

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE A S22-30-21N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

02 February, 2018



Project: Broomfield County
Site: Sec 10-T1S-R68W
Well: INTERCHANGE A S22-30-21N
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: 52077.4snT
Dip Angle: 66.47°
Date: 1/23/2018
Model: IGRF2015

WELL DETAILS: INTERCHANGE A S22-30-21N

	+N/-S	+E/-W	Northing	Easting	5236.00	Latitude	Longitude	Slot
	0.00	0.00	1236311.84	3141839.42		39° 58' 51.416 N	104° 59' 37.849 W	

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
4915.00	5265.50	PARKMAN
5030.00	5391.03	SUSSEX
7644.00	8163.43	SHANNON
7664.00	8188.69	NIOBRARA
7830.00	8514.54	NIO B TARGET

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1481.53	23.63	340.81	1448.31	226.87	-78.94	2.00	340.81	-222.07	
4	6650.85	23.63	340.81	6184.19	2183.86	-759.86	0.00	0.00	-2137.64	
5	7832.38	0.00	0.00	7332.50	2410.73	-838.80	2.00	180.00	-2359.71	
6	7862.38	0.00	0.00	7362.50	2410.73	-838.80	0.00	0.00	-2359.71	
7	8612.43	90.00	179.68	7840.00	1933.24	-836.15	12.00	179.68	-1883.12	INTERCHANGE A S22-30-21N - LP
8	23868.05	90.00	179.68	7840.00	-13322.14	-750.86	0.00	0.00	13343.29	INTERCHANGE A S22-30-21N - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	Start Build 2.00
1481.53	23.63	340.81	1448.31	226.87	-78.94	-222.07	240.21	Start 5169.33 hold at 1481.53 MD
6650.85	23.63	340.81	6184.19	2183.86	-759.86	-2137.64	2312.28	Start Drop -2.00
7832.38	0.00	0.00	7332.50	2410.73	-838.80	-2359.71	2552.49	Start 30.00 hold at 7832.38 MD
7862.38	0.00	0.00	7362.50	2410.73	-838.80	-2359.71	2552.49	Start DLS 12.00 TFO 179.68
8612.44	90.00	179.68	7840.00	1933.23	-836.15	-1883.11	3030.00	Start 15255.62 hold at 8612.44 MD
23868.05	90.00	179.68	7840.00	-13322.14	-750.86	13343.29	18285.61	TD at 23868.06

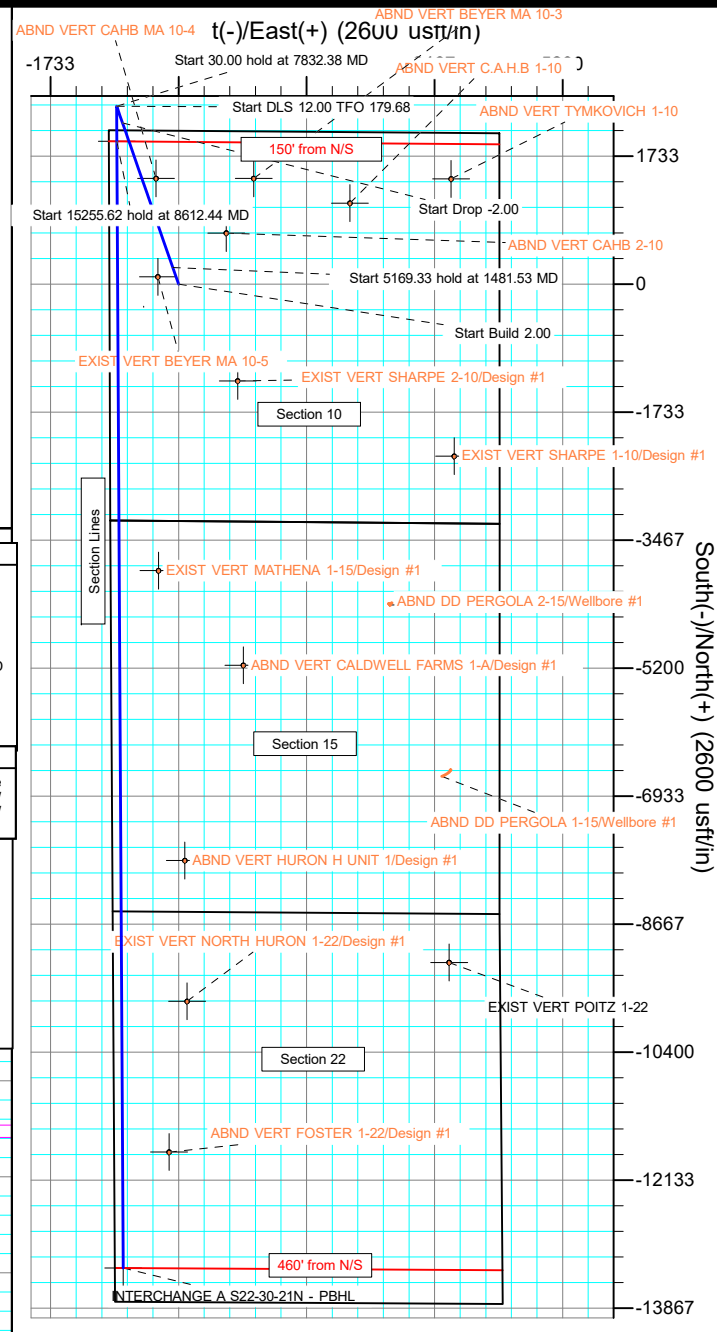
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
INTERCHANGE A S22-30-21N - LP	1933.24	-836.15	1238240.27	3140992.25	39° 59' 10.522 N	104° 59' 48.592 W	
INTERCHANGE A S22-30-21N - PBHL	13322.14	-750.86	1222985.63	3141164.61	39° 56' 39.757 N	104° 59' 47.490 W	

SHL:
2077' FNL, 938' FWL
Sec 10-T1S-R68W

LP:
150' FNL, 110' FWL
Sec 10-T1S-R68W

BHL:
460' FSL, 111' FWL
Sec 22-T1S-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	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 A S22-30-21N					
Well Position	+N/-S	-2,084.13 usft	Northing:	1,236,311.84 usft	Latitude:	39° 58' 51.416 N
	+E/-W	946.47 usft	Easting:	3,141,839.42 usft	Longitude:	104° 59' 37.849 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	1/23/2018	8.23	66.47	52,077.36748681

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	183.23

Plan Survey Tool Program	Date	2/2/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	23,867.78	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,481.53	23.63	340.81	1,448.31	226.87	-78.94	2.00	2.00	0.00	340.81	
6,650.85	23.63	340.81	6,184.19	2,183.86	-759.86	0.00	0.00	0.00	0.00	
7,832.38	0.00	0.00	7,332.50	2,410.73	-838.80	2.00	-2.00	0.00	180.00	
7,862.38	0.00	0.00	7,362.50	2,410.73	-838.80	0.00	0.00	0.00	0.00	
8,612.43	90.00	179.68	7,840.00	1,933.24	-836.15	12.00	12.00	23.96	179.68	INTERCHANGE A S2
23,868.05	90.00	179.68	7,840.00	-13,322.14	-750.86	0.00	0.00	0.00	0.00	INTERCHANGE A S2

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	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
Start Build 2.00									
400.00	2.00	340.81	399.98	1.65	-0.57	-1.61	2.00	2.00	0.00
500.00	4.00	340.81	499.84	6.59	-2.29	-6.45	2.00	2.00	0.00
600.00	6.00	340.81	599.45	14.82	-5.16	-14.51	2.00	2.00	0.00
700.00	8.00	340.81	698.70	26.33	-9.16	-25.77	2.00	2.00	0.00
800.00	10.00	340.81	797.47	41.11	-14.30	-40.24	2.00	2.00	0.00
900.00	12.00	340.81	895.62	59.13	-20.57	-57.87	2.00	2.00	0.00
1,000.00	14.00	340.81	993.06	80.37	-27.96	-78.67	2.00	2.00	0.00
1,100.00	16.00	340.81	1,089.64	104.81	-36.47	-102.60	2.00	2.00	0.00
1,200.00	18.00	340.81	1,185.27	132.43	-46.08	-129.62	2.00	2.00	0.00
1,300.00	20.00	340.81	1,279.82	163.17	-56.78	-159.72	2.00	2.00	0.00
1,400.00	22.00	340.81	1,373.17	197.02	-68.55	-192.85	2.00	2.00	0.00
1,481.53	23.63	340.81	1,448.31	226.87	-78.94	-222.07	2.00	2.00	0.00
Start 5169.33 hold at 1481.53 MD									
1,500.00	23.63	340.81	1,465.24	233.87	-81.37	-228.92	0.00	0.00	0.00
1,600.00	23.63	340.81	1,556.85	271.73	-94.55	-265.97	0.00	0.00	0.00
1,700.00	23.63	340.81	1,648.47	309.58	-107.72	-303.03	0.00	0.00	0.00
1,800.00	23.63	340.81	1,740.08	347.44	-120.89	-340.09	0.00	0.00	0.00
1,900.00	23.63	340.81	1,831.70	385.30	-134.06	-377.14	0.00	0.00	0.00
2,000.00	23.63	340.81	1,923.31	423.16	-147.23	-414.20	0.00	0.00	0.00
2,100.00	23.63	340.81	2,014.93	461.01	-160.41	-451.26	0.00	0.00	0.00
2,200.00	23.63	340.81	2,106.54	498.87	-173.58	-488.31	0.00	0.00	0.00
2,300.00	23.63	340.81	2,198.16	536.73	-186.75	-525.37	0.00	0.00	0.00
2,400.00	23.63	340.81	2,289.77	574.59	-199.92	-562.43	0.00	0.00	0.00
2,500.00	23.63	340.81	2,381.39	612.44	-213.10	-599.48	0.00	0.00	0.00
2,600.00	23.63	340.81	2,473.00	650.30	-226.27	-636.54	0.00	0.00	0.00
2,700.00	23.63	340.81	2,564.62	688.16	-239.44	-673.59	0.00	0.00	0.00
2,800.00	23.63	340.81	2,656.23	726.02	-252.61	-710.65	0.00	0.00	0.00
2,900.00	23.63	340.81	2,747.85	763.87	-265.79	-747.71	0.00	0.00	0.00
3,000.00	23.63	340.81	2,839.46	801.73	-278.96	-784.76	0.00	0.00	0.00
3,100.00	23.63	340.81	2,931.08	839.59	-292.13	-821.82	0.00	0.00	0.00
3,200.00	23.63	340.81	3,022.69	877.45	-305.30	-858.88	0.00	0.00	0.00
3,300.00	23.63	340.81	3,114.31	915.30	-318.48	-895.93	0.00	0.00	0.00
3,400.00	23.63	340.81	3,205.92	953.16	-331.65	-932.99	0.00	0.00	0.00
3,500.00	23.63	340.81	3,297.54	991.02	-344.82	-970.05	0.00	0.00	0.00
3,600.00	23.63	340.81	3,389.15	1,028.88	-357.99	-1,007.10	0.00	0.00	0.00
3,700.00	23.63	340.81	3,480.77	1,066.73	-371.16	-1,044.16	0.00	0.00	0.00
3,800.00	23.63	340.81	3,572.38	1,104.59	-384.34	-1,081.21	0.00	0.00	0.00
3,900.00	23.63	340.81	3,664.00	1,142.45	-397.51	-1,118.27	0.00	0.00	0.00
4,000.00	23.63	340.81	3,755.61	1,180.31	-410.68	-1,155.33	0.00	0.00	0.00
4,100.00	23.63	340.81	3,847.23	1,218.17	-423.85	-1,192.38	0.00	0.00	0.00
4,200.00	23.63	340.81	3,938.84	1,256.02	-437.03	-1,229.44	0.00	0.00	0.00
4,300.00	23.63	340.81	4,030.46	1,293.88	-450.20	-1,266.50	0.00	0.00	0.00
4,400.00	23.63	340.81	4,122.07	1,331.74	-463.37	-1,303.55	0.00	0.00	0.00
4,500.00	23.63	340.81	4,213.69	1,369.60	-476.54	-1,340.61	0.00	0.00	0.00
4,600.00	23.63	340.81	4,305.30	1,407.45	-489.72	-1,377.67	0.00	0.00	0.00
4,700.00	23.63	340.81	4,396.92	1,445.31	-502.89	-1,414.72	0.00	0.00	0.00
4,800.00	23.63	340.81	4,488.53	1,483.17	-516.06	-1,451.78	0.00	0.00	0.00
4,900.00	23.63	340.81	4,580.15	1,521.03	-529.23	-1,488.83	0.00	0.00	0.00

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Well:	INTERCHANGE A S22-30-21N	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)	
5,000.00	23.63	340.81	4,671.76	1,558.88	-542.40	-1,525.89	0.00	0.00	0.00	
5,100.00	23.63	340.81	4,763.38	1,596.74	-555.58	-1,562.95	0.00	0.00	0.00	
5,200.00	23.63	340.81	4,854.99	1,634.60	-568.75	-1,600.00	0.00	0.00	0.00	
5,265.50	23.63	340.81	4,915.00	1,659.40	-577.38	-1,624.28	0.00	0.00	0.00	
PARKMAN										
5,300.00	23.63	340.81	4,946.61	1,672.46	-581.92	-1,637.06	0.00	0.00	0.00	
5,391.03	23.63	340.81	5,030.00	1,706.92	-593.91	-1,670.79	0.00	0.00	0.00	
SUSSEX										
5,400.00	23.63	340.81	5,038.22	1,710.31	-595.09	-1,674.12	0.00	0.00	0.00	
5,500.00	23.63	340.81	5,129.84	1,748.17	-608.27	-1,711.17	0.00	0.00	0.00	
5,600.00	23.63	340.81	5,221.45	1,786.03	-621.44	-1,748.23	0.00	0.00	0.00	
5,700.00	23.63	340.81	5,313.06	1,823.89	-634.61	-1,785.29	0.00	0.00	0.00	
5,800.00	23.63	340.81	5,404.68	1,861.74	-647.78	-1,822.34	0.00	0.00	0.00	
5,900.00	23.63	340.81	5,496.29	1,899.60	-660.96	-1,859.40	0.00	0.00	0.00	
6,000.00	23.63	340.81	5,587.91	1,937.46	-674.13	-1,896.45	0.00	0.00	0.00	
6,100.00	23.63	340.81	5,679.52	1,975.32	-687.30	-1,933.51	0.00	0.00	0.00	
6,200.00	23.63	340.81	5,771.14	2,013.17	-700.47	-1,970.57	0.00	0.00	0.00	
6,300.00	23.63	340.81	5,862.75	2,051.03	-713.65	-2,007.62	0.00	0.00	0.00	
6,400.00	23.63	340.81	5,954.37	2,088.89	-726.82	-2,044.68	0.00	0.00	0.00	
6,500.00	23.63	340.81	6,045.98	2,126.75	-739.99	-2,081.74	0.00	0.00	0.00	
6,600.00	23.63	340.81	6,137.60	2,164.61	-753.16	-2,118.79	0.00	0.00	0.00	
6,650.85	23.63	340.81	6,184.19	2,183.86	-759.86	-2,137.64	0.00	0.00	0.00	
Start Drop -2.00										
6,700.00	22.65	340.81	6,229.38	2,202.10	-766.21	-2,155.49	2.00	-2.00	0.00	
6,800.00	20.65	340.81	6,322.32	2,236.94	-778.33	-2,189.59	2.00	-2.00	0.00	
6,900.00	18.65	340.81	6,416.50	2,268.69	-789.38	-2,220.68	2.00	-2.00	0.00	
7,000.00	16.65	340.81	6,511.79	2,297.32	-799.34	-2,248.70	2.00	-2.00	0.00	
7,100.00	14.65	340.81	6,608.07	2,322.79	-808.20	-2,273.63	2.00	-2.00	0.00	
7,200.00	12.65	340.81	6,705.25	2,345.08	-815.96	-2,295.45	2.00	-2.00	0.00	
7,300.00	10.65	340.81	6,803.18	2,364.14	-822.59	-2,314.11	2.00	-2.00	0.00	
7,400.00	8.65	340.81	6,901.76	2,379.97	-828.10	-2,329.60	2.00	-2.00	0.00	
7,500.00	6.65	340.81	7,000.87	2,392.54	-832.47	-2,341.90	2.00	-2.00	0.00	
7,600.00	4.65	340.81	7,100.38	2,401.83	-835.70	-2,351.00	2.00	-2.00	0.00	
7,700.00	2.65	340.81	7,200.17	2,407.84	-837.80	-2,356.88	2.00	-2.00	0.00	
7,800.00	0.65	340.81	7,300.12	2,410.56	-838.74	-2,359.54	2.00	-2.00	0.00	
7,832.38	0.00	0.00	7,332.50	2,410.73	-838.80	-2,359.71	2.00	-2.00	0.00	
Start 30.00 hold at 7832.38 MD										
7,862.38	0.00	0.00	7,362.50	2,410.73	-838.80	-2,359.71	0.00	0.00	0.00	
Start DLS 12.00 TFO 179.68										
7,875.00	1.51	179.68	7,375.12	2,410.56	-838.80	-2,359.54	12.00	12.00	0.00	
7,900.00	4.51	179.68	7,400.08	2,409.25	-838.79	-2,358.23	12.00	12.00	0.00	
7,925.00	7.51	179.68	7,424.94	2,406.63	-838.78	-2,355.62	12.00	12.00	0.00	
7,950.00	10.51	179.68	7,449.63	2,402.71	-838.76	-2,351.71	12.00	12.00	0.00	
7,975.00	13.51	179.68	7,474.08	2,397.51	-838.73	-2,346.51	12.00	12.00	0.00	
8,000.00	16.51	179.68	7,498.23	2,391.03	-838.69	-2,340.05	12.00	12.00	0.00	
8,025.00	19.51	179.68	7,522.00	2,383.30	-838.65	-2,332.34	12.00	12.00	0.00	
8,050.00	22.51	179.68	7,545.33	2,374.34	-838.60	-2,323.39	12.00	12.00	0.00	
8,075.00	25.51	179.68	7,568.17	2,364.17	-838.54	-2,313.24	12.00	12.00	0.00	
8,100.00	28.51	179.68	7,590.44	2,352.82	-838.48	-2,301.90	12.00	12.00	0.00	
8,125.00	31.51	179.68	7,612.08	2,340.31	-838.41	-2,289.42	12.00	12.00	0.00	
8,150.00	34.51	179.68	7,633.04	2,326.69	-838.33	-2,275.83	12.00	12.00	0.00	
8,163.43	36.12	179.68	7,644.00	2,318.93	-838.29	-2,268.08	12.00	12.00	0.00	
SHANNON										

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	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)
8,175.00	37.51	179.68	7,653.26	2,312.00	-838.25	-2,261.16	12.00	12.00	0.00
8,188.69	39.15	179.68	7,664.00	2,303.51	-838.20	-2,252.69	12.00	12.00	0.00
NIOBRARA									
8,200.00	40.51	179.68	7,672.69	2,296.26	-838.16	-2,245.46	12.00	12.00	0.00
8,225.00	43.51	179.68	7,691.26	2,279.53	-838.07	-2,228.76	12.00	12.00	0.00
8,250.00	46.51	179.68	7,708.93	2,261.85	-837.97	-2,211.11	12.00	12.00	0.00
8,275.00	49.51	179.68	7,725.65	2,243.27	-837.87	-2,192.57	12.00	12.00	0.00
8,300.00	52.51	179.68	7,741.38	2,223.84	-837.76	-2,173.18	12.00	12.00	0.00
8,325.00	55.51	179.68	7,756.07	2,203.62	-837.65	-2,152.99	12.00	12.00	0.00
8,350.00	58.51	179.68	7,769.68	2,182.65	-837.53	-2,132.06	12.00	12.00	0.00
8,375.00	61.51	179.68	7,782.18	2,161.00	-837.41	-2,110.45	12.00	12.00	0.00
8,400.00	64.51	179.68	7,793.52	2,138.73	-837.29	-2,088.22	12.00	12.00	0.00
8,425.00	67.51	179.68	7,803.68	2,115.89	-837.16	-2,065.43	12.00	12.00	0.00
8,450.00	70.51	179.68	7,812.64	2,092.55	-837.03	-2,042.14	12.00	12.00	0.00
8,475.00	73.51	179.68	7,820.36	2,068.78	-836.90	-2,018.41	12.00	12.00	0.00
8,500.00	76.51	179.68	7,826.82	2,044.63	-836.77	-1,994.31	12.00	12.00	0.00
8,514.54	78.25	179.68	7,830.00	2,030.45	-836.69	-1,980.15	12.00	12.00	0.00
NIO B TARGET									
8,525.00	79.51	179.68	7,832.02	2,020.18	-836.63	-1,969.90	12.00	12.00	0.00
8,550.00	82.51	179.68	7,835.92	1,995.49	-836.49	-1,945.26	12.00	12.00	0.00
8,575.00	85.51	179.68	7,838.53	1,970.63	-836.35	-1,920.44	12.00	12.00	0.00
8,600.00	88.51	179.68	7,839.84	1,945.67	-836.22	-1,895.53	12.00	12.00	0.00
8,612.43	90.00	179.68	7,840.00	1,933.24	-836.15	-1,883.12	12.00	12.00	0.00
8,612.44	90.00	179.68	7,840.00	1,933.23	-836.15	-1,883.11	0.00	0.00	0.00
Start 15255.62 hold at 8612.44 MD									
8,700.00	90.00	179.68	7,840.00	1,845.67	-835.66	-1,795.72	0.00	0.00	0.00
8,800.00	90.00	179.68	7,840.00	1,745.67	-835.10	-1,695.91	0.00	0.00	0.00
8,900.00	90.00	179.68	7,840.00	1,645.67	-834.55	-1,596.10	0.00	0.00	0.00
9,000.00	90.00	179.68	7,840.00	1,545.68	-833.99	-1,496.30	0.00	0.00	0.00
9,100.00	90.00	179.68	7,840.00	1,445.68	-833.44	-1,396.49	0.00	0.00	0.00
9,200.00	90.00	179.68	7,840.00	1,345.68	-832.88	-1,296.68	0.00	0.00	0.00
9,300.00	90.00	179.68	7,840.00	1,245.68	-832.33	-1,196.87	0.00	0.00	0.00
9,400.00	90.00	179.68	7,840.00	1,145.68	-831.77	-1,097.06	0.00	0.00	0.00
9,500.00	90.00	179.68	7,840.00	1,045.68	-831.22	-997.25	0.00	0.00	0.00
9,600.00	90.00	179.68	7,840.00	945.69	-830.66	-897.44	0.00	0.00	0.00
9,700.00	90.00	179.68	7,840.00	845.69	-830.10	-797.63	0.00	0.00	0.00
9,800.00	90.00	179.68	7,840.00	745.69	-829.55	-697.83	0.00	0.00	0.00
9,900.00	90.00	179.68	7,840.00	645.69	-828.99	-598.02	0.00	0.00	0.00
10,000.00	90.00	179.68	7,840.00	545.69	-828.44	-498.21	0.00	0.00	0.00
10,100.00	90.00	179.68	7,840.00	445.69	-827.88	-398.40	0.00	0.00	0.00
10,200.00	90.00	179.68	7,840.00	345.69	-827.33	-298.59	0.00	0.00	0.00
10,300.00	90.00	179.68	7,840.00	245.70	-826.77	-198.78	0.00	0.00	0.00
10,400.00	90.00	179.68	7,840.00	145.70	-826.21	-98.97	0.00	0.00	0.00
10,500.00	90.00	179.68	7,840.00	45.70	-825.66	0.84	0.00	0.00	0.00
10,600.00	90.00	179.68	7,840.00	-54.30	-825.10	100.64	0.00	0.00	0.00
10,700.00	90.00	179.68	7,840.00	-154.30	-824.55	200.45	0.00	0.00	0.00
10,800.00	90.00	179.68	7,840.00	-254.30	-823.99	300.26	0.00	0.00	0.00
10,900.00	90.00	179.68	7,840.00	-354.29	-823.44	400.07	0.00	0.00	0.00
11,000.00	90.00	179.68	7,840.00	-454.29	-822.88	499.88	0.00	0.00	0.00
11,100.00	90.00	179.68	7,840.00	-554.29	-822.32	599.69	0.00	0.00	0.00
11,200.00	90.00	179.68	7,840.00	-654.29	-821.77	699.50	0.00	0.00	0.00
11,300.00	90.00	179.68	7,840.00	-754.29	-821.21	799.31	0.00	0.00	0.00
11,400.00	90.00	179.68	7,840.00	-854.29	-820.66	899.11	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	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)	
11,500.00	90.00	179.68	7,840.00	-954.29	-820.10	998.92	0.00	0.00	0.00	
11,600.00	90.00	179.68	7,840.00	-1,054.28	-819.55	1,098.73	0.00	0.00	0.00	
11,700.00	90.00	179.68	7,840.00	-1,154.28	-818.99	1,198.54	0.00	0.00	0.00	
11,800.00	90.00	179.68	7,840.00	-1,254.28	-818.44	1,298.35	0.00	0.00	0.00	
11,900.00	90.00	179.68	7,840.00	-1,354.28	-817.88	1,398.16	0.00	0.00	0.00	
12,000.00	90.00	179.68	7,840.00	-1,454.28	-817.32	1,497.97	0.00	0.00	0.00	
12,100.00	90.00	179.68	7,840.00	-1,554.28	-816.77	1,597.78	0.00	0.00	0.00	
12,200.00	90.00	179.68	7,840.00	-1,654.27	-816.21	1,697.58	0.00	0.00	0.00	
12,300.00	90.00	179.68	7,840.00	-1,754.27	-815.66	1,797.39	0.00	0.00	0.00	
12,400.00	90.00	179.68	7,840.00	-1,854.27	-815.10	1,897.20	0.00	0.00	0.00	
12,500.00	90.00	179.68	7,840.00	-1,954.27	-814.55	1,997.01	0.00	0.00	0.00	
12,600.00	90.00	179.68	7,840.00	-2,054.27	-813.99	2,096.82	0.00	0.00	0.00	
12,700.00	90.00	179.68	7,840.00	-2,154.27	-813.43	2,196.63	0.00	0.00	0.00	
12,800.00	90.00	179.68	7,840.00	-2,254.27	-812.88	2,296.44	0.00	0.00	0.00	
12,900.00	90.00	179.68	7,840.00	-2,354.26	-812.32	2,396.25	0.00	0.00	0.00	
13,000.00	90.00	179.68	7,840.00	-2,454.26	-811.77	2,496.05	0.00	0.00	0.00	
13,100.00	90.00	179.68	7,840.00	-2,554.26	-811.21	2,595.86	0.00	0.00	0.00	
13,200.00	90.00	179.68	7,840.01	-2,654.26	-810.66	2,695.67	0.00	0.00	0.00	
13,300.00	90.00	179.68	7,840.01	-2,754.26	-810.10	2,795.48	0.00	0.00	0.00	
13,400.00	90.00	179.68	7,840.01	-2,854.26	-809.54	2,895.29	0.00	0.00	0.00	
13,500.00	90.00	179.68	7,840.01	-2,954.25	-808.99	2,995.10	0.00	0.00	0.00	
13,600.00	90.00	179.68	7,840.01	-3,054.25	-808.43	3,094.91	0.00	0.00	0.00	
13,700.00	90.00	179.68	7,840.01	-3,154.25	-807.88	3,194.71	0.00	0.00	0.00	
13,800.00	90.00	179.68	7,840.01	-3,254.25	-807.32	3,294.52	0.00	0.00	0.00	
13,900.00	90.00	179.68	7,840.01	-3,354.25	-806.77	3,394.33	0.00	0.00	0.00	
14,000.00	90.00	179.68	7,840.01	-3,454.25	-806.21	3,494.14	0.00	0.00	0.00	
14,100.00	90.00	179.68	7,840.01	-3,554.25	-805.66	3,593.95	0.00	0.00	0.00	
14,200.00	90.00	179.68	7,840.01	-3,654.24	-805.10	3,693.76	0.00	0.00	0.00	
14,300.00	90.00	179.68	7,840.01	-3,754.24	-804.54	3,793.57	0.00	0.00	0.00	
14,400.00	90.00	179.68	7,840.01	-3,854.24	-803.99	3,893.38	0.00	0.00	0.00	
14,500.00	90.00	179.68	7,840.01	-3,954.24	-803.43	3,993.18	0.00	0.00	0.00	
14,600.00	90.00	179.68	7,840.01	-4,054.24	-802.88	4,092.99	0.00	0.00	0.00	
14,700.00	90.00	179.68	7,840.01	-4,154.24	-802.32	4,192.80	0.00	0.00	0.00	
14,800.00	90.00	179.68	7,840.01	-4,254.23	-801.77	4,292.61	0.00	0.00	0.00	
14,900.00	90.00	179.68	7,840.01	-4,354.23	-801.21	4,392.42	0.00	0.00	0.00	
15,000.00	90.00	179.68	7,840.01	-4,454.23	-800.65	4,492.23	0.00	0.00	0.00	
15,100.00	90.00	179.68	7,840.01	-4,554.23	-800.10	4,592.04	0.00	0.00	0.00	
15,200.00	90.00	179.68	7,840.01	-4,654.23	-799.54	4,691.85	0.00	0.00	0.00	
15,300.00	90.00	179.68	7,840.01	-4,754.23	-798.99	4,791.65	0.00	0.00	0.00	
15,400.00	90.00	179.68	7,840.01	-4,854.23	-798.43	4,891.46	0.00	0.00	0.00	
15,500.00	90.00	179.68	7,840.01	-4,954.22	-797.88	4,991.27	0.00	0.00	0.00	
15,600.00	90.00	179.68	7,840.01	-5,054.22	-797.32	5,091.08	0.00	0.00	0.00	
15,700.00	90.00	179.68	7,840.01	-5,154.22	-796.76	5,190.89	0.00	0.00	0.00	
15,800.00	90.00	179.68	7,840.01	-5,254.22	-796.21	5,290.70	0.00	0.00	0.00	
15,900.00	90.00	179.68	7,840.01	-5,354.22	-795.65	5,390.51	0.00	0.00	0.00	
16,000.00	90.00	179.68	7,840.01	-5,454.22	-795.10	5,490.32	0.00	0.00	0.00	
16,100.00	90.00	179.68	7,840.01	-5,554.21	-794.54	5,590.12	0.00	0.00	0.00	
16,200.00	90.00	179.68	7,840.01	-5,654.21	-793.99	5,689.93	0.00	0.00	0.00	
16,300.00	90.00	179.68	7,840.01	-5,754.21	-793.43	5,789.74	0.00	0.00	0.00	
16,400.00	90.00	179.68	7,840.01	-5,854.21	-792.88	5,889.55	0.00	0.00	0.00	
16,500.00	90.00	179.68	7,840.01	-5,954.21	-792.32	5,989.36	0.00	0.00	0.00	
16,600.00	90.00	179.68	7,840.01	-6,054.21	-791.76	6,089.17	0.00	0.00	0.00	
16,700.00	90.00	179.68	7,840.01	-6,154.21	-791.21	6,188.98	0.00	0.00	0.00	
16,800.00	90.00	179.68	7,840.01	-6,254.20	-790.65	6,288.79	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	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)
16,900.00	90.00	179.68	7,840.01	-6,354.20	-790.10	6,388.59	0.00	0.00	0.00
17,000.00	90.00	179.68	7,840.01	-6,454.20	-789.54	6,488.40	0.00	0.00	0.00
17,100.00	90.00	179.68	7,840.01	-6,554.20	-788.99	6,588.21	0.00	0.00	0.00
17,200.00	90.00	179.68	7,840.01	-6,654.20	-788.43	6,688.02	0.00	0.00	0.00
17,300.00	90.00	179.68	7,840.01	-6,754.20	-787.87	6,787.83	0.00	0.00	0.00
17,400.00	90.00	179.68	7,840.01	-6,854.19	-787.32	6,887.64	0.00	0.00	0.00
17,500.00	90.00	179.68	7,840.01	-6,954.19	-786.76	6,987.45	0.00	0.00	0.00
17,600.00	90.00	179.68	7,840.01	-7,054.19	-786.21	7,087.26	0.00	0.00	0.00
17,700.00	90.00	179.68	7,840.01	-7,154.19	-785.65	7,187.06	0.00	0.00	0.00
17,800.00	90.00	179.68	7,840.01	-7,254.19	-785.10	7,286.87	0.00	0.00	0.00
17,900.00	90.00	179.68	7,840.01	-7,354.19	-784.54	7,386.68	0.00	0.00	0.00
18,000.00	90.00	179.68	7,840.01	-7,454.19	-783.99	7,486.49	0.00	0.00	0.00
18,100.00	90.00	179.68	7,840.01	-7,554.18	-783.43	7,586.30	0.00	0.00	0.00
18,200.00	90.00	179.68	7,840.01	-7,654.18	-782.87	7,686.11	0.00	0.00	0.00
18,300.00	90.00	179.68	7,840.01	-7,754.18	-782.32	7,785.92	0.00	0.00	0.00
18,400.00	90.00	179.68	7,840.01	-7,854.18	-781.76	7,885.73	0.00	0.00	0.00
18,500.00	90.00	179.68	7,840.01	-7,954.18	-781.21	7,985.53	0.00	0.00	0.00
18,600.00	90.00	179.68	7,840.01	-8,054.18	-780.65	8,085.34	0.00	0.00	0.00
18,700.00	90.00	179.68	7,840.01	-8,154.17	-780.10	8,185.15	0.00	0.00	0.00
18,800.00	90.00	179.68	7,840.01	-8,254.17	-779.54	8,284.96	0.00	0.00	0.00
18,900.00	90.00	179.68	7,840.01	-8,354.17	-778.98	8,384.77	0.00	0.00	0.00
19,000.00	90.00	179.68	7,840.01	-8,454.17	-778.43	8,484.58	0.00	0.00	0.00
19,100.00	90.00	179.68	7,840.01	-8,554.17	-777.87	8,584.39	0.00	0.00	0.00
19,200.00	90.00	179.68	7,840.01	-8,654.17	-777.32	8,684.20	0.00	0.00	0.00
19,300.00	90.00	179.68	7,840.01	-8,754.17	-776.76	8,784.00	0.00	0.00	0.00
19,400.00	90.00	179.68	7,840.01	-8,854.16	-776.21	8,883.81	0.00	0.00	0.00
19,500.00	90.00	179.68	7,840.01	-8,954.16	-775.65	8,983.62	0.00	0.00	0.00
19,600.00	90.00	179.68	7,840.01	-9,054.16	-775.09	9,083.43	0.00	0.00	0.00
19,700.00	90.00	179.68	7,840.01	-9,154.16	-774.54	9,183.24	0.00	0.00	0.00
19,800.00	90.00	179.68	7,840.01	-9,254.16	-773.98	9,283.05	0.00	0.00	0.00
19,900.00	90.00	179.68	7,840.01	-9,354.16	-773.43	9,382.86	0.00	0.00	0.00
20,000.00	90.00	179.68	7,840.01	-9,454.15	-772.87	9,482.67	0.00	0.00	0.00
20,100.00	90.00	179.68	7,840.01	-9,554.15	-772.32	9,582.47	0.00	0.00	0.00
20,200.00	90.00	179.68	7,840.01	-9,654.15	-771.76	9,682.28	0.00	0.00	0.00
20,300.00	90.00	179.68	7,840.01	-9,754.15	-771.21	9,782.09	0.00	0.00	0.00
20,400.00	90.00	179.68	7,840.01	-9,854.15	-770.65	9,881.90	0.00	0.00	0.00
20,500.00	90.00	179.68	7,840.01	-9,954.15	-770.09	9,981.71	0.00	0.00	0.00
20,600.00	90.00	179.68	7,840.01	-10,054.15	-769.54	10,081.52	0.00	0.00	0.00
20,700.00	90.00	179.68	7,840.01	-10,154.14	-768.98	10,181.33	0.00	0.00	0.00
20,800.00	90.00	179.68	7,840.01	-10,254.14	-768.43	10,281.14	0.00	0.00	0.00
20,900.00	90.00	179.68	7,840.01	-10,354.14	-767.87	10,380.94	0.00	0.00	0.00
21,000.00	90.00	179.68	7,840.01	-10,454.14	-767.32	10,480.75	0.00	0.00	0.00
23,868.05	90.00	179.68	7,840.00	-13,322.14	-750.86	13,343.29	0.00	0.00	0.00
TD at 23868.06									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE A S22-30-21N
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 A S22-30-21N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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 S22-30-21N - plan hits target center - Point	0.00	0.00	7,840.00	1,933.24	-836.15	1,238,240.27	3,140,992.26	39° 59' 10.522 N	104° 59' 48.592 W
INTERCHANGE A S22-30-21N - plan hits target center - Point	0.00	0.00	7,840.00	-13,322.14	-750.86	1,222,985.63	3,141,164.61	39° 56' 39.757 N	104° 59' 47.490 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
5,265.50	4,915.00	PARKMAN				
5,391.03	5,030.00	SUSSEX				
8,163.43	7,644.00	SHANNON				
8,188.69	7,664.00	NIOBRARA				
8,514.54	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)		
300.00	300.00	0.00	0.00	Start Build 2.00	
1,481.53	1,448.31	226.87	-78.94	Start 5169.33 hold at 1481.53 MD	
6,650.85	6,184.19	2,183.86	-759.86	Start Drop -2.00	
7,832.38	7,332.50	2,410.73	-838.80	Start 30.00 hold at 7832.38 MD	
7,862.38	7,362.50	2,410.73	-838.80	Start DLS 12.00 TFO 179.68	
8,612.44	7,840.00	1,933.23	-836.15	Start 15255.62 hold at 8612.44 MD	
23,868.05	7,840.00	-13,322.14	-750.86	TD at 23868.06	