

EXTRACTION OIL & GAS

Broomfield County

Sec 10-T1S-R68W

INTERCHANGE B S22-30-16C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

24 January, 2018



Project: Broomfield County
Site: Sec 10-T1S-R68W
Well: INTERCHANGE B S22-30-16C
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: 52080.8snT
Dip Angle: 66.47°
Date: 1/9/2018
Model: IGRF2015

WELL DETAILS: INTERCHANGE B S22-30-16C

+N/-S	+E/-W	Northing	Easting	5206.00	Latitude	Longitude	Slot
+N/-S	+E/-W	1235305.79	3142616.41		39° 58' 41.430 N	104° 59' 27.942 W	

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	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	2517.90	40.36	36.95	2355.13	544.83	409.86	2.00	36.95	-446.97	
4	6961.72	40.36	36.95	5741.37	2844.45	2139.79	0.00	0.00	-2333.51	
5	8979.62	0.00	0.00	7596.50	3389.28	2549.65	2.00	180.00	-2780.48	
6	9009.62	0.00	0.00	7626.50	3389.28	2549.65	0.00	0.00	-2780.48	
7	9759.69	90.00	179.67	8104.00	2911.78	2552.44	12.00	179.67	-2312.97	INTERCHANGE B S22-16C - LP
8	25008.39	90.00	179.67	8104.00	-12336.67	2640.92	0.00	0.00	12616.18	INTERCHANGE B S22-16C - PBHL

FORMATION TOP DETAILS

TVDPth	MDPath	Formation
4915.00	5877.26	PARKMAN
5030.00	6028.18	SUSSEX
7624.00	9007.12	SHANNON
7664.00	9047.16	NIOBRARA
7830.00	9219.85	NIO B TARGET
8083.00	9617.54	FORT HAYS
8104.00	9759.69	CODELL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	Start Build 2.00
2517.90	40.36	36.95	2355.13	544.83	409.86	-446.97	681.78	Start 4443.82 hold at 2517.90 MD
6961.72	40.36	36.95	5741.37	2844.45	2139.79	-2333.51	3559.44	Start Drop -2.00
8979.62	0.00	0.00	7596.50	3389.28	2549.65	-2780.48	4241.22	Start 30.00 hold at 8979.62 MD
9009.62	0.00	0.00	7626.50	3389.28	2549.65	-2780.48	4241.22	Start DLS 12.00 TFO 179.67
9759.69	90.00	179.67	8104.00	2911.78	2552.44	-2312.97	4718.73	Start 15248.70 hold at 9759.69 MD
25008.39	90.00	179.67	8104.00	-12336.67	2640.92	12616.18	19967.43	TD at 25008.39

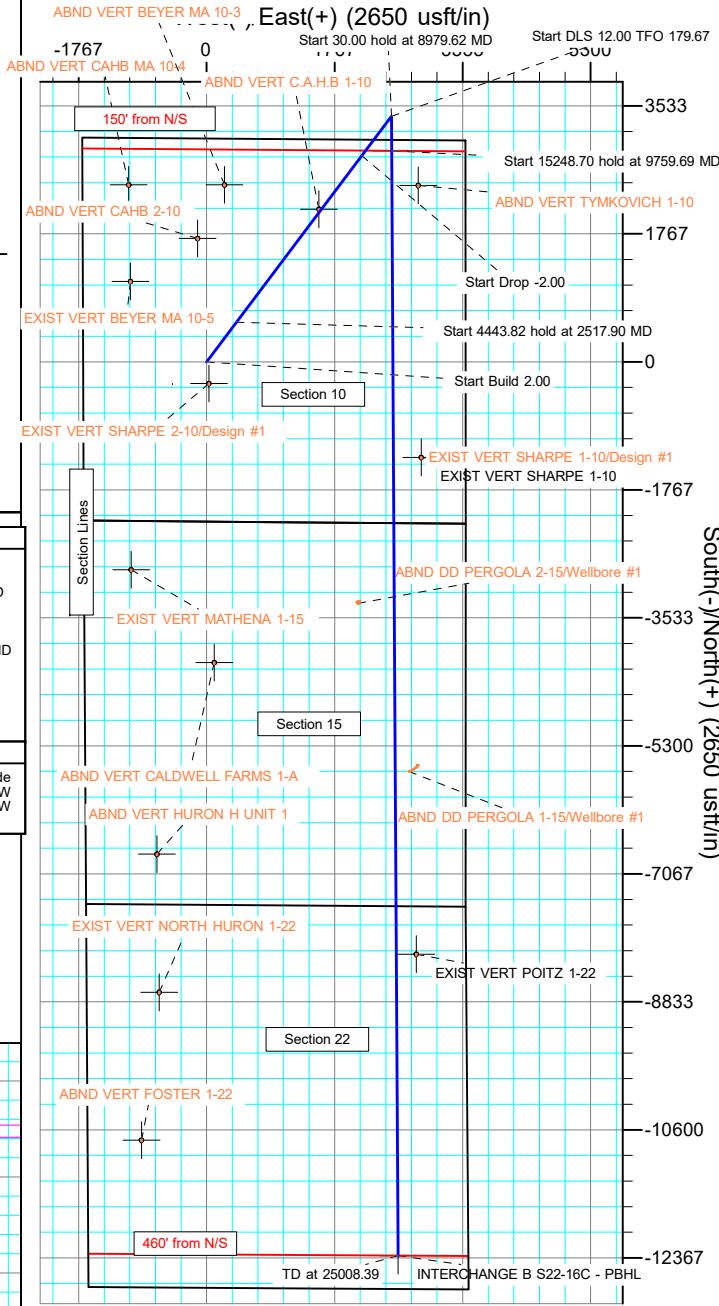
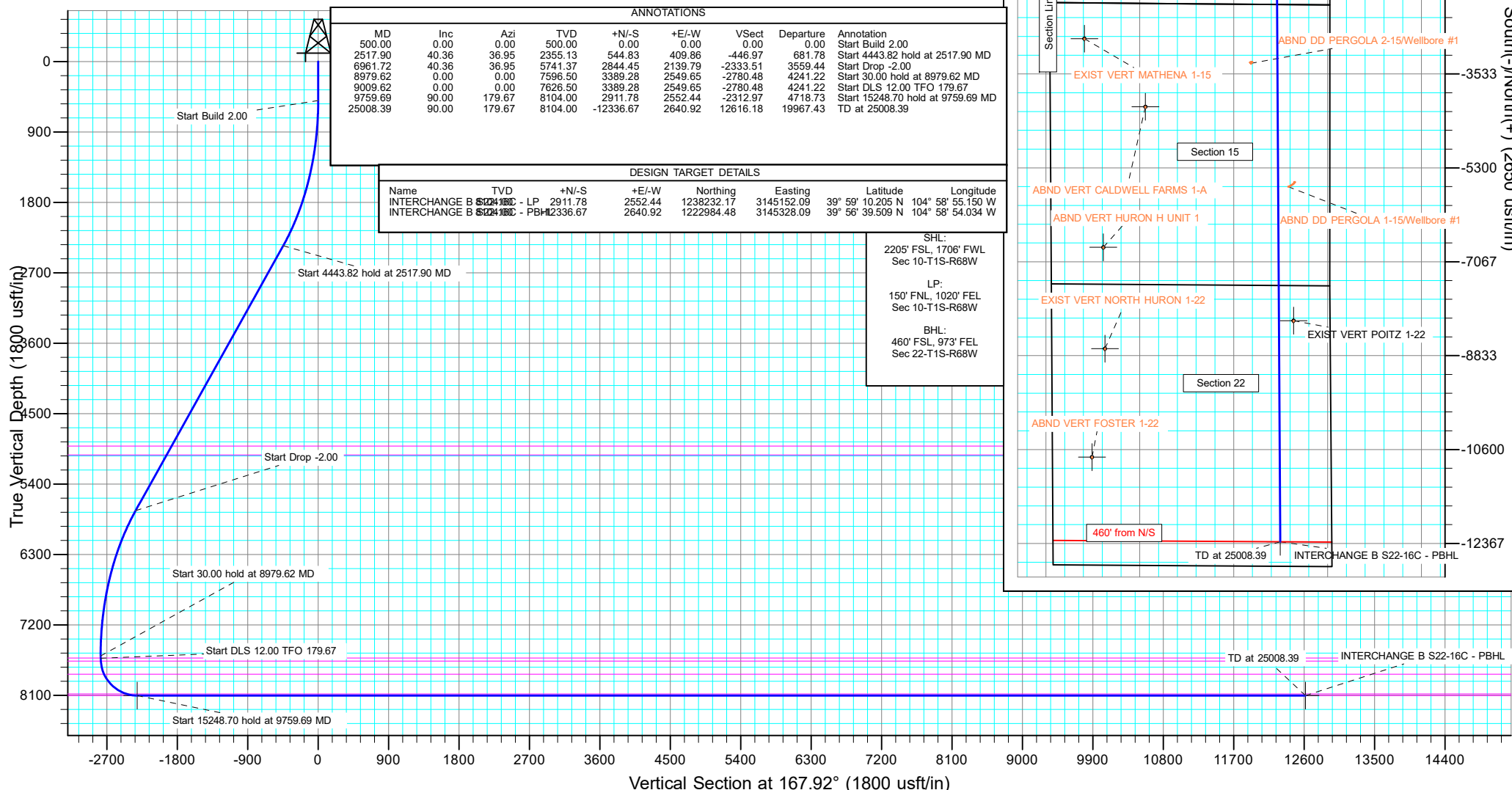
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
INTERCHANGE B S22-16C - LP	2911.78	2552.44	1238232.17	3145152.09	39° 59' 10.205 N	104° 58' 55.150 W	
INTERCHANGE B S22-16C - PBHL	2336.67	2640.92	1222984.48	3145328.09	39° 56' 39.509 N	104° 58' 54.034 W	

SHL:
2205' FSL, 1706' FWL
Sec 10-T1S-R68W

LP:
150' FNL, 1020' FEL
Sec 10-T1S-R68W

BHL:
460' FSL, 973' FEL
Sec 22-T1S-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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 S22-30-16C					
Well Position	+N/-S	-3,094.57 usft	Northing:	1,235,305.79 usft	Latitude:	39° 58' 41.430 N
	+E/-W	1,717.74 usft	Easting:	3,142,616.41 usft	Longitude:	104° 59' 27.942 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,206.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/9/2018	8.23	66.47	52,080.80175959

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	167.92

Plan Survey Tool Program	Date	1/24/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	25,008.39	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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,517.90	40.36	36.95	2,355.13	544.83	409.86	2.00	2.00	0.00	36.95	
6,961.72	40.36	36.95	5,741.37	2,844.45	2,139.79	0.00	0.00	0.00	0.00	
8,979.62	0.00	0.00	7,596.50	3,389.28	2,549.65	2.00	-2.00	0.00	180.00	
9,009.62	0.00	0.00	7,626.50	3,389.28	2,549.65	0.00	0.00	0.00	0.00	
9,759.69	90.00	179.67	8,104.00	2,911.78	2,552.44	12.00	12.00	23.95	179.67	INTERCHANGE B S2
25,008.39	90.00	179.67	8,104.00	-12,336.67	2,640.92	0.00	0.00	0.00	0.00	INTERCHANGE B S2

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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
Start Build 2.00									
600.00	2.00	36.95	599.98	1.39	1.05	-1.14	2.00	2.00	0.00
700.00	4.00	36.95	699.84	5.58	4.20	-4.57	2.00	2.00	0.00
800.00	6.00	36.95	799.45	12.54	9.43	-10.29	2.00	2.00	0.00
900.00	8.00	36.95	898.70	22.28	16.76	-18.28	2.00	2.00	0.00
1,000.00	10.00	36.95	997.47	34.78	26.16	-28.53	2.00	2.00	0.00
1,100.00	12.00	36.95	1,095.62	50.03	37.63	-41.04	2.00	2.00	0.00
1,200.00	14.00	36.95	1,193.06	68.00	51.16	-55.79	2.00	2.00	0.00
1,300.00	16.00	36.95	1,289.64	88.69	66.72	-72.76	2.00	2.00	0.00
1,400.00	18.00	36.95	1,385.27	112.05	84.29	-91.92	2.00	2.00	0.00
1,500.00	20.00	36.95	1,479.82	138.06	103.86	-113.26	2.00	2.00	0.00
1,600.00	22.00	36.95	1,573.17	166.70	125.40	-136.76	2.00	2.00	0.00
1,700.00	24.00	36.95	1,665.21	197.92	148.89	-162.37	2.00	2.00	0.00
1,800.00	26.00	36.95	1,755.84	231.69	174.30	-190.08	2.00	2.00	0.00
1,900.00	28.00	36.95	1,844.94	267.97	201.59	-219.84	2.00	2.00	0.00
2,000.00	30.00	36.95	1,932.39	306.71	230.73	-251.62	2.00	2.00	0.00
2,100.00	32.00	36.95	2,018.11	347.87	261.69	-285.38	2.00	2.00	0.00
2,200.00	34.00	36.95	2,101.97	391.39	294.43	-321.09	2.00	2.00	0.00
2,300.00	36.00	36.95	2,183.88	437.23	328.91	-358.69	2.00	2.00	0.00
2,400.00	38.00	36.95	2,263.74	485.32	365.09	-398.14	2.00	2.00	0.00
2,500.00	40.00	36.95	2,341.45	535.60	402.92	-439.40	2.00	2.00	0.00
2,517.90	40.36	36.95	2,355.13	544.83	409.86	-446.97	2.00	2.00	0.00
Start 4443.82 hold at 2517.90 MD									
2,600.00	40.36	36.95	2,417.69	587.32	441.82	-481.82	0.00	0.00	0.00
2,700.00	40.36	36.95	2,493.89	639.07	480.75	-524.27	0.00	0.00	0.00
2,800.00	40.36	36.95	2,570.09	690.82	519.68	-566.73	0.00	0.00	0.00
2,900.00	40.36	36.95	2,646.29	742.56	558.61	-609.18	0.00	0.00	0.00
3,000.00	40.36	36.95	2,722.49	794.31	597.54	-651.63	0.00	0.00	0.00
3,100.00	40.36	36.95	2,798.69	846.06	636.47	-694.09	0.00	0.00	0.00
3,200.00	40.36	36.95	2,874.90	897.81	675.39	-736.54	0.00	0.00	0.00
3,300.00	40.36	36.95	2,951.10	949.56	714.32	-778.99	0.00	0.00	0.00
3,400.00	40.36	36.95	3,027.30	1,001.31	753.25	-821.45	0.00	0.00	0.00
3,500.00	40.36	36.95	3,103.50	1,053.06	792.18	-863.90	0.00	0.00	0.00
3,600.00	40.36	36.95	3,179.70	1,104.80	831.11	-906.35	0.00	0.00	0.00
3,700.00	40.36	36.95	3,255.90	1,156.55	870.04	-948.81	0.00	0.00	0.00
3,800.00	40.36	36.95	3,332.10	1,208.30	908.97	-991.26	0.00	0.00	0.00
3,900.00	40.36	36.95	3,408.30	1,260.05	947.90	-1,033.71	0.00	0.00	0.00
4,000.00	40.36	36.95	3,484.51	1,311.80	986.83	-1,076.17	0.00	0.00	0.00
4,100.00	40.36	36.95	3,560.71	1,363.55	1,025.75	-1,118.62	0.00	0.00	0.00
4,200.00	40.36	36.95	3,636.91	1,415.30	1,064.68	-1,161.07	0.00	0.00	0.00
4,300.00	40.36	36.95	3,713.11	1,467.04	1,103.61	-1,203.53	0.00	0.00	0.00
4,400.00	40.36	36.95	3,789.31	1,518.79	1,142.54	-1,245.98	0.00	0.00	0.00
4,500.00	40.36	36.95	3,865.51	1,570.54	1,181.47	-1,288.43	0.00	0.00	0.00
4,600.00	40.36	36.95	3,941.71	1,622.29	1,220.40	-1,330.89	0.00	0.00	0.00
4,700.00	40.36	36.95	4,017.91	1,674.04	1,259.33	-1,373.34	0.00	0.00	0.00
4,800.00	40.36	36.95	4,094.11	1,725.79	1,298.26	-1,415.79	0.00	0.00	0.00
4,900.00	40.36	36.95	4,170.32	1,777.54	1,337.18	-1,458.24	0.00	0.00	0.00

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Well:	INTERCHANGE B S22-30-16C	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	40.36	36.95	4,246.52	1,829.28	1,376.11	-1,500.70	0.00	0.00	0.00	
5,100.00	40.36	36.95	4,322.72	1,881.03	1,415.04	-1,543.15	0.00	0.00	0.00	
5,200.00	40.36	36.95	4,398.92	1,932.78	1,453.97	-1,585.60	0.00	0.00	0.00	
5,300.00	40.36	36.95	4,475.12	1,984.53	1,492.90	-1,628.06	0.00	0.00	0.00	
5,400.00	40.36	36.95	4,551.32	2,036.28	1,531.83	-1,670.51	0.00	0.00	0.00	
5,500.00	40.36	36.95	4,627.52	2,088.03	1,570.76	-1,712.96	0.00	0.00	0.00	
5,600.00	40.36	36.95	4,703.72	2,139.78	1,609.69	-1,755.42	0.00	0.00	0.00	
5,700.00	40.36	36.95	4,779.93	2,191.52	1,648.62	-1,797.87	0.00	0.00	0.00	
5,800.00	40.36	36.95	4,856.13	2,243.27	1,687.54	-1,840.32	0.00	0.00	0.00	
5,877.26	40.36	36.95	4,915.00	2,283.25	1,717.62	-1,873.12	0.00	0.00	0.00	
PARKMAN										
5,900.00	40.36	36.95	4,932.33	2,295.02	1,726.47	-1,882.78	0.00	0.00	0.00	
6,000.00	40.36	36.95	5,008.53	2,346.77	1,765.40	-1,925.23	0.00	0.00	0.00	
6,028.18	40.36	36.95	5,030.00	2,361.35	1,776.37	-1,937.19	0.00	0.00	0.00	
SUSSEX										
6,100.00	40.36	36.95	5,084.73	2,398.52	1,804.33	-1,967.68	0.00	0.00	0.00	
6,200.00	40.36	36.95	5,160.93	2,450.27	1,843.26	-2,010.14	0.00	0.00	0.00	
6,300.00	40.36	36.95	5,237.13	2,502.02	1,882.19	-2,052.59	0.00	0.00	0.00	
6,400.00	40.36	36.95	5,313.33	2,553.76	1,921.12	-2,095.04	0.00	0.00	0.00	
6,500.00	40.36	36.95	5,389.54	2,605.51	1,960.05	-2,137.50	0.00	0.00	0.00	
6,600.00	40.36	36.95	5,465.74	2,657.26	1,998.98	-2,179.95	0.00	0.00	0.00	
6,700.00	40.36	36.95	5,541.94	2,709.01	2,037.90	-2,222.40	0.00	0.00	0.00	
6,800.00	40.36	36.95	5,618.14	2,760.76	2,076.83	-2,264.86	0.00	0.00	0.00	
6,900.00	40.36	36.95	5,694.34	2,812.51	2,115.76	-2,307.31	0.00	0.00	0.00	
6,961.72	40.36	36.95	5,741.37	2,844.45	2,139.79	-2,333.51	0.00	0.00	0.00	
Start Drop -2.00										
7,000.00	39.59	36.95	5,770.71	2,864.10	2,154.57	-2,349.63	2.00	-2.00	0.00	
7,100.00	37.59	36.95	5,848.86	2,913.94	2,192.07	-2,390.53	2.00	-2.00	0.00	
7,200.00	35.59	36.95	5,929.15	2,961.58	2,227.90	-2,429.60	2.00	-2.00	0.00	
7,300.00	33.59	36.95	6,011.47	3,006.95	2,262.03	-2,466.82	2.00	-2.00	0.00	
7,400.00	31.59	36.95	6,095.71	3,049.99	2,294.41	-2,502.13	2.00	-2.00	0.00	
7,500.00	29.59	36.95	6,181.79	3,090.66	2,325.01	-2,535.50	2.00	-2.00	0.00	
7,600.00	27.59	36.95	6,269.59	3,128.90	2,353.78	-2,566.87	2.00	-2.00	0.00	
7,700.00	25.59	36.95	6,359.01	3,164.67	2,380.68	-2,596.22	2.00	-2.00	0.00	
7,800.00	23.59	36.95	6,449.93	3,197.93	2,405.70	-2,623.50	2.00	-2.00	0.00	
7,900.00	21.59	36.95	6,542.25	3,228.63	2,428.79	-2,648.68	2.00	-2.00	0.00	
8,000.00	19.59	36.95	6,635.86	3,256.73	2,449.94	-2,671.74	2.00	-2.00	0.00	
8,100.00	17.59	36.95	6,730.63	3,282.21	2,469.10	-2,692.64	2.00	-2.00	0.00	
8,200.00	15.59	36.95	6,826.47	3,305.03	2,486.27	-2,711.36	2.00	-2.00	0.00	
8,300.00	13.59	36.95	6,923.24	3,325.16	2,501.41	-2,727.88	2.00	-2.00	0.00	
8,400.00	11.59	36.95	7,020.82	3,342.58	2,514.52	-2,742.17	2.00	-2.00	0.00	
8,500.00	9.59	36.95	7,119.12	3,357.27	2,525.57	-2,754.22	2.00	-2.00	0.00	
8,600.00	7.59	36.95	7,217.99	3,369.21	2,534.55	-2,764.01	2.00	-2.00	0.00	
8,700.00	5.59	36.95	7,317.32	3,378.38	2,541.45	-2,771.54	2.00	-2.00	0.00	
8,800.00	3.59	36.95	7,417.00	3,384.78	2,546.27	-2,776.79	2.00	-2.00	0.00	
8,900.00	1.59	36.95	7,516.89	3,388.40	2,548.98	-2,779.75	2.00	-2.00	0.00	
8,979.62	0.00	0.00	7,596.50	3,389.28	2,549.65	-2,780.48	2.00	-2.00	0.00	
Start 30.00 hold at 8979.62 MD										
9,007.12	0.00	0.00	7,624.00	3,389.28	2,549.65	-2,780.48	0.00	0.00	0.00	
SHANNON										
9,009.62	0.00	0.00	7,626.50	3,389.28	2,549.65	-2,780.48	0.00	0.00	0.00	
Start DLS 12.00 TFO 179.67										
9,025.00	1.85	179.67	7,641.88	3,389.03	2,549.65	-2,780.24	12.00	12.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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)
9,047.16	4.50	179.67	7,664.00	3,387.81	2,549.66	-2,779.03	12.00	12.00	0.00
NIOBRARA									
9,050.00	4.85	179.67	7,666.83	3,387.57	2,549.66	-2,778.81	12.00	12.00	0.00
9,075.00	7.84	179.67	7,691.67	3,384.81	2,549.68	-2,776.10	12.00	12.00	0.00
9,100.00	10.84	179.67	7,716.34	3,380.75	2,549.70	-2,772.13	12.00	12.00	0.00
9,125.00	13.84	179.67	7,740.76	3,375.41	2,549.73	-2,766.90	12.00	12.00	0.00
9,150.00	16.84	179.67	7,764.87	3,368.79	2,549.77	-2,760.42	12.00	12.00	0.00
9,175.00	19.84	179.67	7,788.59	3,360.93	2,549.82	-2,752.72	12.00	12.00	0.00
9,200.00	22.84	179.67	7,811.87	3,351.83	2,549.87	-2,743.81	12.00	12.00	0.00
9,219.85	25.23	179.67	7,830.00	3,343.75	2,549.92	-2,735.90	12.00	12.00	0.00
NIO B TARGET									
9,225.00	25.84	179.67	7,834.65	3,341.53	2,549.93	-2,733.72	12.00	12.00	0.00
9,250.00	28.84	179.67	7,856.85	3,330.04	2,550.00	-2,722.48	12.00	12.00	0.00
9,275.00	31.84	179.67	7,878.43	3,317.42	2,550.07	-2,710.12	12.00	12.00	0.00
9,300.00	34.84	179.67	7,899.31	3,303.68	2,550.15	-2,696.67	12.00	12.00	0.00
9,325.00	37.84	179.67	7,919.44	3,288.86	2,550.24	-2,682.16	12.00	12.00	0.00
9,350.00	40.84	179.67	7,938.78	3,273.02	2,550.33	-2,666.65	12.00	12.00	0.00
9,375.00	43.84	179.67	7,957.25	3,256.18	2,550.43	-2,650.16	12.00	12.00	0.00
9,400.00	46.84	179.67	7,974.82	3,238.40	2,550.53	-2,632.76	12.00	12.00	0.00
9,425.00	49.84	179.67	7,991.44	3,219.72	2,550.64	-2,614.47	12.00	12.00	0.00
9,450.00	52.84	179.67	8,007.05	3,200.20	2,550.75	-2,595.36	12.00	12.00	0.00
9,475.00	55.84	179.67	8,021.62	3,179.89	2,550.87	-2,575.48	12.00	12.00	0.00
9,500.00	58.84	179.67	8,035.11	3,158.85	2,550.99	-2,554.87	12.00	12.00	0.00
9,525.00	61.84	179.67	8,047.48	3,137.13	2,551.12	-2,533.60	12.00	12.00	0.00
9,550.00	64.84	179.67	8,058.70	3,114.79	2,551.25	-2,511.73	12.00	12.00	0.00
9,575.00	67.84	179.67	8,068.73	3,091.89	2,551.39	-2,489.32	12.00	12.00	0.00
9,600.00	70.84	179.67	8,077.55	3,068.50	2,551.52	-2,466.42	12.00	12.00	0.00
9,617.54	72.94	179.67	8,083.00	3,051.84	2,551.62	-2,450.10	12.00	12.00	0.00
FORT HAYS									
9,625.00	73.84	179.67	8,085.13	3,044.68	2,551.66	-2,443.10	12.00	12.00	0.00
9,650.00	76.84	179.67	8,091.46	3,020.50	2,551.80	-2,419.42	12.00	12.00	0.00
9,675.00	79.84	179.67	8,096.51	2,996.02	2,551.95	-2,395.45	12.00	12.00	0.00
9,700.00	82.84	179.67	8,100.28	2,971.31	2,552.09	-2,371.26	12.00	12.00	0.00
9,725.00	85.84	179.67	8,102.74	2,946.43	2,552.23	-2,346.90	12.00	12.00	0.00
9,750.00	88.84	179.67	8,103.90	2,921.46	2,552.38	-2,322.46	12.00	12.00	0.00
9,759.69	90.00	179.67	8,104.00	2,911.78	2,552.44	-2,312.97	12.00	12.00	0.00
Start 15248.70 hold at 9759.69 MD - CODELL									
9,800.00	90.00	179.67	8,104.00	2,871.47	2,552.67	-2,273.50	0.00	0.00	0.00
9,900.00	90.00	179.67	8,104.00	2,771.47	2,553.26	-2,175.60	0.00	0.00	0.00
10,000.00	90.00	179.67	8,103.99	2,671.47	2,553.84	-2,077.69	0.00	0.00	0.00
10,100.00	90.00	179.67	8,103.99	2,571.47	2,554.42	-1,979.79	0.00	0.00	0.00
10,200.00	90.00	179.67	8,103.99	2,471.47	2,555.01	-1,881.88	0.00	0.00	0.00
10,300.00	90.00	179.67	8,103.99	2,371.47	2,555.59	-1,783.98	0.00	0.00	0.00
10,400.00	90.00	179.67	8,103.98	2,271.48	2,556.17	-1,686.07	0.00	0.00	0.00
10,500.00	90.00	179.67	8,103.98	2,171.48	2,556.76	-1,588.17	0.00	0.00	0.00
10,600.00	90.00	179.67	8,103.98	2,071.48	2,557.34	-1,490.26	0.00	0.00	0.00
10,700.00	90.00	179.67	8,103.98	1,971.48	2,557.92	-1,392.36	0.00	0.00	0.00
10,800.00	90.00	179.67	8,103.97	1,871.48	2,558.51	-1,294.45	0.00	0.00	0.00
10,900.00	90.00	179.67	8,103.97	1,771.48	2,559.09	-1,196.55	0.00	0.00	0.00
11,000.00	90.00	179.67	8,103.97	1,671.49	2,559.67	-1,098.64	0.00	0.00	0.00
11,100.00	90.00	179.67	8,103.97	1,571.49	2,560.26	-1,000.74	0.00	0.00	0.00
11,200.00	90.00	179.67	8,103.96	1,471.49	2,560.84	-902.83	0.00	0.00	0.00
11,300.00	90.00	179.67	8,103.96	1,371.49	2,561.43	-804.93	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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)	
11,400.00	90.00	179.67	8,103.96	1,271.49	2,562.01	-707.02	0.00	0.00	0.00	
11,500.00	90.00	179.67	8,103.95	1,171.49	2,562.59	-609.12	0.00	0.00	0.00	
11,600.00	90.00	179.67	8,103.95	1,071.50	2,563.18	-511.21	0.00	0.00	0.00	
11,700.00	90.00	179.67	8,103.95	971.50	2,563.76	-413.31	0.00	0.00	0.00	
11,800.00	90.00	179.67	8,103.95	871.50	2,564.34	-315.40	0.00	0.00	0.00	
11,900.00	90.00	179.67	8,103.94	771.50	2,564.93	-217.50	0.00	0.00	0.00	
12,000.00	90.00	179.67	8,103.94	671.50	2,565.51	-119.59	0.00	0.00	0.00	
12,100.00	90.00	179.67	8,103.94	571.50	2,566.09	-21.69	0.00	0.00	0.00	
12,200.00	90.00	179.67	8,103.94	471.51	2,566.68	76.22	0.00	0.00	0.00	
12,300.00	90.00	179.67	8,103.93	371.51	2,567.26	174.12	0.00	0.00	0.00	
12,400.00	90.00	179.67	8,103.93	271.51	2,567.84	272.03	0.00	0.00	0.00	
12,500.00	90.00	179.67	8,103.93	171.51	2,568.43	369.93	0.00	0.00	0.00	
12,600.00	90.00	179.67	8,103.93	71.51	2,569.01	467.84	0.00	0.00	0.00	
12,700.00	90.00	179.67	8,103.92	-28.48	2,569.60	565.74	0.00	0.00	0.00	
12,800.00	90.00	179.67	8,103.92	-128.48	2,570.18	663.65	0.00	0.00	0.00	
12,900.00	90.00	179.67	8,103.92	-228.48	2,570.76	761.55	0.00	0.00	0.00	
13,000.00	90.00	179.67	8,103.92	-328.48	2,571.35	859.46	0.00	0.00	0.00	
13,100.00	90.00	179.67	8,103.91	-428.48	2,571.93	957.36	0.00	0.00	0.00	
13,200.00	90.00	179.67	8,103.91	-528.48	2,572.51	1,055.27	0.00	0.00	0.00	
13,300.00	90.00	179.67	8,103.91	-628.47	2,573.10	1,153.17	0.00	0.00	0.00	
13,400.00	90.00	179.67	8,103.91	-728.47	2,573.68	1,251.08	0.00	0.00	0.00	
13,500.00	90.00	179.67	8,103.90	-828.47	2,574.26	1,348.98	0.00	0.00	0.00	
13,600.00	90.00	179.67	8,103.90	-928.47	2,574.85	1,446.89	0.00	0.00	0.00	
13,700.00	90.00	179.67	8,103.90	-1,028.47	2,575.43	1,544.79	0.00	0.00	0.00	
13,800.00	90.00	179.67	8,103.90	-1,128.47	2,576.01	1,642.70	0.00	0.00	0.00	
13,900.00	90.00	179.67	8,103.89	-1,228.46	2,576.60	1,740.60	0.00	0.00	0.00	
14,000.00	90.00	179.67	8,103.89	-1,328.46	2,577.18	1,838.51	0.00	0.00	0.00	
14,100.00	90.00	179.67	8,103.89	-1,428.46	2,577.77	1,936.41	0.00	0.00	0.00	
14,200.00	90.00	179.67	8,103.88	-1,528.46	2,578.35	2,034.32	0.00	0.00	0.00	
14,300.00	90.00	179.67	8,103.88	-1,628.46	2,578.93	2,132.22	0.00	0.00	0.00	
14,400.00	90.00	179.67	8,103.88	-1,728.46	2,579.52	2,230.13	0.00	0.00	0.00	
14,500.00	90.00	179.67	8,103.88	-1,828.45	2,580.10	2,328.03	0.00	0.00	0.00	
14,600.00	90.00	179.67	8,103.87	-1,928.45	2,580.68	2,425.94	0.00	0.00	0.00	
14,700.00	90.00	179.67	8,103.87	-2,028.45	2,581.27	2,523.84	0.00	0.00	0.00	
14,800.00	90.00	179.67	8,103.87	-2,128.45	2,581.85	2,621.75	0.00	0.00	0.00	
14,900.00	90.00	179.67	8,103.87	-2,228.45	2,582.43	2,719.65	0.00	0.00	0.00	
15,000.00	90.00	179.67	8,103.86	-2,328.45	2,583.02	2,817.56	0.00	0.00	0.00	
15,100.00	90.00	179.67	8,103.86	-2,428.44	2,583.60	2,915.46	0.00	0.00	0.00	
15,200.00	90.00	179.67	8,103.86	-2,528.44	2,584.18	3,013.37	0.00	0.00	0.00	
15,300.00	90.00	179.67	8,103.86	-2,628.44	2,584.77	3,111.27	0.00	0.00	0.00	
15,400.00	90.00	179.67	8,103.85	-2,728.44	2,585.35	3,209.18	0.00	0.00	0.00	
15,500.00	90.00	179.67	8,103.85	-2,828.44	2,585.94	3,307.08	0.00	0.00	0.00	
15,600.00	90.00	179.67	8,103.85	-2,928.44	2,586.52	3,404.99	0.00	0.00	0.00	
15,700.00	90.00	179.67	8,103.85	-3,028.43	2,587.10	3,502.89	0.00	0.00	0.00	
15,800.00	90.00	179.67	8,103.84	-3,128.43	2,587.69	3,600.80	0.00	0.00	0.00	
15,900.00	90.00	179.67	8,103.84	-3,228.43	2,588.27	3,698.70	0.00	0.00	0.00	
16,000.00	90.00	179.67	8,103.84	-3,328.43	2,588.85	3,796.61	0.00	0.00	0.00	
16,100.00	90.00	179.67	8,103.84	-3,428.43	2,589.44	3,894.51	0.00	0.00	0.00	
16,200.00	90.00	179.67	8,103.83	-3,528.43	2,590.02	3,992.42	0.00	0.00	0.00	
16,300.00	90.00	179.67	8,103.83	-3,628.42	2,590.60	4,090.32	0.00	0.00	0.00	
16,400.00	90.00	179.67	8,103.83	-3,728.42	2,591.19	4,188.23	0.00	0.00	0.00	
16,500.00	90.00	179.67	8,103.82	-3,828.42	2,591.77	4,286.13	0.00	0.00	0.00	
16,600.00	90.00	179.67	8,103.82	-3,928.42	2,592.35	4,384.04	0.00	0.00	0.00	
16,700.00	90.00	179.67	8,103.82	-4,028.42	2,592.94	4,481.94	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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)
16,800.00	90.00	179.67	8,103.82	-4,128.42	2,593.52	4,579.85	0.00	0.00	0.00
16,900.00	90.00	179.67	8,103.81	-4,228.41	2,594.11	4,677.75	0.00	0.00	0.00
17,000.00	90.00	179.67	8,103.81	-4,328.41	2,594.69	4,775.66	0.00	0.00	0.00
17,100.00	90.00	179.67	8,103.81	-4,428.41	2,595.27	4,873.56	0.00	0.00	0.00
17,200.00	90.00	179.67	8,103.81	-4,528.41	2,595.86	4,971.47	0.00	0.00	0.00
17,300.00	90.00	179.67	8,103.80	-4,628.41	2,596.44	5,069.37	0.00	0.00	0.00
17,400.00	90.00	179.67	8,103.80	-4,728.40	2,597.02	5,167.28	0.00	0.00	0.00
17,500.00	90.00	179.67	8,103.80	-4,828.40	2,597.61	5,265.18	0.00	0.00	0.00
17,600.00	90.00	179.67	8,103.80	-4,928.40	2,598.19	5,363.09	0.00	0.00	0.00
17,700.00	90.00	179.67	8,103.79	-5,028.40	2,598.77	5,460.99	0.00	0.00	0.00
17,800.00	90.00	179.67	8,103.79	-5,128.40	2,599.36	5,558.90	0.00	0.00	0.00
17,900.00	90.00	179.67	8,103.79	-5,228.40	2,599.94	5,656.80	0.00	0.00	0.00
18,000.00	90.00	179.67	8,103.79	-5,328.39	2,600.52	5,754.71	0.00	0.00	0.00
18,100.00	90.00	179.67	8,103.78	-5,428.39	2,601.11	5,852.61	0.00	0.00	0.00
18,200.00	90.00	179.67	8,103.78	-5,528.39	2,601.69	5,950.52	0.00	0.00	0.00
18,300.00	90.00	179.67	8,103.78	-5,628.39	2,602.28	6,048.42	0.00	0.00	0.00
18,400.00	90.00	179.67	8,103.78	-5,728.39	2,602.86	6,146.33	0.00	0.00	0.00
18,500.00	90.00	179.67	8,103.77	-5,828.39	2,603.44	6,244.23	0.00	0.00	0.00
18,600.00	90.00	179.67	8,103.77	-5,928.38	2,604.03	6,342.14	0.00	0.00	0.00
18,700.00	90.00	179.67	8,103.77	-6,028.38	2,604.61	6,440.04	0.00	0.00	0.00
18,800.00	90.00	179.67	8,103.77	-6,128.38	2,605.19	6,537.95	0.00	0.00	0.00
18,900.00	90.00	179.67	8,103.76	-6,228.38	2,605.78	6,635.86	0.00	0.00	0.00
19,000.00	90.00	179.67	8,103.76	-6,328.38	2,606.36	6,733.76	0.00	0.00	0.00
19,100.00	90.00	179.67	8,103.76	-6,428.38	2,606.94	6,831.67	0.00	0.00	0.00
19,200.00	90.00	179.67	8,103.75	-6,528.37	2,607.53	6,929.57	0.00	0.00	0.00
19,300.00	90.00	179.67	8,103.75	-6,628.37	2,608.11	7,027.48	0.00	0.00	0.00
19,400.00	90.00	179.67	8,103.75	-6,728.37	2,608.70	7,125.38	0.00	0.00	0.00
19,500.00	90.00	179.67	8,103.75	-6,828.37	2,609.28	7,223.29	0.00	0.00	0.00
19,600.00	90.00	179.67	8,103.74	-6,928.37	2,609.86	7,321.19	0.00	0.00	0.00
19,700.00	90.00	179.67	8,103.74	-7,028.37	2,610.45	7,419.10	0.00	0.00	0.00
19,800.00	90.00	179.67	8,103.74	-7,128.36	2,611.03	7,517.00	0.00	0.00	0.00
19,900.00	90.00	179.67	8,103.74	-7,228.36	2,611.61	7,614.91	0.00	0.00	0.00
20,000.00	90.00	179.67	8,103.73	-7,328.36	2,612.20	7,712.81	0.00	0.00	0.00
20,100.00	90.00	179.67	8,103.73	-7,428.36	2,612.78	7,810.72	0.00	0.00	0.00
20,200.00	90.00	179.67	8,103.73	-7,528.36	2,613.36	7,908.62	0.00	0.00	0.00
20,300.00	90.00	179.67	8,103.73	-7,628.36	2,613.95	8,006.53	0.00	0.00	0.00
20,400.00	90.00	179.67	8,103.72	-7,728.35	2,614.53	8,104.43	0.00	0.00	0.00
20,500.00	90.00	179.67	8,103.72	-7,828.35	2,615.11	8,202.34	0.00	0.00	0.00
20,600.00	90.00	179.67	8,103.72	-7,928.35	2,615.70	8,300.24	0.00	0.00	0.00
20,700.00	90.00	179.67	8,103.72	-8,028.35	2,616.28	8,398.15	0.00	0.00	0.00
20,800.00	90.00	179.67	8,103.71	-8,128.35	2,616.87	8,496.05	0.00	0.00	0.00
20,900.00	90.00	179.67	8,103.71	-8,228.35	2,617.45	8,593.96	0.00	0.00	0.00
21,000.00	90.00	179.67	8,103.71	-8,328.34	2,618.03	8,691.86	0.00	0.00	0.00
25,008.39	90.00	179.67	8,103.60	-12,336.67	2,641.42	12,616.28	0.00	0.00	0.00
TD at 25008.39									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well INTERCHANGE B S22-30-16C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5231.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5231.00usft
Site:	Sec 10-T1S-R68W	North Reference:	True
Well:	INTERCHANGE B S22-30-16C	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 B S22- - plan misses target center by 0.64usft at 25008.39usft MD (8103.60 TVD, -12336.67 N, 2641.42 E) - Point	0.00	0.00	8,104.00	-12,336.67	2,640.92	1,222,984.48	3,145,328.09	39° 56' 39.509 N	104° 58' 54.034 W
INTERCHANGE B S22- - plan hits target center - Point	0.00	0.00	8,104.00	2,911.78	2,552.44	1,238,232.17	3,145,152.09	39° 59' 10.205 N	104° 58' 55.150 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
5,877.26	4,915.00	PARKMAN				
6,028.18	5,030.00	SUSSEX				
9,007.12	7,624.00	SHANNON				
9,047.16	7,664.00	NIOBRARA				
9,219.85	7,830.00	NIO B TARGET				
9,617.54	8,083.00	FORT HAYS				
9,759.69	8,104.00	CODELL				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Start Build 2.00
2,517.90	2,355.13	544.83	409.86	Start 4443.82 hold at 2517.90 MD
6,961.72	5,741.37	2,844.45	2,139.79	Start Drop -2.00
8,979.62	7,596.50	3,389.28	2,549.65	Start 30.00 hold at 8979.62 MD
9,009.62	7,626.50	3,389.28	2,549.65	Start DLS 12.00 TFO 179.67
9,759.69	8,104.00	2,911.78	2,552.44	Start 15248.70 hold at 9759.69 MD
25,008.39	8,104.00	-12,336.67	2,640.92	TD at 25008.39