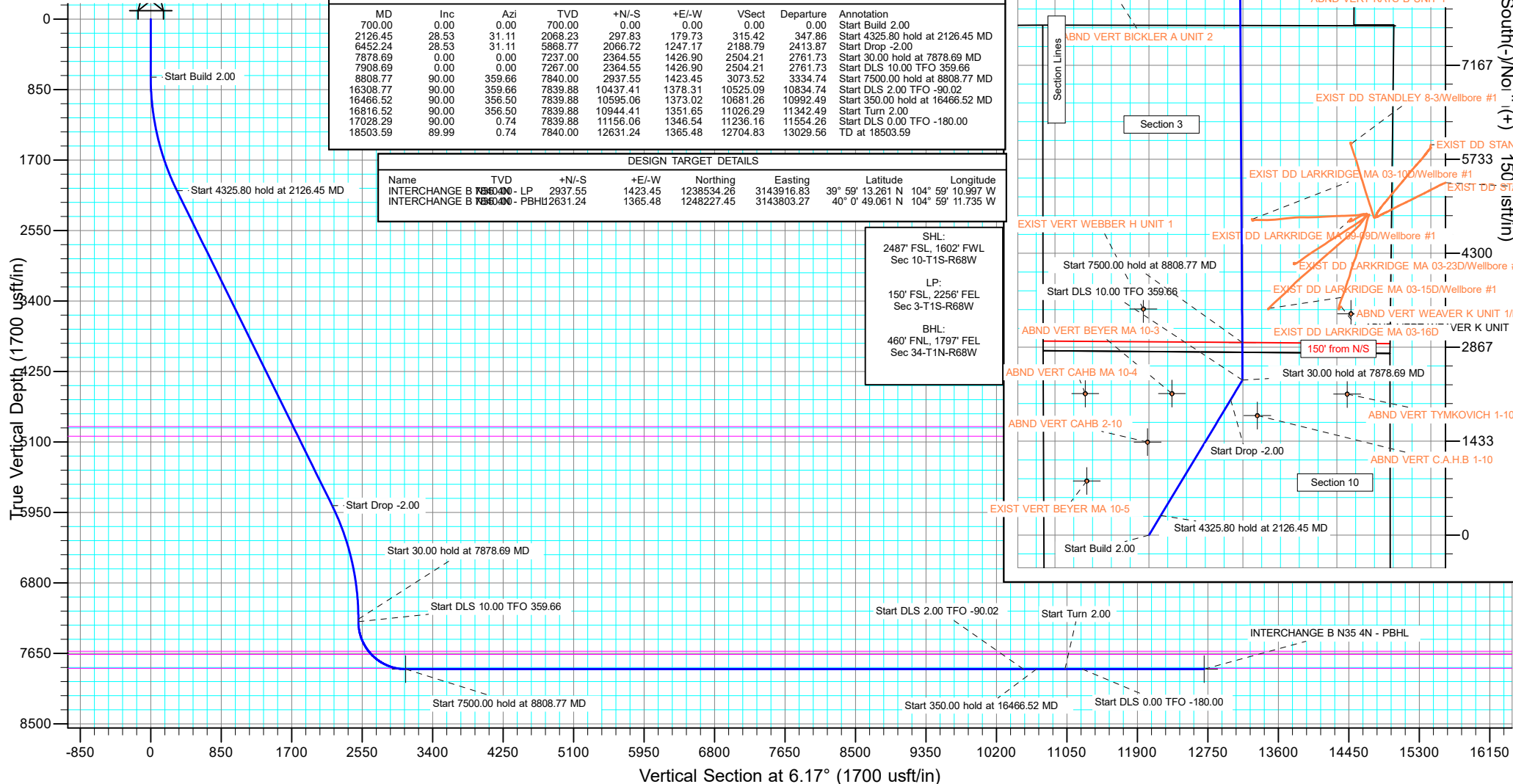
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	Start Build 2.00
2126.45	28.53	31.11	2068.23	297.63	179.73	315.42	347.86	Start 4325.80 hold at 2126.45 MD
6452.24	28.53	31.11	5868.77	2066.72	1247.17	2188.79	2413.87	Start Drop -2.00
7878.69	0.00	0.00	7237.00	2364.55	1426.90	2504.21	2761.73	Start 30.00 hold at 7878.69 MD
7908.69	0.00	0.00	7267.00	2364.55	1426.90	2504.21	2761.73	Start DLS 10.00 TFO 359.66
8808.77	90.00	359.66	7840.00	2937.55	1423.45	3073.52	3334.74	Start 7500.00 hold at 8808.77 MD
16308.77	90.00	359.66	7839.88	10437.41	1378.31	10525.09	10834.74	Start DLS 2.00 TFO -90.02
16466.52	90.00	356.50	7839.88	10595.06	1373.02	10681.26	10992.49	Start 350.00 hold at 16466.52 MD
16816.52	90.00	356.50	7839.88	10944.41	1351.65	11026.29	11342.49	Start Turn 2.00
17028.29	90.00	0.74	7839.88	11156.06	1346.54	11236.16	11554.26	Start DLS 0.00 TFO -180.00
18503.59	89.99	0.74	7840.00	12631.24	1365.48	12704.83	13029.56	TD at 18503.59

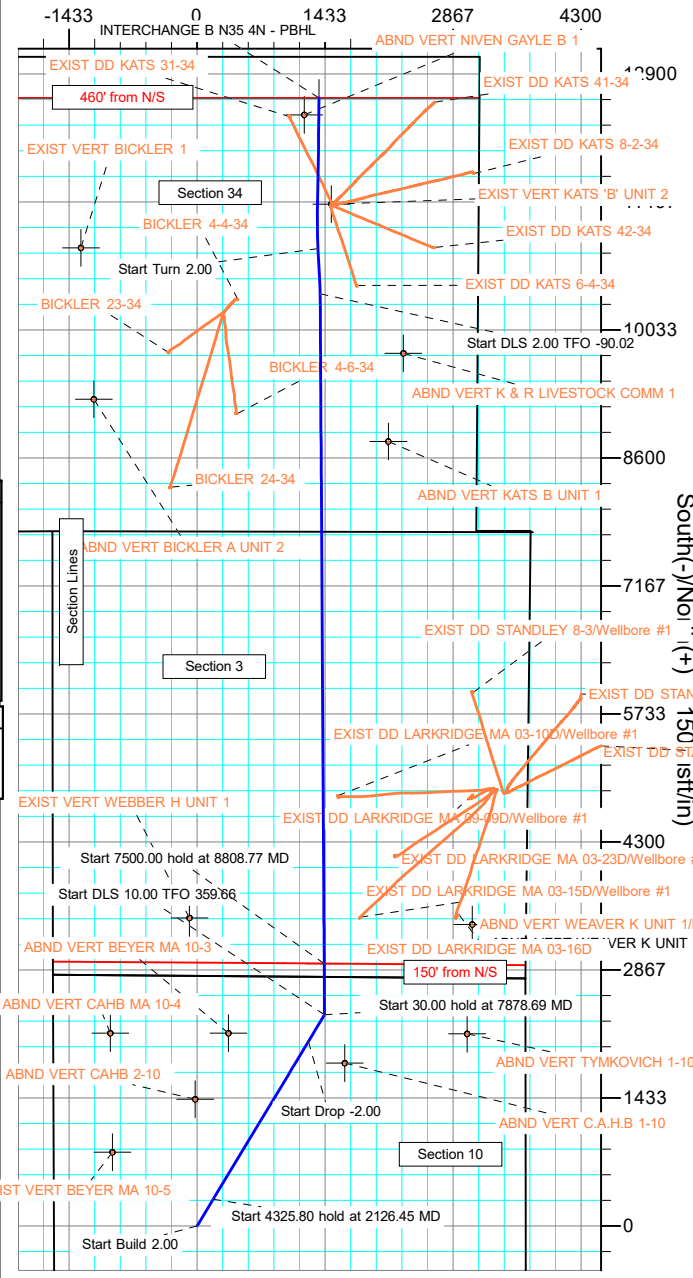
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
INTERCHANGE B N35-20-4N - LP	2937.55	1423.45	1238534.26	3143916.83	39° 59' 13.261 N	104° 59' 10.997 W	
INTERCHANGE B N35-20-4N - PBHL	2631.24	1365.48	1248227.45	3143803.27	40° 0' 49.061 N	104° 59' 11.735 W	

SHL:
2487' FSL, 1602' FWL
Sec 10-T1S-R68W
LP:
150' FSL, 2256' FEL
Sec 3-T1S-R68W
BHL:
460' FNL, 1797' FEL
Sec 34-T1N-R68W



West(-)/East(+) (2150 usft/in)



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

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

Site		Sec 10-T1S-R68W			
Site Position:		Northing:	1,238,390.57 usft	Latitude:	39° 59' 12.013 N
From:	Lat/Long	Easting:	3,140,881.15 usft	Longitude:	104° 59' 50.008 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.32 °

Well	INTERCHANGE B N35-20-4N					
Well Position	+N/-S	-2,811.17 usft	Northing:	1,235,588.59 usft	Latitude:	39° 58' 44.231 N
	+E/-W	1,613.19 usft	Easting:	3,142,510.25 usft	Longitude:	104° 59' 29.285 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,236.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/28/2017	8.25	66.47	52,093.98995279

Design	PROPOSAL 1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	6.17	

Plan Survey Tool Program	Date	2/13/2018			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,502.76	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG	
			OWSG MWD - Standard		

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
2,126.45	28.53	31.11	2,068.23	297.83	179.73	2.00	2.00	0.00	31.11	
6,452.24	28.53	31.11	5,868.77	2,066.72	1,247.17	0.00	0.00	0.00	0.00	
7,878.69	0.00	0.00	7,237.00	2,364.55	1,426.90	2.00	-2.00	0.00	180.00	
7,908.69	0.00	0.00	7,267.00	2,364.55	1,426.90	0.00	0.00	0.00	0.00	
8,808.77	90.00	359.66	7,840.00	2,937.55	1,423.45	10.00	10.00	-0.04	359.66	INTERCHANGE B N35-20-4N
16,308.77	90.00	359.66	7,839.88	10,437.41	1,378.31	0.00	0.00	0.00	0.00	
16,466.53	90.00	356.50	7,839.88	10,595.06	1,373.02	2.00	0.00	-2.00	-90.02	
16,816.53	90.00	356.50	7,839.88	10,944.41	1,351.65	0.00	0.00	0.00	0.00	
17,028.29	90.00	0.74	7,839.88	11,156.06	1,346.54	2.00	0.00	2.00	90.00	INTERCHANGE B N35-20-4N
18,503.59	89.99	0.74	7,840.00	12,631.24	1,365.48	0.00	0.00	0.00	-180.00	INTERCHANGE B N35-20-4N

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
Start Build 2.00									
800.00	2.00	31.11	799.98	1.49	0.90	1.58	2.00	2.00	0.00
900.00	4.00	31.11	899.84	5.97	3.61	6.33	2.00	2.00	0.00
1,000.00	6.00	31.11	999.45	13.44	8.11	14.23	2.00	2.00	0.00
1,100.00	8.00	31.11	1,098.70	23.87	14.40	25.28	2.00	2.00	0.00
1,200.00	10.00	31.11	1,197.47	37.26	22.49	39.46	2.00	2.00	0.00
1,300.00	12.00	31.11	1,295.62	53.60	32.34	56.77	2.00	2.00	0.00
1,400.00	14.00	31.11	1,393.06	72.86	43.97	77.16	2.00	2.00	0.00
1,500.00	16.00	31.11	1,489.64	95.02	57.34	100.63	2.00	2.00	0.00
1,600.00	18.00	31.11	1,585.27	120.05	72.44	127.14	2.00	2.00	0.00
1,700.00	20.00	31.11	1,679.82	147.92	89.26	156.66	2.00	2.00	0.00
1,800.00	22.00	31.11	1,773.17	178.60	107.78	189.15	2.00	2.00	0.00
1,900.00	24.00	31.11	1,865.21	212.06	127.97	224.58	2.00	2.00	0.00
2,000.00	26.00	31.11	1,955.84	248.24	149.80	262.90	2.00	2.00	0.00
2,100.00	28.00	31.11	2,044.94	287.11	173.26	304.06	2.00	2.00	0.00
2,126.45	28.53	31.11	2,068.23	297.83	179.73	315.42	2.00	2.00	0.00
Start 4325.80 hold at 2126.45 MD									
2,200.00	28.53	31.11	2,132.85	327.91	197.88	347.27	0.00	0.00	0.00
2,300.00	28.53	31.11	2,220.71	368.80	222.55	390.58	0.00	0.00	0.00
2,400.00	28.53	31.11	2,308.57	409.69	247.23	433.89	0.00	0.00	0.00
2,500.00	28.53	31.11	2,396.42	450.58	271.91	477.19	0.00	0.00	0.00
2,600.00	28.53	31.11	2,484.28	491.47	296.58	520.50	0.00	0.00	0.00
2,700.00	28.53	31.11	2,572.14	532.36	321.26	563.81	0.00	0.00	0.00
2,800.00	28.53	31.11	2,660.00	573.26	345.93	607.12	0.00	0.00	0.00
2,900.00	28.53	31.11	2,747.85	614.15	370.61	650.42	0.00	0.00	0.00
3,000.00	28.53	31.11	2,835.71	655.04	395.29	693.73	0.00	0.00	0.00
3,100.00	28.53	31.11	2,923.57	695.93	419.96	737.04	0.00	0.00	0.00
3,200.00	28.53	31.11	3,011.43	736.82	444.64	780.34	0.00	0.00	0.00
3,300.00	28.53	31.11	3,099.29	777.71	469.32	823.65	0.00	0.00	0.00
3,400.00	28.53	31.11	3,187.14	818.61	493.99	866.96	0.00	0.00	0.00
3,500.00	28.53	31.11	3,275.00	859.50	518.67	910.26	0.00	0.00	0.00
3,600.00	28.53	31.11	3,362.86	900.39	543.34	953.57	0.00	0.00	0.00
3,700.00	28.53	31.11	3,450.72	941.28	568.02	996.88	0.00	0.00	0.00
3,800.00	28.53	31.11	3,538.57	982.17	592.70	1,040.19	0.00	0.00	0.00
3,900.00	28.53	31.11	3,626.43	1,023.06	617.37	1,083.49	0.00	0.00	0.00
4,000.00	28.53	31.11	3,714.29	1,063.96	642.05	1,126.80	0.00	0.00	0.00
4,100.00	28.53	31.11	3,802.15	1,104.85	666.73	1,170.11	0.00	0.00	0.00
4,200.00	28.53	31.11	3,890.00	1,145.74	691.40	1,213.41	0.00	0.00	0.00
4,300.00	28.53	31.11	3,977.86	1,186.63	716.08	1,256.72	0.00	0.00	0.00
4,400.00	28.53	31.11	4,065.72	1,227.52	740.76	1,300.03	0.00	0.00	0.00
4,500.00	28.53	31.11	4,153.58	1,268.42	765.43	1,343.33	0.00	0.00	0.00
4,600.00	28.53	31.11	4,241.43	1,309.31	790.11	1,386.64	0.00	0.00	0.00
4,700.00	28.53	31.11	4,329.29	1,350.20	814.78	1,429.95	0.00	0.00	0.00
4,800.00	28.53	31.11	4,417.15	1,391.09	839.46	1,473.26	0.00	0.00	0.00
4,900.00	28.53	31.11	4,505.01	1,431.98	864.14	1,516.56	0.00	0.00	0.00
5,000.00	28.53	31.11	4,592.86	1,472.87	888.81	1,559.87	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,100.00	28.53	31.11	4,680.72	1,513.77	913.49	1,603.18	0.00	0.00	0.00	
5,200.00	28.53	31.11	4,768.58	1,554.66	938.17	1,646.48	0.00	0.00	0.00	
5,300.00	28.53	31.11	4,856.44	1,595.55	962.84	1,689.79	0.00	0.00	0.00	
5,366.66	28.53	31.11	4,915.00	1,622.81	979.29	1,718.66	0.00	0.00	0.00	
PARKMAN										
5,400.00	28.53	31.11	4,944.29	1,636.44	987.52	1,733.10	0.00	0.00	0.00	
5,497.55	28.53	31.11	5,030.00	1,676.33	1,011.59	1,775.34	0.00	0.00	0.00	
SUSSEX										
5,500.00	28.53	31.11	5,032.15	1,677.33	1,012.19	1,776.40	0.00	0.00	0.00	
5,600.00	28.53	31.11	5,120.01	1,718.22	1,036.87	1,819.71	0.00	0.00	0.00	
5,700.00	28.53	31.11	5,207.87	1,759.12	1,061.55	1,863.02	0.00	0.00	0.00	
5,800.00	28.53	31.11	5,295.72	1,800.01	1,086.22	1,906.33	0.00	0.00	0.00	
5,900.00	28.53	31.11	5,383.58	1,840.90	1,110.90	1,949.63	0.00	0.00	0.00	
6,000.00	28.53	31.11	5,471.44	1,881.79	1,135.58	1,992.94	0.00	0.00	0.00	
6,100.00	28.53	31.11	5,559.30	1,922.68	1,160.25	2,036.25	0.00	0.00	0.00	
6,200.00	28.53	31.11	5,647.15	1,963.57	1,184.93	2,079.55	0.00	0.00	0.00	
6,300.00	28.53	31.11	5,735.01	2,004.47	1,209.61	2,122.86	0.00	0.00	0.00	
6,400.00	28.53	31.11	5,822.87	2,045.36	1,234.28	2,166.17	0.00	0.00	0.00	
6,452.24	28.53	31.11	5,868.77	2,066.72	1,247.17	2,188.79	0.00	0.00	0.00	
Start Drop -2.00										
6,500.00	27.57	31.11	5,910.91	2,085.95	1,258.78	2,209.16	2.00	-2.00	0.00	
6,600.00	25.57	31.11	6,000.35	2,124.25	1,281.89	2,249.72	2.00	-2.00	0.00	
6,700.00	23.57	31.11	6,091.28	2,159.85	1,303.37	2,287.43	2.00	-2.00	0.00	
6,800.00	21.57	31.11	6,183.62	2,192.72	1,323.21	2,322.23	2.00	-2.00	0.00	
6,900.00	19.57	31.11	6,277.23	2,222.80	1,341.36	2,354.09	2.00	-2.00	0.00	
7,000.00	17.57	31.11	6,372.02	2,250.07	1,357.82	2,382.98	2.00	-2.00	0.00	
7,100.00	15.57	31.11	6,467.86	2,274.50	1,372.56	2,408.84	2.00	-2.00	0.00	
7,200.00	13.57	31.11	6,564.64	2,296.04	1,385.56	2,431.65	2.00	-2.00	0.00	
7,300.00	11.57	31.11	6,662.24	2,314.68	1,396.80	2,451.39	2.00	-2.00	0.00	
7,400.00	9.57	31.11	6,760.53	2,330.39	1,406.28	2,468.03	2.00	-2.00	0.00	
7,500.00	7.57	31.11	6,859.41	2,343.15	1,413.99	2,481.55	2.00	-2.00	0.00	
7,600.00	5.57	31.11	6,958.75	2,352.95	1,419.90	2,491.93	2.00	-2.00	0.00	
7,700.00	3.57	31.11	7,058.42	2,359.78	1,424.02	2,499.16	2.00	-2.00	0.00	
7,800.00	1.57	31.11	7,158.32	2,363.62	1,426.34	2,503.23	2.00	-2.00	0.00	
7,878.69	0.00	0.00	7,237.00	2,364.55	1,426.90	2,504.21	2.00	-2.00	0.00	
Start 30.00 hold at 7878.69 MD										
7,908.69	0.00	0.00	7,267.00	2,364.55	1,426.90	2,504.21	0.00	0.00	0.00	
Start DLS 10.00 TFO 359.66										
7,950.00	4.13	359.66	7,308.27	2,366.04	1,426.89	2,505.69	10.00	10.00	0.00	
8,000.00	9.13	359.66	7,357.92	2,371.81	1,426.86	2,511.43	10.00	10.00	0.00	
8,050.00	14.13	359.66	7,406.88	2,381.89	1,426.80	2,521.44	10.00	10.00	0.00	
8,100.00	19.13	359.66	7,454.77	2,396.19	1,426.71	2,535.65	10.00	10.00	0.00	
8,150.00	24.13	359.66	7,501.24	2,414.61	1,426.60	2,553.95	10.00	10.00	0.00	
8,200.00	29.13	359.66	7,545.92	2,437.02	1,426.46	2,576.21	10.00	10.00	0.00	
8,250.00	34.13	359.66	7,588.48	2,463.23	1,426.31	2,602.26	10.00	10.00	0.00	
8,294.10	38.54	359.66	7,624.00	2,489.35	1,426.15	2,628.21	10.00	10.00	0.00	
SHANNON										
8,300.00	39.13	359.66	7,628.59	2,493.05	1,426.13	2,631.88	10.00	10.00	0.00	
8,347.28	43.86	359.66	7,664.00	2,524.36	1,425.94	2,663.00	10.00	10.00	0.00	
NIOBRARA										
8,350.00	44.13	359.66	7,665.96	2,526.25	1,425.93	2,664.87	10.00	10.00	0.00	
8,400.00	49.13	359.66	7,700.28	2,562.59	1,425.71	2,700.97	10.00	10.00	0.00	
8,450.00	54.13	359.66	7,731.31	2,601.77	1,425.47	2,739.91	10.00	10.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,500.00	59.13	359.66	7,758.81	2,643.51	1,425.22	2,781.38	10.00	10.00	0.00	
8,550.00	64.13	359.66	7,782.56	2,687.49	1,424.96	2,825.07	10.00	10.00	0.00	
8,600.00	69.13	359.66	7,802.39	2,733.37	1,424.68	2,870.66	10.00	10.00	0.00	
8,650.00	74.13	359.66	7,818.15	2,780.81	1,424.39	2,917.79	10.00	10.00	0.00	
8,700.00	79.12	359.66	7,829.71	2,829.44	1,424.10	2,966.10	10.00	10.00	0.00	
8,701.55	79.28	359.66	7,830.00	2,830.96	1,424.09	2,967.62	10.00	10.00	0.00	
NIO B TARGET										
8,750.00	84.12	359.66	7,836.99	2,878.89	1,423.80	3,015.24	10.00	10.00	0.00	
8,800.00	89.12	359.66	7,839.93	2,928.78	1,423.50	3,064.81	10.00	10.00	0.00	
8,808.77	90.00	359.66	7,840.00	2,937.55	1,423.45	3,073.52	10.00	10.00	0.00	
Start 7500.00 hold at 8808.77 MD										
8,900.00	90.00	359.66	7,840.00	3,028.78	1,422.90	3,164.16	0.00	0.00	0.00	
9,000.00	90.00	359.66	7,840.00	3,128.78	1,422.30	3,263.52	0.00	0.00	0.00	
9,100.00	90.00	359.66	7,840.00	3,228.78	1,421.70	3,362.87	0.00	0.00	0.00	
9,200.00	90.00	359.66	7,839.99	3,328.77	1,421.10	3,462.23	0.00	0.00	0.00	
9,300.00	90.00	359.66	7,839.99	3,428.77	1,420.49	3,561.58	0.00	0.00	0.00	
9,400.00	90.00	359.66	7,839.99	3,528.77	1,419.89	3,660.94	0.00	0.00	0.00	
9,500.00	90.00	359.66	7,839.99	3,628.77	1,419.29	3,760.29	0.00	0.00	0.00	
9,600.00	90.00	359.66	7,839.99	3,728.77	1,418.69	3,859.64	0.00	0.00	0.00	
9,700.00	90.00	359.66	7,839.99	3,828.77	1,418.09	3,959.00	0.00	0.00	0.00	
9,800.00	90.00	359.66	7,839.98	3,928.76	1,417.49	4,058.35	0.00	0.00	0.00	
9,900.00	90.00	359.66	7,839.98	4,028.76	1,416.88	4,157.71	0.00	0.00	0.00	
10,000.00	90.00	359.66	7,839.98	4,128.76	1,416.28	4,257.06	0.00	0.00	0.00	
10,100.00	90.00	359.66	7,839.98	4,228.76	1,415.68	4,356.42	0.00	0.00	0.00	
10,200.00	90.00	359.66	7,839.98	4,328.76	1,415.08	4,455.77	0.00	0.00	0.00	
10,300.00	90.00	359.66	7,839.98	4,428.75	1,414.48	4,555.12	0.00	0.00	0.00	
10,400.00	90.00	359.66	7,839.97	4,528.75	1,413.87	4,654.48	0.00	0.00	0.00	
10,500.00	90.00	359.66	7,839.97	4,628.75	1,413.27	4,753.83	0.00	0.00	0.00	
10,600.00	90.00	359.66	7,839.97	4,728.75	1,412.67	4,853.19	0.00	0.00	0.00	
10,700.00	90.00	359.66	7,839.97	4,828.75	1,412.07	4,952.54	0.00	0.00	0.00	
10,800.00	90.00	359.66	7,839.97	4,928.75	1,411.47	5,051.90	0.00	0.00	0.00	
10,900.00	90.00	359.66	7,839.97	5,028.74	1,410.86	5,151.25	0.00	0.00	0.00	
11,000.00	90.00	359.66	7,839.96	5,128.74	1,410.26	5,250.60	0.00	0.00	0.00	
11,100.00	90.00	359.66	7,839.96	5,228.74	1,409.66	5,349.96	0.00	0.00	0.00	
11,200.00	90.00	359.66	7,839.96	5,328.74	1,409.06	5,449.31	0.00	0.00	0.00	
11,300.00	90.00	359.66	7,839.96	5,428.74	1,408.46	5,548.67	0.00	0.00	0.00	
11,400.00	90.00	359.66	7,839.96	5,528.73	1,407.86	5,648.02	0.00	0.00	0.00	
11,500.00	90.00	359.66	7,839.96	5,628.73	1,407.25	5,747.38	0.00	0.00	0.00	
11,600.00	90.00	359.66	7,839.95	5,728.73	1,406.65	5,846.73	0.00	0.00	0.00	
11,700.00	90.00	359.66	7,839.95	5,828.73	1,406.05	5,946.08	0.00	0.00	0.00	
11,800.00	90.00	359.66	7,839.95	5,928.73	1,405.45	6,045.44	0.00	0.00	0.00	
11,900.00	90.00	359.66	7,839.95	6,028.73	1,404.85	6,144.79	0.00	0.00	0.00	
12,000.00	90.00	359.66	7,839.95	6,128.72	1,404.24	6,244.15	0.00	0.00	0.00	
12,100.00	90.00	359.66	7,839.95	6,228.72	1,403.64	6,343.50	0.00	0.00	0.00	
12,200.00	90.00	359.66	7,839.94	6,328.72	1,403.04	6,442.86	0.00	0.00	0.00	
12,300.00	90.00	359.66	7,839.94	6,428.72	1,402.44	6,542.21	0.00	0.00	0.00	
12,400.00	90.00	359.66	7,839.94	6,528.72	1,401.84	6,641.56	0.00	0.00	0.00	
12,500.00	90.00	359.66	7,839.94	6,628.71	1,401.23	6,740.92	0.00	0.00	0.00	
12,600.00	90.00	359.66	7,839.94	6,728.71	1,400.63	6,840.27	0.00	0.00	0.00	
12,700.00	90.00	359.66	7,839.94	6,828.71	1,400.03	6,939.63	0.00	0.00	0.00	
12,800.00	90.00	359.66	7,839.93	6,928.71	1,399.43	7,038.98	0.00	0.00	0.00	
12,900.00	90.00	359.66	7,839.93	7,028.71	1,398.83	7,138.34	0.00	0.00	0.00	
13,000.00	90.00	359.66	7,839.93	7,128.71	1,398.23	7,237.69	0.00	0.00	0.00	
13,100.00	90.00	359.66	7,839.93	7,228.70	1,397.62	7,337.04	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,200.00	90.00	359.66	7,839.93	7,328.70	1,397.02	7,436.40	0.00	0.00	0.00
13,300.00	90.00	359.66	7,839.93	7,428.70	1,396.42	7,535.75	0.00	0.00	0.00
13,400.00	90.00	359.66	7,839.92	7,528.70	1,395.82	7,635.11	0.00	0.00	0.00
13,500.00	90.00	359.66	7,839.92	7,628.70	1,395.22	7,734.46	0.00	0.00	0.00
13,600.00	90.00	359.66	7,839.92	7,728.69	1,394.61	7,833.82	0.00	0.00	0.00
13,700.00	90.00	359.66	7,839.92	7,828.69	1,394.01	7,933.17	0.00	0.00	0.00
13,800.00	90.00	359.66	7,839.92	7,928.69	1,393.41	8,032.52	0.00	0.00	0.00
13,900.00	90.00	359.66	7,839.92	8,028.69	1,392.81	8,131.88	0.00	0.00	0.00
14,000.00	90.00	359.66	7,839.92	8,128.69	1,392.21	8,231.23	0.00	0.00	0.00
14,100.00	90.00	359.66	7,839.91	8,228.69	1,391.60	8,330.59	0.00	0.00	0.00
14,200.00	90.00	359.66	7,839.91	8,328.68	1,391.00	8,429.94	0.00	0.00	0.00
14,300.00	90.00	359.66	7,839.91	8,428.68	1,390.40	8,529.30	0.00	0.00	0.00
14,400.00	90.00	359.66	7,839.91	8,528.68	1,389.80	8,628.65	0.00	0.00	0.00
14,500.00	90.00	359.66	7,839.91	8,628.68	1,389.20	8,728.00	0.00	0.00	0.00
14,600.00	90.00	359.66	7,839.91	8,728.68	1,388.59	8,827.36	0.00	0.00	0.00
14,700.00	90.00	359.66	7,839.90	8,828.67	1,387.99	8,926.71	0.00	0.00	0.00
14,800.00	90.00	359.66	7,839.90	8,928.67	1,387.39	9,026.07	0.00	0.00	0.00
14,900.00	90.00	359.66	7,839.90	9,028.67	1,386.79	9,125.42	0.00	0.00	0.00
15,000.00	90.00	359.66	7,839.90	9,128.67	1,386.19	9,224.78	0.00	0.00	0.00
15,100.00	90.00	359.66	7,839.90	9,228.67	1,385.59	9,324.13	0.00	0.00	0.00
15,200.00	90.00	359.66	7,839.90	9,328.67	1,384.98	9,423.48	0.00	0.00	0.00
15,300.00	90.00	359.66	7,839.89	9,428.66	1,384.38	9,522.84	0.00	0.00	0.00
15,400.00	90.00	359.66	7,839.89	9,528.66	1,383.78	9,622.19	0.00	0.00	0.00
15,500.00	90.00	359.66	7,839.89	9,628.66	1,383.18	9,721.55	0.00	0.00	0.00
15,600.00	90.00	359.66	7,839.89	9,728.66	1,382.58	9,820.90	0.00	0.00	0.00
15,700.00	90.00	359.66	7,839.89	9,828.66	1,381.97	9,920.26	0.00	0.00	0.00
15,800.00	90.00	359.66	7,839.89	9,928.65	1,381.37	10,019.61	0.00	0.00	0.00
15,900.00	90.00	359.66	7,839.88	10,028.65	1,380.77	10,118.96	0.00	0.00	0.00
16,000.00	90.00	359.66	7,839.88	10,128.65	1,380.17	10,218.32	0.00	0.00	0.00
16,100.00	90.00	359.66	7,839.88	10,228.65	1,379.57	10,317.67	0.00	0.00	0.00
16,200.00	90.00	359.66	7,839.88	10,328.65	1,378.96	10,417.03	0.00	0.00	0.00
16,308.77	90.00	359.66	7,839.88	10,437.41	1,378.31	10,525.09	0.00	0.00	0.00
Start DLS 2.00 TFO -90.02									
16,400.00	90.00	357.83	7,839.88	10,528.62	1,376.31	10,615.56	2.00	0.00	-2.00
16,466.53	90.00	356.50	7,839.88	10,595.06	1,373.02	10,681.26	2.00	0.00	-2.00
Start 350.00 hold at 16466.52 MD									
16,500.00	90.00	356.50	7,839.88	10,628.47	1,370.98	10,714.26	0.00	0.00	0.00
16,600.00	90.00	356.50	7,839.88	10,728.29	1,364.87	10,812.84	0.00	0.00	0.00
16,700.00	90.00	356.50	7,839.88	10,828.10	1,358.77	10,911.42	0.00	0.00	0.00
16,800.00	90.00	356.50	7,839.88	10,927.91	1,352.66	11,010.00	0.00	0.00	0.00
16,816.53	90.00	356.50	7,839.88	10,944.41	1,351.65	11,026.29	0.00	0.00	0.00
Start Turn 2.00									
16,900.00	90.00	358.17	7,839.88	11,027.79	1,347.77	11,108.77	2.00	0.00	2.00
17,000.00	90.00	0.17	7,839.88	11,127.78	1,346.32	11,208.02	2.00	0.00	2.00
17,028.29	90.00	0.74	7,839.88	11,156.06	1,346.54	11,236.16	2.00	0.00	2.00
Start DLS 0.00 TFO -180.00									
17,100.00	90.00	0.74	7,839.88	11,227.77	1,347.46	11,307.55	0.00	0.00	0.00
17,200.00	90.00	0.74	7,839.88	11,327.76	1,348.75	11,407.10	0.00	0.00	0.00
17,300.00	90.00	0.74	7,839.88	11,427.75	1,350.03	11,506.65	0.00	0.00	0.00
17,400.00	90.00	0.74	7,839.88	11,527.74	1,351.31	11,606.21	0.00	0.00	0.00
17,500.00	90.00	0.74	7,839.89	11,627.74	1,352.60	11,705.76	0.00	0.00	0.00
17,600.00	90.00	0.74	7,839.89	11,727.73	1,353.88	11,805.31	0.00	0.00	0.00
17,700.00	90.00	0.74	7,839.90	11,827.72	1,355.16	11,904.86	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B N35-20-4N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5261.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5261.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B N35-20-4N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,800.00	89.99	0.74	7,839.91	11,927.71	1,356.45	12,004.41	0.00	0.00	0.00
17,900.00	89.99	0.74	7,839.92	12,027.70	1,357.73	12,103.96	0.00	0.00	0.00
18,000.00	89.99	0.74	7,839.93	12,127.69	1,359.01	12,203.51	0.00	0.00	0.00
18,100.00	89.99	0.74	7,839.94	12,227.69	1,360.30	12,303.06	0.00	0.00	0.00
18,200.00	89.99	0.74	7,839.95	12,327.68	1,361.58	12,402.61	0.00	0.00	0.00
18,300.00	89.99	0.74	7,839.97	12,427.67	1,362.86	12,502.16	0.00	0.00	0.00
18,400.00	89.99	0.74	7,839.98	12,527.66	1,364.15	12,601.71	0.00	0.00	0.00
18,503.59	89.99	0.74	7,840.00	12,631.24	1,365.48	12,704.83	0.00	0.00	0.00
TD at 18503.59									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
INTERCHANGE B N35 - - plan hits target center - Point	0.00	0.00	7,840.00	12,631.24	1,365.48	1,248,227.45	3,143,803.27	40° 0' 49.061 N	104° 59' 11.735 W
INTERCHANGE B N35 - - plan hits target center - Point	0.00	0.00	7,840.00	2,937.55	1,423.45	1,238,534.25	3,143,916.84	39° 59' 13.261 N	104° 59' 10.997 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,366.66	4,915.00	PARKMAN				
5,497.55	5,030.00	SUSSEX				
8,294.10	7,624.00	SHANNON				
8,347.28	7,664.00	NIOBRARA				
8,701.55	7,830.00	NIO B TARGET				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.00	700.00	0.00	0.00	Start Build 2.00
2,126.45	2,068.23	297.83	179.73	Start 4325.80 hold at 2126.45 MD
6,452.24	5,868.77	2,066.72	1,247.17	Start Drop -2.00
7,878.69	7,237.00	2,364.55	1,426.90	Start 30.00 hold at 7878.69 MD
7,908.69	7,267.00	2,364.55	1,426.90	Start DLS 10.00 TFO 359.66
8,808.77	7,840.00	2,937.55	1,423.45	Start 7500.00 hold at 8808.77 MD
16,308.77	7,839.88	10,437.41	1,378.31	Start DLS 2.00 TFO -90.02
16,466.53	7,839.88	10,595.06	1,373.02	Start 350.00 hold at 16466.52 MD
16,816.53	7,839.88	10,944.41	1,351.65	Start Turn 2.00
17,028.29	7,839.88	11,156.06	1,346.54	Start DLS 0.00 TFO -180.00
18,503.59	7,840.00	12,631.24	1,365.48	TD at 18503.59