

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 10-T1S-R68W**

**INTERCHANGE B S22-30-20N**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**24 January, 2018**



Project: Broomfield County  
Site: Sec 10-T1S-R68W  
Well: INTERCHANGE B S22-30-20N  
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: 8.23°  
Magnetic Field  
Strength: 52080.9nT  
Dip Angle: 66.47°  
Date: 1/9/2018  
Model: IGRF2015

WELL DETAILS: INTERCHANGE B S22-30-20N

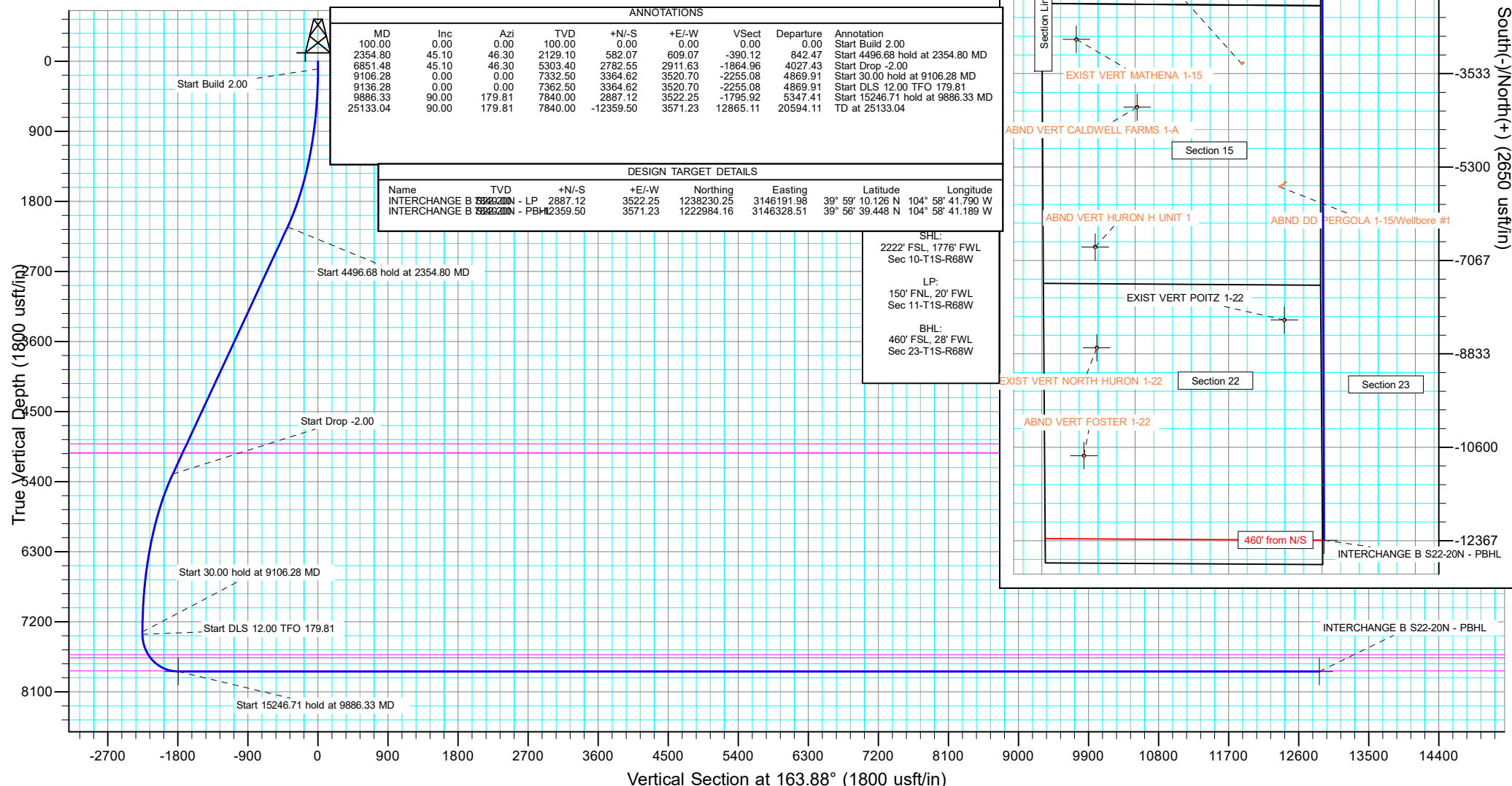
+N/-S	+E/-W	Northing	Easting	5206.00	Latitude	Longitude	Slot
0.00	0.00	1235322.95	3142686.37		39° 58' 41.595 N	104° 59' 27.042 W	

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	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	2354.80	45.10	46.30	2129.10	582.07	609.07	2.00	46.30	-390.12	
4	6851.48	45.10	46.30	5303.40	2782.55	2911.63	0.00	0.00	-1864.96	
5	9106.28	0.00	0.00	7332.50	3364.62	3520.70	2.00	180.00	-2255.08	
6	9136.28	0.00	0.00	7362.50	3364.62	3520.70	0.00	0.00	-2255.08	
7	9886.33	90.00	179.81	7840.00	2887.12	3522.25	12.00	179.81	-1795.92	INTERCHANGE B S22-20N - LP
8	25133.04	90.00	179.81	7840.00	-12359.50	3571.23	0.00	0.00	12865.11	INTERCHANGE B S22-20N - PBHL

FORMATION TOP DETAILS

TVDPth	MDPath	Formation
4915.00	6301.28	PARKMAN
5030.00	6464.18	SUSSEX
7624.00	9413.01	SHANNON
7664.00	9462.59	NIOBRARA
7830.00	9788.44	NIO B TARGET



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	Broomfield County		
<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		

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 S22-30-20N					
Well Position	+N/-S	-3,077.81 usft	Northing:	1,235,322.95 usft	Latitude:	39° 58' 41.595 N
	+E/-W	1,787.80 usft	Easting:	3,142,686.37 usft	Longitude:	104° 59' 27.042 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,206.00 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	1/9/2018	8.23	66.47	52,080.85272153

<b>Design</b>	PROPOSAL 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	163.88

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/24/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	25,132.44	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
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	
2,354.80	45.10	46.30	2,129.10	582.07	609.07	2.00	2.00	0.00	46.30	
6,851.48	45.10	46.30	5,303.40	2,782.55	2,911.63	0.00	0.00	0.00	0.00	
9,106.28	0.00	0.00	7,332.50	3,364.62	3,520.70	2.00	-2.00	0.00	180.00	
9,136.28	0.00	0.00	7,362.50	3,364.62	3,520.70	0.00	0.00	0.00	0.00	
9,886.33	90.00	179.81	7,840.00	2,887.12	3,522.25	12.00	12.00	23.97	179.81	INTERCHANGE B S2
25,133.04	90.00	179.81	7,840.00	-12,359.50	3,571.23	0.00	0.00	0.00	0.00	INTERCHANGE B S2

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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
Start Build 2.00									
200.00	2.00	46.30	199.98	1.21	1.26	-0.81	2.00	2.00	0.00
300.00	4.00	46.30	299.84	4.82	5.05	-3.23	2.00	2.00	0.00
400.00	6.00	46.30	399.45	10.84	11.35	-7.27	2.00	2.00	0.00
500.00	8.00	46.30	498.70	19.26	20.16	-12.91	2.00	2.00	0.00
600.00	10.00	46.30	597.47	30.07	31.46	-20.15	2.00	2.00	0.00
700.00	12.00	46.30	695.62	43.25	45.26	-28.99	2.00	2.00	0.00
800.00	14.00	46.30	793.06	58.79	61.52	-39.41	2.00	2.00	0.00
900.00	16.00	46.30	889.64	76.67	80.23	-51.39	2.00	2.00	0.00
1,000.00	18.00	46.30	985.27	96.87	101.37	-64.93	2.00	2.00	0.00
1,100.00	20.00	46.30	1,079.82	119.37	124.90	-80.00	2.00	2.00	0.00
1,200.00	22.00	46.30	1,173.17	144.12	150.81	-96.60	2.00	2.00	0.00
1,300.00	24.00	46.30	1,265.21	171.12	179.06	-114.69	2.00	2.00	0.00
1,400.00	26.00	46.30	1,355.84	200.32	209.61	-134.26	2.00	2.00	0.00
1,500.00	28.00	46.30	1,444.94	231.68	242.43	-155.28	2.00	2.00	0.00
1,600.00	30.00	46.30	1,532.39	265.17	277.48	-177.73	2.00	2.00	0.00
1,700.00	32.00	46.30	1,618.11	300.76	314.71	-201.58	2.00	2.00	0.00
1,800.00	34.00	46.30	1,701.97	338.38	354.08	-226.80	2.00	2.00	0.00
1,900.00	36.00	46.30	1,783.88	378.01	395.55	-253.35	2.00	2.00	0.00
2,000.00	38.00	46.30	1,863.74	419.59	439.05	-281.22	2.00	2.00	0.00
2,100.00	40.00	46.30	1,941.45	463.07	484.55	-310.36	2.00	2.00	0.00
2,200.00	42.00	46.30	2,016.92	508.39	531.97	-340.74	2.00	2.00	0.00
2,300.00	44.00	46.30	2,090.05	555.51	581.28	-372.32	2.00	2.00	0.00
2,354.80	45.10	46.30	2,129.10	582.07	609.07	-390.12	2.00	2.00	0.00
Start 4496.68 hold at 2354.80 MD									
2,400.00	45.10	46.30	2,161.01	604.19	632.21	-404.94	0.00	0.00	0.00
2,500.00	45.10	46.30	2,231.60	653.12	683.42	-437.74	0.00	0.00	0.00
2,600.00	45.10	46.30	2,302.19	702.06	734.62	-470.54	0.00	0.00	0.00
2,700.00	45.10	46.30	2,372.79	750.99	785.83	-503.34	0.00	0.00	0.00
2,800.00	45.10	46.30	2,443.38	799.93	837.04	-536.14	0.00	0.00	0.00
2,900.00	45.10	46.30	2,513.97	848.86	888.24	-568.94	0.00	0.00	0.00
3,000.00	45.10	46.30	2,584.56	897.80	939.45	-601.73	0.00	0.00	0.00
3,100.00	45.10	46.30	2,655.15	946.74	990.65	-634.53	0.00	0.00	0.00
3,200.00	45.10	46.30	2,725.75	995.67	1,041.86	-667.33	0.00	0.00	0.00
3,300.00	45.10	46.30	2,796.34	1,044.61	1,093.07	-700.13	0.00	0.00	0.00
3,400.00	45.10	46.30	2,866.93	1,093.54	1,144.27	-732.93	0.00	0.00	0.00
3,500.00	45.10	46.30	2,937.52	1,142.48	1,195.48	-765.73	0.00	0.00	0.00
3,600.00	45.10	46.30	3,008.11	1,191.42	1,246.68	-798.53	0.00	0.00	0.00
3,700.00	45.10	46.30	3,078.71	1,240.35	1,297.89	-831.32	0.00	0.00	0.00
3,800.00	45.10	46.30	3,149.30	1,289.29	1,349.10	-864.12	0.00	0.00	0.00
3,900.00	45.10	46.30	3,219.89	1,338.22	1,400.30	-896.92	0.00	0.00	0.00
4,000.00	45.10	46.30	3,290.48	1,387.16	1,451.51	-929.72	0.00	0.00	0.00
4,100.00	45.10	46.30	3,361.07	1,436.10	1,502.71	-962.52	0.00	0.00	0.00
4,200.00	45.10	46.30	3,431.67	1,485.03	1,553.92	-995.32	0.00	0.00	0.00
4,300.00	45.10	46.30	3,502.26	1,533.97	1,605.13	-1,028.11	0.00	0.00	0.00
4,400.00	45.10	46.30	3,572.85	1,582.90	1,656.33	-1,060.91	0.00	0.00	0.00
4,500.00	45.10	46.30	3,643.44	1,631.84	1,707.54	-1,093.71	0.00	0.00	0.00
4,600.00	45.10	46.30	3,714.03	1,680.77	1,758.74	-1,126.51	0.00	0.00	0.00
4,700.00	45.10	46.30	3,784.63	1,729.71	1,809.95	-1,159.31	0.00	0.00	0.00
4,800.00	45.10	46.30	3,855.22	1,778.65	1,861.15	-1,192.11	0.00	0.00	0.00
4,900.00	45.10	46.30	3,925.81	1,827.58	1,912.36	-1,224.90	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)	
5,000.00	45.10	46.30	3,996.40	1,876.52	1,963.57	-1,257.70	0.00	0.00	0.00	
5,100.00	45.10	46.30	4,067.00	1,925.45	2,014.77	-1,290.50	0.00	0.00	0.00	
5,200.00	45.10	46.30	4,137.59	1,974.39	2,065.98	-1,323.30	0.00	0.00	0.00	
5,300.00	45.10	46.30	4,208.18	2,023.33	2,117.18	-1,356.10	0.00	0.00	0.00	
5,400.00	45.10	46.30	4,278.77	2,072.26	2,168.39	-1,388.90	0.00	0.00	0.00	
5,500.00	45.10	46.30	4,349.36	2,121.20	2,219.60	-1,421.69	0.00	0.00	0.00	
5,600.00	45.10	46.30	4,419.96	2,170.13	2,270.80	-1,454.49	0.00	0.00	0.00	
5,700.00	45.10	46.30	4,490.55	2,219.07	2,322.01	-1,487.29	0.00	0.00	0.00	
5,800.00	45.10	46.30	4,561.14	2,268.00	2,373.21	-1,520.09	0.00	0.00	0.00	
5,900.00	45.10	46.30	4,631.73	2,316.94	2,424.42	-1,552.89	0.00	0.00	0.00	
6,000.00	45.10	46.30	4,702.32	2,365.88	2,475.63	-1,585.69	0.00	0.00	0.00	
6,100.00	45.10	46.30	4,772.92	2,414.81	2,526.83	-1,618.48	0.00	0.00	0.00	
6,200.00	45.10	46.30	4,843.51	2,463.75	2,578.04	-1,651.28	0.00	0.00	0.00	
6,300.00	45.10	46.30	4,914.10	2,512.68	2,629.24	-1,684.08	0.00	0.00	0.00	
6,301.28	45.10	46.30	4,915.00	2,513.31	2,629.90	-1,684.50	0.00	0.00	0.00	
<b>PARKMAN</b>										
6,400.00	45.10	46.30	4,984.69	2,561.62	2,680.45	-1,716.88	0.00	0.00	0.00	
6,464.18	45.10	46.30	5,030.00	2,593.03	2,713.32	-1,737.93	0.00	0.00	0.00	
<b>SUSSEX</b>										
6,500.00	45.10	46.30	5,055.28	2,610.56	2,731.66	-1,749.68	0.00	0.00	0.00	
6,600.00	45.10	46.30	5,125.88	2,659.49	2,782.86	-1,782.48	0.00	0.00	0.00	
6,700.00	45.10	46.30	5,196.47	2,708.43	2,834.07	-1,815.27	0.00	0.00	0.00	
6,800.00	45.10	46.30	5,267.06	2,757.36	2,885.27	-1,848.07	0.00	0.00	0.00	
6,851.48	45.10	46.30	5,303.40	2,782.55	2,911.63	-1,864.96	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
6,900.00	44.13	46.30	5,337.94	2,806.10	2,936.27	-1,880.74	2.00	-2.00	0.00	
7,000.00	42.13	46.30	5,410.92	2,853.32	2,985.69	-1,912.39	2.00	-2.00	0.00	
7,100.00	40.13	46.30	5,486.25	2,898.76	3,033.23	-1,942.84	2.00	-2.00	0.00	
7,200.00	38.13	46.30	5,563.82	2,942.36	3,078.85	-1,972.06	2.00	-2.00	0.00	
7,300.00	36.13	46.30	5,643.55	2,984.06	3,122.48	-2,000.01	2.00	-2.00	0.00	
7,400.00	34.13	46.30	5,725.33	3,023.81	3,164.08	-2,026.65	2.00	-2.00	0.00	
7,500.00	32.13	46.30	5,809.07	3,061.56	3,203.58	-2,051.96	2.00	-2.00	0.00	
7,600.00	30.13	46.30	5,894.67	3,097.27	3,240.95	-2,075.89	2.00	-2.00	0.00	
7,700.00	28.13	46.30	5,982.03	3,130.90	3,276.14	-2,098.43	2.00	-2.00	0.00	
7,800.00	26.13	46.30	6,071.02	3,162.40	3,309.10	-2,119.54	2.00	-2.00	0.00	
7,900.00	24.13	46.30	6,161.55	3,191.73	3,339.79	-2,139.20	2.00	-2.00	0.00	
8,000.00	22.13	46.30	6,253.51	3,218.87	3,368.19	-2,157.39	2.00	-2.00	0.00	
8,100.00	20.13	46.30	6,346.79	3,243.77	3,394.24	-2,174.08	2.00	-2.00	0.00	
8,200.00	18.13	46.30	6,441.26	3,266.40	3,417.93	-2,189.25	2.00	-2.00	0.00	
8,300.00	16.13	46.30	6,536.83	3,286.75	3,439.21	-2,202.88	2.00	-2.00	0.00	
8,400.00	14.13	46.30	6,633.36	3,304.77	3,458.08	-2,214.96	2.00	-2.00	0.00	
8,500.00	12.13	46.30	6,730.74	3,320.46	3,474.49	-2,225.48	2.00	-2.00	0.00	
8,600.00	10.13	46.30	6,828.86	3,333.79	3,488.44	-2,234.41	2.00	-2.00	0.00	
8,700.00	8.13	46.30	6,927.58	3,344.75	3,499.91	-2,241.76	2.00	-2.00	0.00	
8,800.00	6.13	46.30	7,026.81	3,353.32	3,508.88	-2,247.50	2.00	-2.00	0.00	
8,900.00	4.13	46.30	7,126.40	3,359.49	3,515.33	-2,251.64	2.00	-2.00	0.00	
9,000.00	2.13	46.30	7,226.25	3,363.26	3,519.28	-2,254.16	2.00	-2.00	0.00	
9,106.28	0.00	0.00	7,332.50	3,364.62	3,520.70	-2,255.08	2.00	-2.00	0.00	
<b>Start 30.00 hold at 9106.28 MD</b>										
9,136.28	0.00	0.00	7,362.50	3,364.62	3,520.70	-2,255.08	0.00	0.00	0.00	
<b>Start DLS 12.00 TFO 179.81</b>										
9,150.00	1.65	179.81	7,376.22	3,364.42	3,520.70	-2,254.89	12.00	12.00	0.00	
9,175.00	4.65	179.81	7,401.18	3,363.05	3,520.71	-2,253.57	12.00	12.00	0.00	
9,200.00	7.65	179.81	7,426.03	3,360.37	3,520.71	-2,250.99	12.00	12.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
9,225.00	10.65	179.81	7,450.71	3,356.40	3,520.73	-2,247.17	12.00	12.00	0.00
9,250.00	13.65	179.81	7,475.15	3,351.14	3,520.74	-2,242.12	12.00	12.00	0.00
9,275.00	16.65	179.81	7,499.28	3,344.61	3,520.76	-2,235.83	12.00	12.00	0.00
9,300.00	19.65	179.81	7,523.03	3,336.83	3,520.79	-2,228.35	12.00	12.00	0.00
9,325.00	22.65	179.81	7,546.35	3,327.81	3,520.82	-2,219.68	12.00	12.00	0.00
9,350.00	25.64	179.81	7,569.16	3,317.58	3,520.85	-2,209.85	12.00	12.00	0.00
9,375.00	28.64	179.81	7,591.40	3,306.18	3,520.89	-2,198.88	12.00	12.00	0.00
9,400.00	31.64	179.81	7,613.02	3,293.63	3,520.93	-2,186.81	12.00	12.00	0.00
9,413.01	33.21	179.81	7,624.00	3,286.65	3,520.95	-2,180.10	12.00	12.00	0.00
<b>SHANNON</b>									
9,425.00	34.64	179.81	7,633.95	3,279.96	3,520.97	-2,173.67	12.00	12.00	0.00
9,450.00	37.64	179.81	7,654.14	3,265.21	3,521.02	-2,159.49	12.00	12.00	0.00
9,462.59	39.15	179.81	7,664.00	3,257.40	3,521.05	-2,151.97	12.00	12.00	0.00
<b>NIOBRARA</b>									
9,475.00	40.64	179.81	7,673.52	3,249.43	3,521.07	-2,144.31	12.00	12.00	0.00
9,500.00	43.64	179.81	7,692.06	3,232.66	3,521.13	-2,128.19	12.00	12.00	0.00
9,525.00	46.64	179.81	7,709.69	3,214.94	3,521.18	-2,111.15	12.00	12.00	0.00
9,550.00	49.64	179.81	7,726.37	3,196.32	3,521.24	-2,093.24	12.00	12.00	0.00
9,575.00	52.64	179.81	7,742.05	3,176.86	3,521.31	-2,074.52	12.00	12.00	0.00
9,600.00	55.64	179.81	7,756.69	3,156.60	3,521.37	-2,055.04	12.00	12.00	0.00
9,625.00	58.64	179.81	7,770.26	3,135.60	3,521.44	-2,034.85	12.00	12.00	0.00
9,650.00	61.64	179.81	7,782.70	3,113.92	3,521.51	-2,014.01	12.00	12.00	0.00
9,675.00	64.64	179.81	7,793.99	3,091.62	3,521.58	-1,992.56	12.00	12.00	0.00
9,700.00	67.64	179.81	7,804.10	3,068.76	3,521.66	-1,970.58	12.00	12.00	0.00
9,725.00	70.64	179.81	7,813.00	3,045.40	3,521.73	-1,948.12	12.00	12.00	0.00
9,750.00	73.64	179.81	7,820.67	3,021.61	3,521.81	-1,925.24	12.00	12.00	0.00
9,775.00	76.64	179.81	7,827.08	2,997.45	3,521.89	-1,902.00	12.00	12.00	0.00
9,788.44	78.25	179.81	7,830.00	2,984.33	3,521.93	-1,889.39	12.00	12.00	0.00
<b>NIO B TARGET</b>									
9,800.00	79.64	179.81	7,832.22	2,972.98	3,521.97	-1,878.48	12.00	12.00	0.00
9,825.00	82.64	179.81	7,836.07	2,948.29	3,522.05	-1,854.73	12.00	12.00	0.00
9,850.00	85.64	179.81	7,838.62	2,923.42	3,522.13	-1,830.82	12.00	12.00	0.00
9,875.00	88.64	179.81	7,839.87	2,898.45	3,522.21	-1,806.81	12.00	12.00	0.00
9,886.33	90.00	179.81	7,840.00	2,887.12	3,522.25	-1,795.92	12.00	12.00	0.00
<b>Start 15246.71 hold at 9886.33 MD</b>									
9,900.00	90.00	179.81	7,840.00	2,873.45	3,522.29	-1,782.77	0.00	0.00	0.00
10,000.00	90.00	179.81	7,840.00	2,773.45	3,522.61	-1,686.61	0.00	0.00	0.00
10,100.00	90.00	179.81	7,840.00	2,673.46	3,522.94	-1,590.45	0.00	0.00	0.00
10,200.00	90.00	179.81	7,840.00	2,573.46	3,523.26	-1,494.29	0.00	0.00	0.00
10,300.00	90.00	179.81	7,840.00	2,473.46	3,523.59	-1,398.13	0.00	0.00	0.00
10,400.00	90.00	179.81	7,840.00	2,373.46	3,523.91	-1,301.98	0.00	0.00	0.00
10,500.00	90.00	179.81	7,840.00	2,273.46	3,524.23	-1,205.82	0.00	0.00	0.00
10,600.00	90.00	179.81	7,840.00	2,173.46	3,524.56	-1,109.66	0.00	0.00	0.00
10,700.00	90.00	179.81	7,840.00	2,073.46	3,524.88	-1,013.50	0.00	0.00	0.00
10,800.00	90.00	179.81	7,840.00	1,973.46	3,525.20	-917.34	0.00	0.00	0.00
10,900.00	90.00	179.81	7,840.00	1,873.46	3,525.53	-821.18	0.00	0.00	0.00
11,000.00	90.00	179.81	7,840.00	1,773.46	3,525.85	-725.02	0.00	0.00	0.00
11,100.00	90.00	179.81	7,840.00	1,673.46	3,526.18	-628.86	0.00	0.00	0.00
11,200.00	90.00	179.81	7,840.00	1,573.46	3,526.50	-532.70	0.00	0.00	0.00
11,300.00	90.00	179.81	7,840.00	1,473.46	3,526.82	-436.54	0.00	0.00	0.00
11,400.00	90.00	179.81	7,840.00	1,373.46	3,527.15	-340.38	0.00	0.00	0.00
11,500.00	90.00	179.81	7,840.00	1,273.46	3,527.47	-244.22	0.00	0.00	0.00
11,600.00	90.00	179.81	7,840.00	1,173.46	3,527.79	-148.06	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
11,700.00	90.00	179.81	7,840.00	1,073.46	3,528.12	-51.90	0.00	0.00	0.00
11,800.00	90.00	179.81	7,840.00	973.46	3,528.44	44.26	0.00	0.00	0.00
11,900.00	90.00	179.81	7,840.01	873.46	3,528.77	140.41	0.00	0.00	0.00
12,000.00	90.00	179.81	7,840.01	773.47	3,529.09	236.57	0.00	0.00	0.00
12,100.00	90.00	179.81	7,840.01	673.47	3,529.41	332.73	0.00	0.00	0.00
12,200.00	90.00	179.81	7,840.01	573.47	3,529.74	428.89	0.00	0.00	0.00
12,300.00	90.00	179.81	7,840.01	473.47	3,530.06	525.05	0.00	0.00	0.00
12,400.00	90.00	179.81	7,840.01	373.47	3,530.38	621.21	0.00	0.00	0.00
12,500.00	90.00	179.81	7,840.01	273.47	3,530.71	717.37	0.00	0.00	0.00
12,600.00	90.00	179.81	7,840.01	173.47	3,531.03	813.53	0.00	0.00	0.00
12,700.00	90.00	179.81	7,840.01	73.47	3,531.36	909.69	0.00	0.00	0.00
12,800.00	90.00	179.81	7,840.01	-26.53	3,531.68	1,005.85	0.00	0.00	0.00
12,900.00	90.00	179.81	7,840.01	-126.53	3,532.00	1,102.01	0.00	0.00	0.00
13,000.00	90.00	179.81	7,840.01	-226.53	3,532.33	1,198.17	0.00	0.00	0.00
13,100.00	90.00	179.81	7,840.01	-326.53	3,532.65	1,294.33	0.00	0.00	0.00
13,200.00	90.00	179.81	7,840.01	-426.53	3,532.97	1,390.49	0.00	0.00	0.00
13,300.00	90.00	179.81	7,840.01	-526.53	3,533.30	1,486.65	0.00	0.00	0.00
13,400.00	90.00	179.81	7,840.01	-626.53	3,533.62	1,582.80	0.00	0.00	0.00
13,500.00	90.00	179.81	7,840.01	-726.53	3,533.95	1,678.96	0.00	0.00	0.00
13,600.00	90.00	179.81	7,840.01	-826.53	3,534.27	1,775.12	0.00	0.00	0.00
13,700.00	90.00	179.81	7,840.01	-926.53	3,534.59	1,871.28	0.00	0.00	0.00
13,800.00	90.00	179.81	7,840.01	-1,026.53	3,534.92	1,967.44	0.00	0.00	0.00
13,900.00	90.00	179.81	7,840.01	-1,126.53	3,535.24	2,063.60	0.00	0.00	0.00
14,000.00	90.00	179.81	7,840.01	-1,226.52	3,535.56	2,159.76	0.00	0.00	0.00
14,100.00	90.00	179.81	7,840.01	-1,326.52	3,535.89	2,255.92	0.00	0.00	0.00
14,200.00	90.00	179.81	7,840.01	-1,426.52	3,536.21	2,352.08	0.00	0.00	0.00
14,300.00	90.00	179.81	7,840.01	-1,526.52	3,536.54	2,448.24	0.00	0.00	0.00
14,400.00	90.00	179.81	7,840.01	-1,626.52	3,536.86	2,544.40	0.00	0.00	0.00
14,500.00	90.00	179.81	7,840.01	-1,726.52	3,537.18	2,640.56	0.00	0.00	0.00
14,600.00	90.00	179.81	7,840.01	-1,826.52	3,537.51	2,736.72	0.00	0.00	0.00
14,700.00	90.00	179.81	7,840.01	-1,926.52	3,537.83	2,832.88	0.00	0.00	0.00
14,800.00	90.00	179.81	7,840.01	-2,026.52	3,538.16	2,929.04	0.00	0.00	0.00
14,900.00	90.00	179.81	7,840.01	-2,126.52	3,538.48	3,025.19	0.00	0.00	0.00
15,000.00	90.00	179.81	7,840.01	-2,226.52	3,538.80	3,121.35	0.00	0.00	0.00
15,100.00	90.00	179.81	7,840.01	-2,326.52	3,539.13	3,217.51	0.00	0.00	0.00
15,200.00	90.00	179.81	7,840.01	-2,426.52	3,539.45	3,313.67	0.00	0.00	0.00
15,300.00	90.00	179.81	7,840.01	-2,526.52	3,539.77	3,409.83	0.00	0.00	0.00
15,400.00	90.00	179.81	7,840.01	-2,626.52	3,540.10	3,505.99	0.00	0.00	0.00
15,500.00	90.00	179.81	7,840.01	-2,726.52	3,540.42	3,602.15	0.00	0.00	0.00
15,600.00	90.00	179.81	7,840.01	-2,826.52	3,540.75	3,698.31	0.00	0.00	0.00
15,700.00	90.00	179.81	7,840.01	-2,926.52	3,541.07	3,794.47	0.00	0.00	0.00
15,800.00	90.00	179.81	7,840.01	-3,026.52	3,541.39	3,890.63	0.00	0.00	0.00
15,900.00	90.00	179.81	7,840.02	-3,126.51	3,541.72	3,986.79	0.00	0.00	0.00
16,000.00	90.00	179.81	7,840.02	-3,226.51	3,542.04	4,082.95	0.00	0.00	0.00
16,100.00	90.00	179.81	7,840.02	-3,326.51	3,542.36	4,179.11	0.00	0.00	0.00
16,200.00	90.00	179.81	7,840.02	-3,426.51	3,542.69	4,275.27	0.00	0.00	0.00
16,300.00	90.00	179.81	7,840.02	-3,526.51	3,543.01	4,371.42	0.00	0.00	0.00
16,400.00	90.00	179.81	7,840.02	-3,626.51	3,543.34	4,467.58	0.00	0.00	0.00
16,500.00	90.00	179.81	7,840.02	-3,726.51	3,543.66	4,563.74	0.00	0.00	0.00
16,600.00	90.00	179.81	7,840.02	-3,826.51	3,543.98	4,659.90	0.00	0.00	0.00
16,700.00	90.00	179.81	7,840.02	-3,926.51	3,544.31	4,756.06	0.00	0.00	0.00
16,800.00	90.00	179.81	7,840.02	-4,026.51	3,544.63	4,852.22	0.00	0.00	0.00
16,900.00	90.00	179.81	7,840.02	-4,126.51	3,544.95	4,948.38	0.00	0.00	0.00
17,000.00	90.00	179.81	7,840.02	-4,226.51	3,545.28	5,044.54	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
17,100.00	90.00	179.81	7,840.02	-4,326.51	3,545.60	5,140.70	0.00	0.00	0.00
17,200.00	90.00	179.81	7,840.02	-4,426.51	3,545.93	5,236.86	0.00	0.00	0.00
17,300.00	90.00	179.81	7,840.02	-4,526.51	3,546.25	5,333.02	0.00	0.00	0.00
17,400.00	90.00	179.81	7,840.02	-4,626.51	3,546.57	5,429.18	0.00	0.00	0.00
17,500.00	90.00	179.81	7,840.02	-4,726.51	3,546.90	5,525.34	0.00	0.00	0.00
17,600.00	90.00	179.81	7,840.02	-4,826.51	3,547.22	5,621.50	0.00	0.00	0.00
17,700.00	90.00	179.81	7,840.02	-4,926.51	3,547.54	5,717.66	0.00	0.00	0.00
17,800.00	90.00	179.81	7,840.02	-5,026.50	3,547.87	5,813.81	0.00	0.00	0.00
17,900.00	90.00	179.81	7,840.02	-5,126.50	3,548.19	5,909.97	0.00	0.00	0.00
18,000.00	90.00	179.81	7,840.02	-5,226.50	3,548.52	6,006.13	0.00	0.00	0.00
18,100.00	90.00	179.81	7,840.02	-5,326.50	3,548.84	6,102.29	0.00	0.00	0.00
18,200.00	90.00	179.81	7,840.02	-5,426.50	3,549.16	6,198.45	0.00	0.00	0.00
18,300.00	90.00	179.81	7,840.02	-5,526.50	3,549.49	6,294.61	0.00	0.00	0.00
18,400.00	90.00	179.81	7,840.02	-5,626.50	3,549.81	6,390.77	0.00	0.00	0.00
18,500.00	90.00	179.81	7,840.02	-5,726.50	3,550.13	6,486.93	0.00	0.00	0.00
18,600.00	90.00	179.81	7,840.02	-5,826.50	3,550.46	6,583.09	0.00	0.00	0.00
18,700.00	90.00	179.81	7,840.02	-5,926.50	3,550.78	6,679.25	0.00	0.00	0.00
18,800.00	90.00	179.81	7,840.02	-6,026.50	3,551.11	6,775.41	0.00	0.00	0.00
18,900.00	90.00	179.81	7,840.02	-6,126.50	3,551.43	6,871.57	0.00	0.00	0.00
19,000.00	90.00	179.81	7,840.02	-6,226.50	3,551.75	6,967.73	0.00	0.00	0.00
19,100.00	90.00	179.81	7,840.02	-6,326.50	3,552.08	7,063.89	0.00	0.00	0.00
19,200.00	90.00	179.81	7,840.02	-6,426.50	3,552.40	7,160.05	0.00	0.00	0.00
19,300.00	90.00	179.81	7,840.02	-6,526.50	3,552.72	7,256.20	0.00	0.00	0.00
19,400.00	90.00	179.81	7,840.02	-6,626.50	3,553.05	7,352.36	0.00	0.00	0.00
19,500.00	90.00	179.81	7,840.02	-6,726.50	3,553.37	7,448.52	0.00	0.00	0.00
19,600.00	90.00	179.81	7,840.02	-6,826.50	3,553.70	7,544.68	0.00	0.00	0.00
19,700.00	90.00	179.81	7,840.02	-6,926.49	3,554.02	7,640.84	0.00	0.00	0.00
19,800.00	90.00	179.81	7,840.02	-7,026.49	3,554.34	7,737.00	0.00	0.00	0.00
19,900.00	90.00	179.81	7,840.03	-7,126.49	3,554.67	7,833.16	0.00	0.00	0.00
20,000.00	90.00	179.81	7,840.03	-7,226.49	3,554.99	7,929.32	0.00	0.00	0.00
20,100.00	90.00	179.81	7,840.03	-7,326.49	3,555.31	8,025.48	0.00	0.00	0.00
20,200.00	90.00	179.81	7,840.03	-7,426.49	3,555.64	8,121.64	0.00	0.00	0.00
20,300.00	90.00	179.81	7,840.03	-7,526.49	3,555.96	8,217.80	0.00	0.00	0.00
20,400.00	90.00	179.81	7,840.03	-7,626.49	3,556.29	8,313.96	0.00	0.00	0.00
20,500.00	90.00	179.81	7,840.03	-7,726.49	3,556.61	8,410.12	0.00	0.00	0.00
20,600.00	90.00	179.81	7,840.03	-7,826.49	3,556.93	8,506.28	0.00	0.00	0.00
20,700.00	90.00	179.81	7,840.03	-7,926.49	3,557.26	8,602.44	0.00	0.00	0.00
20,800.00	90.00	179.81	7,840.03	-8,026.49	3,557.58	8,698.59	0.00	0.00	0.00
20,900.00	90.00	179.81	7,840.03	-8,126.49	3,557.91	8,794.75	0.00	0.00	0.00
21,000.00	90.00	179.81	7,840.03	-8,226.49	3,558.23	8,890.91	0.00	0.00	0.00
25,133.04	90.00	179.81	7,840.00	-12,359.50	3,571.23	12,865.11	0.00	0.00	0.00
TD at 25133.04									



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE B S22-30-20N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5231.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5231.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE B S22-30-20N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
INTERCHANGE B S22- - plan hits target center - Point	0.00	0.00	7,840.00	-12,359.50	3,571.23	1,222,984.15	3,146,328.51	39° 56' 39.448 N	104° 58' 41.189 W
INTERCHANGE B S22- - plan hits target center - Point	0.00	0.00	7,840.00	2,887.12	3,522.25	1,238,230.25	3,146,191.98	39° 59' 10.126 N	104° 58' 41.790 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
6,301.28	4,915.00	PARKMAN				
6,464.18	5,030.00	SUSSEX				
9,413.01	7,624.00	SHANNON				
9,462.59	7,664.00	NIOBRARA				
9,788.44	7,830.00	NIO B TARGET				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
100.00	100.00	0.00	0.00	Start Build 2.00	
2,354.80	2,129.10	582.07	609.07	Start 4496.68 hold at 2354.80 MD	
6,851.48	5,303.40	2,782.55	2,911.63	Start Drop -2.00	
9,106.28	7,332.50	3,364.62	3,520.70	Start 30.00 hold at 9106.28 MD	
9,136.28	7,362.50	3,364.62	3,520.70	Start DLS 12.00 TFO 179.81	
9,886.33	7,840.00	2,887.12	3,522.25	Start 15246.71 hold at 9886.33 MD	
25,133.04	7,840.00	-12,359.50	3,571.23	TD at 25133.04	