

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 10-T1S-R68W**

**INTERCHANGE A S22-30-8N**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**23 January, 2018**



Project: Broomfield County  
Site: Sec 10-T1S-R68W  
Well: INTERCHANGE A S22-30-8N  
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: 8.24°  
Magnetic Field  
Strength: 52081.5nT  
Dip Angle: 66.47°  
Date: 1/9/2018  
Model: IGRF2015

#### WELL DETAILS: INTERCHANGE A S22-30-8N

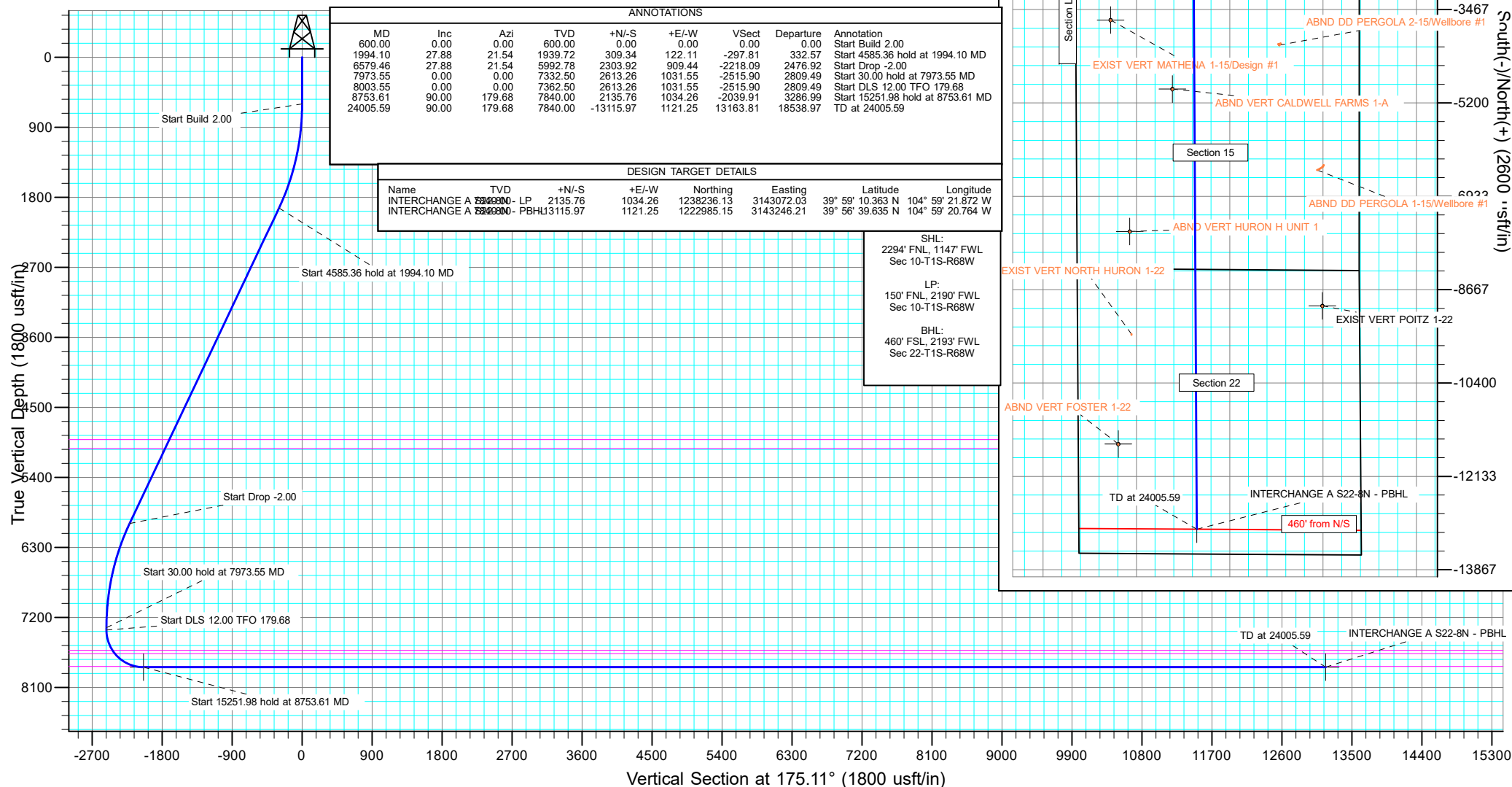
+N/-S	+E/-W	Northing	Easting	5232.00	Latitude	Longitude	Slot
0.00	0.00	1236094.49	3142050.00		39° 58' 49.256 N	104° 59' 35.160 W	

#### 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	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	1994.10	27.88	21.54	1939.72	309.34	122.11	2.00	21.54	-297.81	
4	6579.46	27.88	21.54	5992.78	2303.92	909.44	0.00	0.00	-2218.09	
5	7973.55	0.00	0.00	7332.50	2613.26	1031.55	2.00	180.00	-2515.90	
6	8003.55	0.00	0.00	7362.50	2613.26	1031.55	0.00	0.00	-2515.90	
7	8753.61	90.00	179.68	7840.00	2135.76	1034.26	12.00	179.68	-2039.91	INTERCHANGE A S22-8N - LP
8	24005.59	90.00	179.68	7840.00	-13115.97	1121.25	0.00	0.00	13163.81	INTERCHANGE A S22-8N - PBHL

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4915.00	5360.13	PARKMAN
5030.00	5490.23	SUSSEX
7624.00	8280.29	SHANNON
7664.00	8329.87	NIORARA
7830.00	8655.71	NIO B TARGET



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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 A S22-30-8N					
Well Position	+N/-S	-2,302.67 usft	Northing:	1,236,094.49 usft	Latitude:	39° 58' 49.256 N
	+E/-W	1,155.82 usft	Easting:	3,142,050.00 usft	Longitude:	104° 59' 35.160 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,232.00 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	8.24	66.47	52,081.51815665

<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	175.11

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/23/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	24,005.58	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	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,994.10	27.88	21.54	1,939.72	309.34	122.11	2.00	2.00	0.00	21.54	
6,579.46	27.88	21.54	5,992.78	2,303.92	909.44	0.00	0.00	0.00	0.00	
7,973.56	0.00	0.00	7,332.50	2,613.26	1,031.55	2.00	-2.00	0.00	180.00	
8,003.56	0.00	0.00	7,362.50	2,613.26	1,031.55	0.00	0.00	0.00	0.00	
8,753.61	90.00	179.68	7,840.00	2,135.76	1,034.26	12.00	12.00	23.95	179.68	INTERCHANGE A S2
24,005.59	90.00	179.68	7,840.00	-13,115.97	1,121.25	0.00	0.00	0.00	0.00	INTERCHANGE A S2

# Planning Report

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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
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
Start Build 2.00									
700.00	2.00	21.54	699.98	1.62	0.64	-1.56	2.00	2.00	0.00
800.00	4.00	21.54	799.84	6.49	2.56	-6.25	2.00	2.00	0.00
900.00	6.00	21.54	899.45	14.60	5.76	-14.05	2.00	2.00	0.00
1,000.00	8.00	21.54	998.70	25.93	10.24	-24.97	2.00	2.00	0.00
1,100.00	10.00	21.54	1,097.47	40.48	15.98	-38.97	2.00	2.00	0.00
1,200.00	12.00	21.54	1,195.62	58.23	22.99	-56.06	2.00	2.00	0.00
1,300.00	14.00	21.54	1,293.06	79.15	31.24	-76.20	2.00	2.00	0.00
1,400.00	16.00	21.54	1,389.64	103.23	40.75	-99.38	2.00	2.00	0.00
1,500.00	18.00	21.54	1,485.27	130.42	51.48	-125.56	2.00	2.00	0.00
1,600.00	20.00	21.54	1,579.82	160.70	63.43	-154.71	2.00	2.00	0.00
1,700.00	22.00	21.54	1,673.17	194.03	76.59	-186.80	2.00	2.00	0.00
1,800.00	24.00	21.54	1,765.21	230.38	90.94	-221.79	2.00	2.00	0.00
1,900.00	26.00	21.54	1,855.84	269.68	106.45	-259.64	2.00	2.00	0.00
1,994.10	27.88	21.54	1,939.72	309.34	122.11	-297.81	2.00	2.00	0.00
Start 4585.36 hold at 1994.10 MD									
2,000.00	27.88	21.54	1,944.94	311.90	123.12	-300.28	0.00	0.00	0.00
2,100.00	27.88	21.54	2,033.33	355.40	140.29	-342.16	0.00	0.00	0.00
2,200.00	27.88	21.54	2,121.72	398.90	157.46	-384.04	0.00	0.00	0.00
2,300.00	27.88	21.54	2,210.11	442.40	174.63	-425.92	0.00	0.00	0.00
2,400.00	27.88	21.54	2,298.50	485.90	191.80	-467.80	0.00	0.00	0.00
2,500.00	27.88	21.54	2,386.90	529.40	208.97	-509.68	0.00	0.00	0.00
2,600.00	27.88	21.54	2,475.29	572.90	226.14	-551.56	0.00	0.00	0.00
2,700.00	27.88	21.54	2,563.68	616.40	243.31	-593.43	0.00	0.00	0.00
2,800.00	27.88	21.54	2,652.07	659.90	260.49	-635.31	0.00	0.00	0.00
2,900.00	27.88	21.54	2,740.46	703.40	277.66	-677.19	0.00	0.00	0.00
3,000.00	27.88	21.54	2,828.85	746.89	294.83	-719.07	0.00	0.00	0.00
3,100.00	27.88	21.54	2,917.24	790.39	312.00	-760.95	0.00	0.00	0.00
3,200.00	27.88	21.54	3,005.63	833.89	329.17	-802.83	0.00	0.00	0.00
3,300.00	27.88	21.54	3,094.03	877.39	346.34	-844.70	0.00	0.00	0.00
3,400.00	27.88	21.54	3,182.42	920.89	363.51	-886.58	0.00	0.00	0.00
3,500.00	27.88	21.54	3,270.81	964.39	380.68	-928.46	0.00	0.00	0.00
3,600.00	27.88	21.54	3,359.20	1,007.89	397.85	-970.34	0.00	0.00	0.00
3,700.00	27.88	21.54	3,447.59	1,051.39	415.02	-1,012.22	0.00	0.00	0.00
3,800.00	27.88	21.54	3,535.98	1,094.89	432.19	-1,054.10	0.00	0.00	0.00
3,900.00	27.88	21.54	3,624.37	1,138.39	449.36	-1,095.98	0.00	0.00	0.00
4,000.00	27.88	21.54	3,712.76	1,181.88	466.53	-1,137.85	0.00	0.00	0.00
4,100.00	27.88	21.54	3,801.16	1,225.38	483.70	-1,179.73	0.00	0.00	0.00
4,200.00	27.88	21.54	3,889.55	1,268.88	500.87	-1,221.61	0.00	0.00	0.00
4,300.00	27.88	21.54	3,977.94	1,312.38	518.05	-1,263.49	0.00	0.00	0.00
4,400.00	27.88	21.54	4,066.33	1,355.88	535.22	-1,305.37	0.00	0.00	0.00
4,500.00	27.88	21.54	4,154.72	1,399.38	552.39	-1,347.25	0.00	0.00	0.00
4,600.00	27.88	21.54	4,243.11	1,442.88	569.56	-1,389.12	0.00	0.00	0.00
4,700.00	27.88	21.54	4,331.50	1,486.38	586.73	-1,431.00	0.00	0.00	0.00
4,800.00	27.88	21.54	4,419.89	1,529.88	603.90	-1,472.88	0.00	0.00	0.00
4,900.00	27.88	21.54	4,508.28	1,573.38	621.07	-1,514.76	0.00	0.00	0.00

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<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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	27.88	21.54	4,596.68	1,616.87	638.24	-1,556.64	0.00	0.00	0.00	
5,100.00	27.88	21.54	4,685.07	1,660.37	655.41	-1,598.52	0.00	0.00	0.00	
5,200.00	27.88	21.54	4,773.46	1,703.87	672.58	-1,640.39	0.00	0.00	0.00	
5,300.00	27.88	21.54	4,861.85	1,747.37	689.75	-1,682.27	0.00	0.00	0.00	
5,360.13	27.88	21.54	4,915.00	1,773.53	700.08	-1,707.46	0.00	0.00	0.00	
PARKMAN										
5,400.00	27.88	21.54	4,950.24	1,790.87	706.92	-1,724.15	0.00	0.00	0.00	
5,490.23	27.88	21.54	5,030.00	1,830.12	722.42	-1,761.94	0.00	0.00	0.00	
SUSSEX										
5,500.00	27.88	21.54	5,038.63	1,834.37	724.09	-1,766.03	0.00	0.00	0.00	
5,600.00	27.88	21.54	5,127.02	1,877.87	741.26	-1,807.91	0.00	0.00	0.00	
5,700.00	27.88	21.54	5,215.41	1,921.37	758.43	-1,849.79	0.00	0.00	0.00	
5,800.00	27.88	21.54	5,303.81	1,964.87	775.61	-1,891.67	0.00	0.00	0.00	
5,900.00	27.88	21.54	5,392.20	2,008.37	792.78	-1,933.54	0.00	0.00	0.00	
6,000.00	27.88	21.54	5,480.59	2,051.86	809.95	-1,975.42	0.00	0.00	0.00	
6,100.00	27.88	21.54	5,568.98	2,095.36	827.12	-2,017.30	0.00	0.00	0.00	
6,200.00	27.88	21.54	5,657.37	2,138.86	844.29	-2,059.18	0.00	0.00	0.00	
6,300.00	27.88	21.54	5,745.76	2,182.36	861.46	-2,101.06	0.00	0.00	0.00	
6,400.00	27.88	21.54	5,834.15	2,225.86	878.63	-2,142.94	0.00	0.00	0.00	
6,500.00	27.88	21.54	5,922.54	2,269.36	895.80	-2,184.81	0.00	0.00	0.00	
6,579.46	27.88	21.54	5,992.78	2,303.92	909.44	-2,218.09	0.00	0.00	0.00	
Start Drop -2.00										
6,600.00	27.47	21.54	6,010.97	2,312.80	912.95	-2,226.63	2.00	-2.00	0.00	
6,700.00	25.47	21.54	6,100.48	2,354.26	929.31	-2,266.55	2.00	-2.00	0.00	
6,800.00	23.47	21.54	6,191.49	2,392.79	944.52	-2,303.64	2.00	-2.00	0.00	
6,900.00	21.47	21.54	6,283.90	2,428.34	958.55	-2,337.87	2.00	-2.00	0.00	
7,000.00	19.47	21.54	6,377.58	2,460.86	971.39	-2,369.19	2.00	-2.00	0.00	
7,100.00	17.47	21.54	6,472.42	2,490.33	983.03	-2,397.56	2.00	-2.00	0.00	
7,200.00	15.47	21.54	6,568.31	2,516.70	993.44	-2,422.95	2.00	-2.00	0.00	
7,300.00	13.47	21.54	6,665.13	2,539.95	1,002.61	-2,445.32	2.00	-2.00	0.00	
7,400.00	11.47	21.54	6,762.77	2,560.03	1,010.54	-2,464.66	2.00	-2.00	0.00	
7,500.00	9.47	21.54	6,861.10	2,576.94	1,017.21	-2,480.93	2.00	-2.00	0.00	
7,600.00	7.47	21.54	6,960.00	2,590.64	1,022.62	-2,494.12	2.00	-2.00	0.00	
7,700.00	5.47	21.54	7,059.36	2,601.12	1,026.76	-2,504.22	2.00	-2.00	0.00	
7,800.00	3.47	21.54	7,159.05	2,608.37	1,029.62	-2,511.20	2.00	-2.00	0.00	
7,900.00	1.47	21.54	7,258.95	2,612.38	1,031.20	-2,515.06	2.00	-2.00	0.00	
7,973.56	0.00	0.00	7,332.50	2,613.26	1,031.55	-2,515.90	2.00	-2.00	-29.29	
Start 30.00 hold at 7973.55 MD										
8,003.56	0.00	0.00	7,362.50	2,613.26	1,031.55	-2,515.90	0.00	0.00	0.00	
Start DLS 12.00 TFO 179.68										
8,025.00	2.57	179.68	7,383.94	2,612.78	1,031.55	-2,515.42	12.00	12.00	0.00	
8,050.00	5.57	179.68	7,408.87	2,611.00	1,031.56	-2,513.65	12.00	12.00	0.00	
8,075.00	8.57	179.68	7,433.68	2,607.93	1,031.58	-2,510.59	12.00	12.00	0.00	
8,100.00	11.57	179.68	7,458.29	2,603.55	1,031.61	-2,506.23	12.00	12.00	0.00	
8,125.00	14.57	179.68	7,482.64	2,597.90	1,031.64	-2,500.59	12.00	12.00	0.00	
8,150.00	17.57	179.68	7,506.66	2,590.98	1,031.68	-2,493.69	12.00	12.00	0.00	
8,175.00	20.57	179.68	7,530.29	2,582.81	1,031.72	-2,485.55	12.00	12.00	0.00	
8,200.00	23.57	179.68	7,553.45	2,573.42	1,031.78	-2,476.19	12.00	12.00	0.00	
8,225.00	26.57	179.68	7,576.09	2,562.83	1,031.84	-2,465.63	12.00	12.00	0.00	
8,250.00	29.57	179.68	7,598.15	2,551.06	1,031.90	-2,453.90	12.00	12.00	0.00	
8,275.00	32.57	179.68	7,619.56	2,538.16	1,031.98	-2,441.04	12.00	12.00	0.00	
8,280.29	33.21	179.68	7,624.00	2,535.29	1,031.99	-2,438.18	12.00	12.00	0.00	
SHANNON										

# Planning Report

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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)	
8,300.00	35.57	179.68	7,640.27	2,524.16	1,032.05	-2,427.08	12.00	12.00	0.00	
8,325.00	38.57	179.68	7,660.21	2,509.09	1,032.14	-2,412.06	12.00	12.00	0.00	
8,329.87	39.15	179.68	7,664.00	2,506.04	1,032.16	-2,409.02	12.00	12.00	0.00	
NIOBRARA										
8,350.00	41.57	179.68	7,679.34	2,493.00	1,032.23	-2,396.02	12.00	12.00	0.00	
8,375.00	44.57	179.68	7,697.60	2,475.93	1,032.33	-2,379.01	12.00	12.00	0.00	
8,400.00	47.57	179.68	7,714.94	2,457.93	1,032.43	-2,361.06	12.00	12.00	0.00	
8,425.00	50.57	179.68	7,731.32	2,439.04	1,032.54	-2,342.23	12.00	12.00	0.00	
8,450.00	53.57	179.68	7,746.69	2,419.33	1,032.65	-2,322.58	12.00	12.00	0.00	
8,475.00	56.57	179.68	7,761.00	2,398.83	1,032.77	-2,302.15	12.00	12.00	0.00	
8,500.00	59.57	179.68	7,774.22	2,377.62	1,032.89	-2,281.00	12.00	12.00	0.00	
8,525.00	62.57	179.68	7,786.31	2,355.74	1,033.01	-2,259.20	12.00	12.00	0.00	
8,550.00	65.57	179.68	7,797.24	2,333.26	1,033.14	-2,236.79	12.00	12.00	0.00	
8,575.00	68.57	179.68	7,806.98	2,310.24	1,033.27	-2,213.84	12.00	12.00	0.00	
8,600.00	71.57	179.68	7,815.50	2,286.74	1,033.40	-2,190.41	12.00	12.00	0.00	
8,625.00	74.57	179.68	7,822.78	2,262.83	1,033.54	-2,166.57	12.00	12.00	0.00	
8,650.00	77.57	179.68	7,828.80	2,238.57	1,033.67	-2,142.39	12.00	12.00	0.00	
8,655.71	78.25	179.68	7,830.00	2,232.98	1,033.71	-2,136.82	12.00	12.00	0.00	
NIO B TARGET										
8,675.00	80.57	179.68	7,833.54	2,214.02	1,033.81	-2,117.92	12.00	12.00	0.00	
8,700.00	83.57	179.68	7,836.99	2,189.26	1,033.95	-2,093.24	12.00	12.00	0.00	
8,725.00	86.57	179.68	7,839.14	2,164.36	1,034.09	-2,068.42	12.00	12.00	0.00	
8,750.00	89.57	179.68	7,839.99	2,139.38	1,034.24	-2,043.51	12.00	12.00	0.00	
8,753.61	90.00	179.68	7,840.00	2,135.76	1,034.26	-2,039.91	12.00	12.00	0.00	
Start 15251.98 hold at 8753.61 MD										
8,800.00	90.00	179.68	7,840.00	2,089.38	1,034.52	-1,993.67	0.00	0.00	0.00	
8,900.00	90.00	179.68	7,840.00	1,989.38	1,035.09	-1,893.99	0.00	0.00	0.00	
9,000.00	90.00	179.68	7,840.00	1,889.38	1,035.65	-1,794.31	0.00	0.00	0.00	
9,100.00	90.00	179.68	7,840.00	1,789.38	1,036.22	-1,694.62	0.00	0.00	0.00	
9,200.00	90.00	179.68	7,840.00	1,689.39	1,036.79	-1,594.94	0.00	0.00	0.00	
9,300.00	90.00	179.68	7,840.00	1,589.39	1,037.35	-1,495.26	0.00	0.00	0.00	
9,400.00	90.00	179.68	7,840.00	1,489.39	1,037.92	-1,395.57	0.00	0.00	0.00	
9,500.00	90.00	179.68	7,839.99	1,389.39	1,038.49	-1,295.89	0.00	0.00	0.00	
9,600.00	90.00	179.68	7,839.99	1,289.39	1,039.05	-1,196.21	0.00	0.00	0.00	
9,700.00	90.00	179.68	7,839.99	1,189.39	1,039.62	-1,096.52	0.00	0.00	0.00	
9,800.00	90.00	179.68	7,839.99	1,089.39	1,040.19	-996.84	0.00	0.00	0.00	
9,900.00	90.00	179.68	7,839.99	989.40	1,040.75	-897.16	0.00	0.00	0.00	
10,000.00	90.00	179.68	7,839.99	889.40	1,041.32	-797.47	0.00	0.00	0.00	
10,100.00	90.00	179.68	7,839.99	789.40	1,041.89	-697.79	0.00	0.00	0.00	
10,200.00	90.00	179.68	7,839.99	689.40	1,042.45	-598.11	0.00	0.00	0.00	
10,300.00	90.00	179.68	7,839.99	589.40	1,043.02	-498.42	0.00	0.00	0.00	
10,400.00	90.00	179.68	7,839.99	489.40	1,043.59	-398.74	0.00	0.00	0.00	
10,500.00	90.00	179.68	7,839.99	389.41	1,044.15	-299.06	0.00	0.00	0.00	
10,600.00	90.00	179.68	7,839.99	289.41	1,044.72	-199.37	0.00	0.00	0.00	
10,700.00	90.00	179.68	7,839.99	189.41	1,045.29	-99.69	0.00	0.00	0.00	
10,800.00	90.00	179.68	7,839.99	89.41	1,045.85	-0.01	0.00	0.00	0.00	
10,900.00	90.00	179.68	7,839.99	-10.59	1,046.42	99.68	0.00	0.00	0.00	
11,000.00	90.00	179.68	7,839.98	-110.59	1,046.99	199.36	0.00	0.00	0.00	
11,100.00	90.00	179.68	7,839.98	-210.58	1,047.55	299.04	0.00	0.00	0.00	
11,200.00	90.00	179.68	7,839.98	-310.58	1,048.12	398.73	0.00	0.00	0.00	
11,300.00	90.00	179.68	7,839.98	-410.58	1,048.69	498.41	0.00	0.00	0.00	
11,400.00	90.00	179.68	7,839.98	-510.58	1,049.25	598.09	0.00	0.00	0.00	
11,500.00	90.00	179.68	7,839.98	-610.58	1,049.82	697.78	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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)	
11,600.00	90.00	179.68	7,839.98	-710.58	1,050.39	797.46	0.00	0.00	0.00	
11,700.00	90.00	179.68	7,839.98	-810.57	1,050.95	897.14	0.00	0.00	0.00	
11,800.00	90.00	179.68	7,839.98	-910.57	1,051.52	996.83	0.00	0.00	0.00	
11,900.00	90.00	179.68	7,839.98	-1,010.57	1,052.09	1,096.51	0.00	0.00	0.00	
12,000.00	90.00	179.68	7,839.98	-1,110.57	1,052.65	1,196.19	0.00	0.00	0.00	
12,100.00	90.00	179.68	7,839.98	-1,210.57	1,053.22	1,295.88	0.00	0.00	0.00	
12,200.00	90.00	179.68	7,839.98	-1,310.57	1,053.79	1,395.56	0.00	0.00	0.00	
12,300.00	90.00	179.68	7,839.98	-1,410.57	1,054.35	1,495.24	0.00	0.00	0.00	
12,400.00	90.00	179.68	7,839.97	-1,510.56	1,054.92	1,594.93	0.00	0.00	0.00	
12,500.00	90.00	179.68	7,839.97	-1,610.56	1,055.49	1,694.61	0.00	0.00	0.00	
12,600.00	90.00	179.68	7,839.97	-1,710.56	1,056.05	1,794.29	0.00	0.00	0.00	
12,700.00	90.00	179.68	7,839.97	-1,810.56	1,056.62	1,893.98	0.00	0.00	0.00	
12,800.00	90.00	179.68	7,839.97	-1,910.56	1,057.19	1,993.66	0.00	0.00	0.00	
12,900.00	90.00	179.68	7,839.97	-2,010.56	1,057.75	2,093.34	0.00	0.00	0.00	
13,000.00	90.00	179.68	7,839.97	-2,110.55	1,058.32	2,193.03	0.00	0.00	0.00	
13,100.00	90.00	179.68	7,839.97	-2,210.55	1,058.89	2,292.71	0.00	0.00	0.00	
13,200.00	90.00	179.68	7,839.97	-2,310.55	1,059.45	2,392.39	0.00	0.00	0.00	
13,300.00	90.00	179.68	7,839.97	-2,410.55	1,060.02	2,492.08	0.00	0.00	0.00	
13,400.00	90.00	179.68	7,839.97	-2,510.55	1,060.59	2,591.76	0.00	0.00	0.00	
13,500.00	90.00	179.68	7,839.97	-2,610.55	1,061.15	2,691.44	0.00	0.00	0.00	
13,600.00	90.00	179.68	7,839.97	-2,710.54	1,061.72	2,791.12	0.00	0.00	0.00	
13,700.00	90.00	179.68	7,839.97	-2,810.54	1,062.29	2,890.81	0.00	0.00	0.00	
13,800.00	90.00	179.68	7,839.96	-2,910.54	1,062.85	2,990.49	0.00	0.00	0.00	
13,900.00	90.00	179.68	7,839.96	-3,010.54	1,063.42	3,090.17	0.00	0.00	0.00	
14,000.00	90.00	179.68	7,839.96	-3,110.54	1,063.99	3,189.86	0.00	0.00	0.00	
14,100.00	90.00	179.68	7,839.96	-3,210.54	1,064.55	3,289.54	0.00	0.00	0.00	
14,200.00	90.00	179.68	7,839.96	-3,310.53	1,065.12	3,389.22	0.00	0.00	0.00	
14,300.00	90.00	179.68	7,839.96	-3,410.53	1,065.69	3,488.91	0.00	0.00	0.00	
14,400.00	90.00	179.68	7,839.96	-3,510.53	1,066.25	3,588.59	0.00	0.00	0.00	
14,500.00	90.00	179.68	7,839.96	-3,610.53	1,066.82	3,688.27	0.00	0.00	0.00	
14,600.00	90.00	179.68	7,839.96	-3,710.53	1,067.39	3,787.96	0.00	0.00	0.00	
14,700.00	90.00	179.68	7,839.96	-3,810.53	1,067.95	3,887.64	0.00	0.00	0.00	
14,800.00	90.00	179.68	7,839.96	-3,910.53	1,068.52	3,987.32	0.00	0.00	0.00	
14,900.00	90.00	179.68	7,839.96	-4,010.52	1,069.09	4,087.01	0.00	0.00	0.00	
15,000.00	90.00	179.68	7,839.96	-4,110.52	1,069.65	4,186.69	0.00	0.00	0.00	
15,100.00	90.00	179.68	7,839.96	-4,210.52	1,070.22	4,286.37	0.00	0.00	0.00	
15,200.00	90.00	179.68	7,839.95	-4,310.52	1,070.79	4,386.06	0.00	0.00	0.00	
15,300.00	90.00	179.68	7,839.95	-4,410.52	1,071.35	4,485.74	0.00	0.00	0.00	
15,400.00	90.00	179.68	7,839.95	-4,510.52	1,071.92	4,585.42	0.00	0.00	0.00	
15,500.00	90.00	179.68	7,839.95	-4,610.51	1,072.49	4,685.11	0.00	0.00	0.00	
15,600.00	90.00	179.68	7,839.95	-4,710.51	1,073.05	4,784.79	0.00	0.00	0.00	
15,700.00	90.00	179.68	7,839.95	-4,810.51	1,073.62	4,884.47	0.00	0.00	0.00	
15,800.00	90.00	179.68	7,839.95	-4,910.51	1,074.19	4,984.16	0.00	0.00	0.00	
15,900.00	90.00	179.68	7,839.95	-5,010.51	1,074.75	5,083.84	0.00	0.00	0.00	
16,000.00	90.00	179.68	7,839.95	-5,110.51	1,075.32	5,183.52	0.00	0.00	0.00	
16,100.00	90.00	179.68	7,839.95	-5,210.50	1,075.89	5,283.21	0.00	0.00	0.00	
16,200.00	90.00	179.68	7,839.95	-5,310.50	1,076.45	5,382.89	0.00	0.00	0.00	
16,300.00	90.00	179.68	7,839.95	-5,410.50	1,077.02	5,482.57	0.00	0.00	0.00	
16,400.00	90.00	179.68	7,839.95	-5,510.50	1,077.59	5,582.26	0.00	0.00	0.00	
16,500.00	90.00	179.68	7,839.95	-5,610.50	1,078.15	5,681.94	0.00	0.00	0.00	
16,600.00	90.00	179.68	7,839.95	-5,710.50	1,078.72	5,781.62	0.00	0.00	0.00	
16,700.00	90.00	179.68	7,839.94	-5,810.49	1,079.29	5,881.31	0.00	0.00	0.00	
16,800.00	90.00	179.68	7,839.94	-5,910.49	1,079.85	5,980.99	0.00	0.00	0.00	
16,900.00	90.00	179.68	7,839.94	-6,010.49	1,080.42	6,080.67	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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)
17,000.00	90.00	179.68	7,839.94	-6,110.49	1,080.99	6,180.36	0.00	0.00	0.00
17,100.00	90.00	179.68	7,839.94	-6,210.49	1,081.55	6,280.04	0.00	0.00	0.00
17,200.00	90.00	179.68	7,839.94	-6,310.49	1,082.12	6,379.72	0.00	0.00	0.00
17,300.00	90.00	179.68	7,839.94	-6,410.49	1,082.69	6,479.41	0.00	0.00	0.00
17,400.00	90.00	179.68	7,839.94	-6,510.48	1,083.25	6,579.09	0.00	0.00	0.00
17,500.00	90.00	179.68	7,839.94	-6,610.48	1,083.82	6,678.77	0.00	0.00	0.00
17,600.00	90.00	179.68	7,839.94	-6,710.48	1,084.39	6,778.46	0.00	0.00	0.00
17,700.00	90.00	179.68	7,839.94	-6,810.48	1,084.95	6,878.14	0.00	0.00	0.00
17,800.00	90.00	179.68	7,839.94	-6,910.48	1,085.52	6,977.82	0.00	0.00	0.00
17,900.00	90.00	179.68	7,839.94	-7,010.48	1,086.09	7,077.51	0.00	0.00	0.00
18,000.00	90.00	179.68	7,839.94	-7,110.47	1,086.65	7,177.19	0.00	0.00	0.00
18,100.00	90.00	179.68	7,839.93	-7,210.47	1,087.22	7,276.87	0.00	0.00	0.00
18,200.00	90.00	179.68	7,839.93	-7,310.47	1,087.79	7,376.56	0.00	0.00	0.00
18,300.00	90.00	179.68	7,839.93	-7,410.47	1,088.35	7,476.24	0.00	0.00	0.00
18,400.00	90.00	179.68	7,839.93	-7,510.47	1,088.92	7,575.92	0.00	0.00	0.00
18,500.00	90.00	179.68	7,839.93	-7,610.47	1,089.49	7,675.61	0.00	0.00	0.00
18,600.00	90.00	179.68	7,839.93	-7,710.46	1,090.05	7,775.29	0.00	0.00	0.00
18,700.00	90.00	179.68	7,839.93	-7,810.46	1,090.62	7,874.97	0.00	0.00	0.00
18,800.00	90.00	179.68	7,839.93	-7,910.46	1,091.19	7,974.66	0.00	0.00	0.00
18,900.00	90.00	179.68	7,839.93	-8,010.46	1,091.75	8,074.34	0.00	0.00	0.00
19,000.00	90.00	179.68	7,839.93	-8,110.46	1,092.32	8,174.02	0.00	0.00	0.00
19,100.00	90.00	179.68	7,839.93	-8,210.46	1,092.89	8,273.71	0.00	0.00	0.00
19,200.00	90.00	179.68	7,839.93	-8,310.45	1,093.45	8,373.39	0.00	0.00	0.00
19,300.00	90.00	179.68	7,839.93	-8,410.45	1,094.02	8,473.07	0.00	0.00	0.00
19,400.00	90.00	179.68	7,839.93	-8,510.45	1,094.59	8,572.76	0.00	0.00	0.00
19,500.00	90.00	179.68	7,839.92	-8,610.45	1,095.15	8,672.44	0.00	0.00	0.00
19,600.00	90.00	179.68	7,839.92	-8,710.45	1,095.72	8,772.12	0.00	0.00	0.00
19,700.00	90.00	179.68	7,839.92	-8,810.45	1,096.29	8,871.81	0.00	0.00	0.00
19,800.00	90.00	179.68	7,839.92	-8,910.44	1,096.85	8,971.49	0.00	0.00	0.00
19,900.00	90.00	179.68	7,839.92	-9,010.44	1,097.42	9,071.17	0.00	0.00	0.00
20,000.00	90.00	179.68	7,839.92	-9,110.44	1,097.99	9,170.86	0.00	0.00	0.00
20,100.00	90.00	179.68	7,839.92	-9,210.44	1,098.55	9,270.54	0.00	0.00	0.00
20,200.00	90.00	179.68	7,839.92	-9,310.44	1,099.12	9,370.22	0.00	0.00	0.00
20,300.00	90.00	179.68	7,839.92	-9,410.44	1,099.69	9,469.90	0.00	0.00	0.00
20,400.00	90.00	179.68	7,839.92	-9,510.44	1,100.25	9,569.59	0.00	0.00	0.00
20,500.00	90.00	179.68	7,839.92	-9,610.43	1,100.82	9,669.27	0.00	0.00	0.00
20,600.00	90.00	179.68	7,839.92	-9,710.43	1,101.39	9,768.95	0.00	0.00	0.00
20,700.00	90.00	179.68	7,839.92	-9,810.43	1,101.95	9,868.64	0.00	0.00	0.00
20,800.00	90.00	179.68	7,839.92	-9,910.43	1,102.52	9,968.32	0.00	0.00	0.00
20,900.00	90.00	179.68	7,839.92	-10,010.43	1,103.09	10,068.00	0.00	0.00	0.00
21,000.00	90.00	179.68	7,839.91	-10,110.43	1,103.66	10,167.69	0.00	0.00	0.00
24,005.59	90.00	179.68	7,840.00	-13,115.97	1,121.25	13,163.81	0.00	0.00	0.00
TD at 24005.59									



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well INTERCHANGE A S22-30-8N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5257.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5257.00usft
<b>Site:</b>	Sec 10-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	INTERCHANGE A S22-30-8N	<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 A S22- - plan hits target center - Point	0.00	0.00	7,840.00	-13,115.97	1,121.25	1,222,985.15	3,143,246.21	39° 56' 39.635 N	104° 59' 20.764 W
INTERCHANGE A S22- - plan hits target center - Point	0.00	0.00	7,840.00	2,135.76	1,034.26	1,238,236.13	3,143,072.03	39° 59' 10.363 N	104° 59' 21.872 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
5,360.13	4,915.00	PARKMAN				
5,490.23	5,030.00	SUSSEX				
8,280.29	7,624.00	SHANNON				
8,329.87	7,664.00	NIOBRARA				
8,655.71	7,830.00	NIO B TARGET				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
600.00	600.00	0.00	0.00	Start Build 2.00
1,994.10	1,939.72	309.34	122.11	Start 4585.36 hold at 1994.10 MD
6,579.46	5,992.78	2,303.92	909.44	Start Drop -2.00
7,973.56	7,332.50	2,613.26	1,031.55	Start 30.00 hold at 7973.55 MD
8,003.56	7,362.50	2,613.26	1,031.55	Start DLS 12.00 TFO 179.68
8,753.61	7,840.00	2,135.76	1,034.26	Start 15251.98 hold at 8753.61 MD
24,005.59	7,840.00	-13,115.97	1,121.25	TD at 24005.59