

EXTRACTION OIL & GAS

Broomfield County

Sec 9-T1S-R68W

UNITED B S16-20-11N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

18 January, 2018



Project: Broomfield County
Site: Sec 9-T1S-R68W
Well: UNITED B S16-20-11N
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: 52084.3snT
Dip Angle: 66.47°
Date: 1/5/2018
Model: IGRF2015

WELL DETAILS: UNITED B S16-20-11N

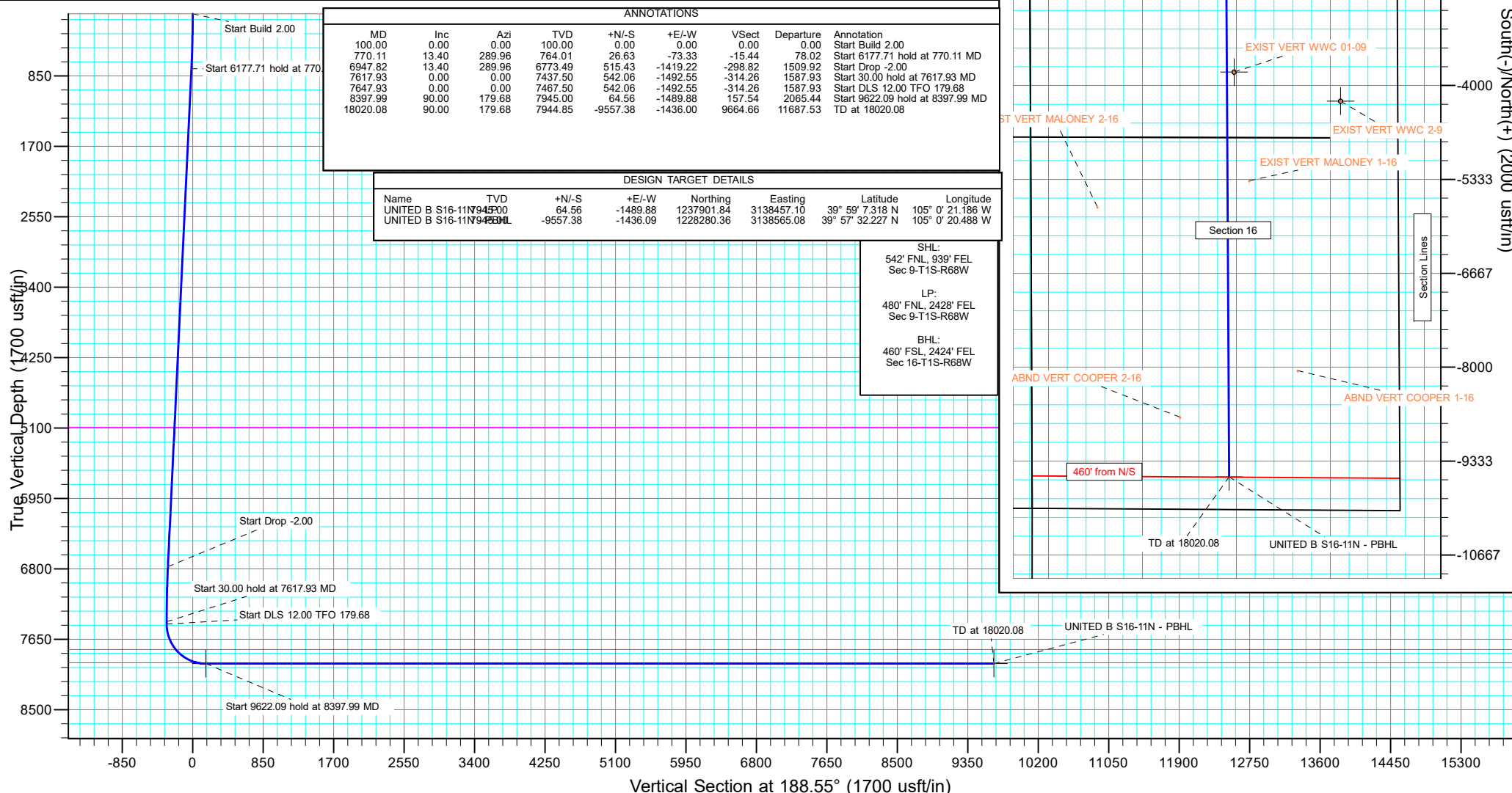
+N/-S	+E/-W	Northing	Easting	5254.00	Latitude	Longitude	Slot
+N/-S	+E/-W	1237845.67	3139947.32		39° 59' 6.680 N	105° 0' 2.045 W	

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	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	770.11	13.40	289.96	764.01	26.63	-73.33	2.00	289.96	-15.44	
4	6947.82	13.40	289.96	6773.49	515.43	-1419.22	0.00	0.00	-298.82	
5	7617.93	0.00	0.00	7437.50	542.06	-1492.55	2.00	180.00	-314.26	
6	7647.93	0.00	0.00	7467.50	542.06	-1492.55	0.00	0.00	-314.26	
7	8397.99	90.00	179.68	7945.00	64.56	-1489.88	12.00	179.68	157.54	UNITED B S16-11N - LP
8	18020.08	90.00	179.68	7945.00	-9557.38	-1436.09	0.00	0.00	9664.67	UNITED B S16-11N - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5090.00	5217.20	SUSSEX
7775.00	7982.03	NIOBRARA
7935.00	8300.09	NIO B TARGET



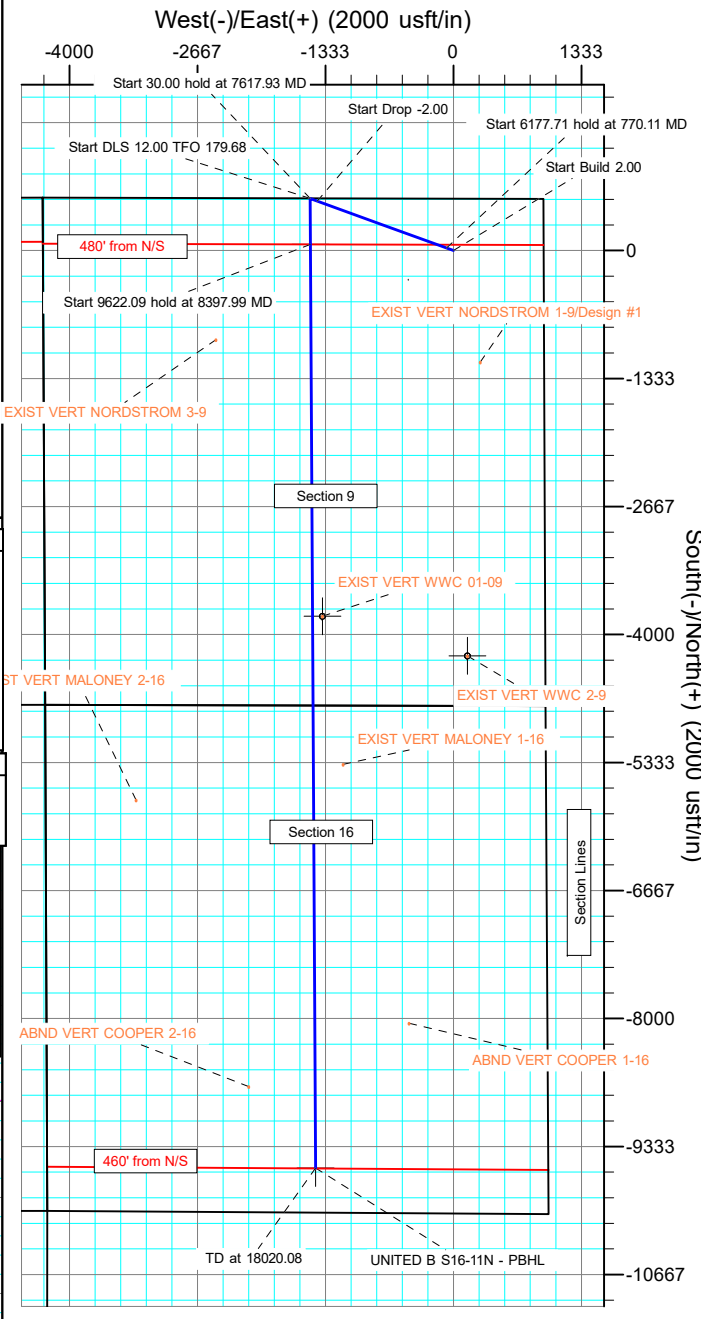
ANNOTATIONS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation		
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	Start Build 2.00		
770.11	13.40	289.96	764.01	26.63	-73.33	-15.44	78.02	Start 6177.71 hold at 770.11 MD		
6947.82	13.40	289.96	6773.49	515.43	-1419.22	-298.82	1509.92	Start Drop -2.00		
7617.93	0.00	0.00	7437.50	542.06	-1492.55	-314.26	1587.93	Start 30.00 hold at 7617.93 MD		
7647.93	0.00	0.00	7467.50	542.06	-1492.55	-314.26	1587.93	Start DLS 12.00 TFO 179.68		
8397.99	90.00	179.68	7945.00	64.56	-1489.88	157.54	2065.44	Start 9622.09 hold at 8397.99 MD		
18020.08	90.00	179.68	7944.85	-9557.38	-1436.00	9664.66	11687.53	TD at 18020.08		

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
UNITED B S16-11N-94500	94500	64.56	-1489.88	1237901.84	3138457.10	39° 59' 7.318 N	105° 0' 21.186 W
UNITED B S16-11N-94500	94500	-9557.38	-1436.09	1228280.36	3138565.08	39° 57' 32.227 N	105° 0' 20.488 W

SHL:
542' FNL, 939' FEL
Sec 9-T1S-R68W

LP:
480' FNL, 2428' FEL
Sec 9-T1S-R68W

BHL:
460' FSL, 2424' FEL
Sec 16-T1S-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED B S16-20-11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5279.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5279.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED B S16-20-11N	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 9-T1S-R68W			
Site Position:		Northing:	1,238,372.37 usft	Latitude:	39° 59' 12.120 N
From:	Lat/Long	Easting:	3,135,664.83 usft	Longitude:	105° 0' 57.025 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.31 °

Well	UNITED B S16-20-11N					
Well Position	+N/-S	-550.08 usft	Northing:	1,237,845.67 usft	Latitude:	39° 59' 6.680 N
	+E/-W	4,279.55 usft	Easting:	3,139,947.32 usft	Longitude:	105° 0' 2.045 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,254.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/5/2018	8.24	66.47	52,084.32249784

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	188.55

Plan Survey Tool Program	Date	1/18/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,020.08	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
770.11	13.40	289.96	764.01	26.63	-73.33	2.00	2.00	0.00	289.96	
6,947.82	13.40	289.96	6,773.49	515.43	-1,419.22	0.00	0.00	0.00	0.00	
7,617.93	0.00	0.00	7,437.50	542.06	-1,492.55	2.00	-2.00	0.00	180.00	
7,647.93	0.00	0.00	7,467.50	542.06	-1,492.55	0.00	0.00	0.00	0.00	
8,397.99	90.00	179.68	7,945.00	64.56	-1,489.88	12.00	12.00	23.96	179.68	UNITED B S16-11N -
18,020.08	90.00	179.68	7,945.00	-9,557.38	-1,436.09	0.00	0.00	0.00	0.00	UNITED B S16-11N -

Planning Report

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5279.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5279.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED B S16-20-11N	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
Start Build 2.00									
200.00	2.00	289.96	199.98	0.60	-1.64	-0.35	2.00	2.00	0.00
300.00	4.00	289.96	299.84	2.38	-6.56	-1.38	2.00	2.00	0.00
400.00	6.00	289.96	399.45	5.36	-14.75	-3.11	2.00	2.00	0.00
500.00	8.00	289.96	498.70	9.52	-26.21	-5.52	2.00	2.00	0.00
600.00	10.00	289.96	597.47	14.86	-40.91	-8.61	2.00	2.00	0.00
700.00	12.00	289.96	695.62	21.37	-58.84	-12.39	2.00	2.00	0.00
770.11	13.40	289.96	764.01	26.63	-73.33	-15.44	2.00	2.00	0.00
Start 6177.71 hold at 770.11 MD									
800.00	13.40	289.96	793.09	29.00	-79.84	-16.81	0.00	0.00	0.00
900.00	13.40	289.96	890.37	36.91	-101.63	-21.40	0.00	0.00	0.00
1,000.00	13.40	289.96	987.65	44.82	-123.42	-25.99	0.00	0.00	0.00
1,100.00	13.40	289.96	1,084.92	52.73	-145.20	-30.57	0.00	0.00	0.00
1,200.00	13.40	289.96	1,182.20	60.65	-166.99	-35.16	0.00	0.00	0.00
1,300.00	13.40	289.96	1,279.48	68.56	-188.77	-39.75	0.00	0.00	0.00
1,400.00	13.40	289.96	1,376.75	76.47	-210.56	-44.33	0.00	0.00	0.00
1,500.00	13.40	289.96	1,474.03	84.38	-232.35	-48.92	0.00	0.00	0.00
1,600.00	13.40	289.96	1,571.31	92.30	-254.13	-53.51	0.00	0.00	0.00
1,700.00	13.40	289.96	1,668.58	100.21	-275.92	-58.10	0.00	0.00	0.00
1,800.00	13.40	289.96	1,765.86	108.12	-297.70	-62.68	0.00	0.00	0.00
1,900.00	13.40	289.96	1,863.14	116.03	-319.49	-67.27	0.00	0.00	0.00
2,000.00	13.40	289.96	1,960.41	123.94	-341.28	-71.86	0.00	0.00	0.00
2,100.00	13.40	289.96	2,057.69	131.86	-363.06	-76.44	0.00	0.00	0.00
2,200.00	13.40	289.96	2,154.97	139.77	-384.85	-81.03	0.00	0.00	0.00
2,300.00	13.40	289.96	2,252.24	147.68	-406.64	-85.62	0.00	0.00	0.00
2,400.00	13.40	289.96	2,349.52	155.59	-428.42	-90.21	0.00	0.00	0.00
2,500.00	13.40	289.96	2,446.80	163.51	-450.21	-94.79	0.00	0.00	0.00
2,600.00	13.40	289.96	2,544.07	171.42	-471.99	-99.38	0.00	0.00	0.00
2,700.00	13.40	289.96	2,641.35	179.33	-493.78	-103.97	0.00	0.00	0.00
2,800.00	13.40	289.96	2,738.63	187.24	-515.57	-108.55	0.00	0.00	0.00
2,900.00	13.40	289.96	2,835.90	195.15	-537.35	-113.14	0.00	0.00	0.00
3,000.00	13.40	289.96	2,933.18	203.07	-559.14	-117.73	0.00	0.00	0.00
3,100.00	13.40	289.96	3,030.46	210.98	-580.93	-122.32	0.00	0.00	0.00
3,200.00	13.40	289.96	3,127.73	218.89	-602.71	-126.90	0.00	0.00	0.00
3,300.00	13.40	289.96	3,225.01	226.80	-624.50	-131.49	0.00	0.00	0.00
3,400.00	13.40	289.96	3,322.29	234.72	-646.28	-136.08	0.00	0.00	0.00
3,500.00	13.40	289.96	3,419.56	242.63	-668.07	-140.66	0.00	0.00	0.00
3,600.00	13.40	289.96	3,516.84	250.54	-689.86	-145.25	0.00	0.00	0.00
3,700.00	13.40	289.96	3,614.12	258.45	-711.64	-149.84	0.00	0.00	0.00
3,800.00	13.40	289.96	3,711.39	266.36	-733.43	-154.43	0.00	0.00	0.00
3,900.00	13.40	289.96	3,808.67	274.28	-755.22	-159.01	0.00	0.00	0.00
4,000.00	13.40	289.96	3,905.95	282.19	-777.00	-163.60	0.00	0.00	0.00
4,100.00	13.40	289.96	4,003.22	290.10	-798.79	-168.19	0.00	0.00	0.00
4,200.00	13.40	289.96	4,100.50	298.01	-820.57	-172.77	0.00	0.00	0.00
4,300.00	13.40	289.96	4,197.78	305.93	-842.36	-177.36	0.00	0.00	0.00
4,400.00	13.40	289.96	4,295.05	313.84	-864.15	-181.95	0.00	0.00	0.00
4,500.00	13.40	289.96	4,392.33	321.75	-885.93	-186.54	0.00	0.00	0.00
4,600.00	13.40	289.96	4,489.61	329.66	-907.72	-191.12	0.00	0.00	0.00
4,700.00	13.40	289.96	4,586.88	337.58	-929.51	-195.71	0.00	0.00	0.00
4,800.00	13.40	289.96	4,684.16	345.49	-951.29	-200.30	0.00	0.00	0.00
4,900.00	13.40	289.96	4,781.44	353.40	-973.08	-204.88	0.00	0.00	0.00

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Well:	UNITED B S16-20-11N	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	13.40	289.96	4,878.71	361.31	-994.86	-209.47	0.00	0.00	0.00	
5,100.00	13.40	289.96	4,975.99	369.22	-1,016.65	-214.06	0.00	0.00	0.00	
5,200.00	13.40	289.96	5,073.27	377.14	-1,038.44	-218.65	0.00	0.00	0.00	
5,217.20	13.40	289.96	5,090.00	378.50	-1,042.18	-219.44	0.00	0.00	0.00	
SUSSEX										
5,300.00	13.40	289.96	5,170.54	385.05	-1,060.22	-223.23	0.00	0.00	0.00	
5,400.00	13.40	289.96	5,267.82	392.96	-1,082.01	-227.82	0.00	0.00	0.00	
5,500.00	13.40	289.96	5,365.10	400.87	-1,103.80	-232.41	0.00	0.00	0.00	
5,600.00	13.40	289.96	5,462.37	408.79	-1,125.58	-237.00	0.00	0.00	0.00	
5,700.00	13.40	289.96	5,559.65	416.70	-1,147.37	-241.58	0.00	0.00	0.00	
5,800.00	13.40	289.96	5,656.93	424.61	-1,169.15	-246.17	0.00	0.00	0.00	
5,900.00	13.40	289.96	5,754.20	432.52	-1,190.94	-250.76	0.00	0.00	0.00	
6,000.00	13.40	289.96	5,851.48	440.43	-1,212.73	-255.34	0.00	0.00	0.00	
6,100.00	13.40	289.96	5,948.76	448.35	-1,234.51	-259.93	0.00	0.00	0.00	
6,200.00	13.40	289.96	6,046.03	456.26	-1,256.30	-264.52	0.00	0.00	0.00	
6,300.00	13.40	289.96	6,143.31	464.17	-1,278.08	-269.11	0.00	0.00	0.00	
6,400.00	13.40	289.96	6,240.59	472.08	-1,299.87	-273.69	0.00	0.00	0.00	
6,500.00	13.40	289.96	6,337.86	480.00	-1,321.66	-278.28	0.00	0.00	0.00	
6,600.00	13.40	289.96	6,435.14	487.91	-1,343.44	-282.87	0.00	0.00	0.00	
6,700.00	13.40	289.96	6,532.42	495.82	-1,365.23	-287.45	0.00	0.00	0.00	
6,800.00	13.40	289.96	6,629.69	503.73	-1,387.02	-292.04	0.00	0.00	0.00	
6,900.00	13.40	289.96	6,726.97	511.64	-1,408.80	-296.63	0.00	0.00	0.00	
6,947.82	13.40	289.96	6,773.49	515.43	-1,419.22	-298.82	0.00	0.00	0.00	
Start Drop -2.00										
7,000.00	12.36	289.96	6,824.35	519.40	-1,430.15	-301.12	2.00	-2.00	0.00	
7,100.00	10.36	289.96	6,922.39	526.12	-1,448.66	-305.02	2.00	-2.00	0.00	
7,200.00	8.36	289.96	7,021.06	531.67	-1,463.95	-308.24	2.00	-2.00	0.00	
7,300.00	6.36	289.96	7,120.23	536.04	-1,475.99	-310.77	2.00	-2.00	0.00	
7,400.00	4.36	289.96	7,219.78	539.23	-1,484.76	-312.62	2.00	-2.00	0.00	
7,500.00	2.36	289.96	7,319.61	541.23	-1,490.27	-313.78	2.00	-2.00	0.00	
7,600.00	0.36	289.96	7,419.57	542.04	-1,492.50	-314.25	2.00	-2.00	0.00	
7,617.93	0.00	0.00	7,437.50	542.06	-1,492.55	-314.26	2.00	-2.00	0.00	
Start 30.00 hold at 7617.93 MD										
7,647.93	0.00	0.00	7,467.50	542.06	-1,492.55	-314.26	0.00	0.00	0.00	
Start DLS 12.00 TFO 179.68										
7,650.00	0.25	179.68	7,469.57	542.06	-1,492.55	-314.26	12.00	12.00	0.00	
7,675.00	3.25	179.68	7,494.56	541.29	-1,492.55	-313.50	12.00	12.00	0.00	
7,700.00	6.25	179.68	7,519.47	539.22	-1,492.53	-311.46	12.00	12.00	0.00	
7,725.00	9.25	179.68	7,544.24	535.85	-1,492.52	-308.13	12.00	12.00	0.00	
7,750.00	12.25	179.68	7,568.80	531.19	-1,492.49	-303.52	12.00	12.00	0.00	
7,775.00	15.25	179.68	7,593.08	525.25	-1,492.46	-297.65	12.00	12.00	0.00	
7,800.00	18.25	179.68	7,617.02	518.05	-1,492.42	-290.54	12.00	12.00	0.00	
7,825.00	21.25	179.68	7,640.54	509.60	-1,492.37	-282.19	12.00	12.00	0.00	
7,850.00	24.25	179.68	7,663.60	499.94	-1,492.31	-272.64	12.00	12.00	0.00	
7,875.00	27.25	179.68	7,686.11	489.08	-1,492.25	-261.91	12.00	12.00	0.00	
7,900.00	30.25	179.68	7,708.03	477.06	-1,492.19	-250.03	12.00	12.00	0.00	
7,925.00	33.25	179.68	7,729.29	463.90	-1,492.11	-237.04	12.00	12.00	0.00	
7,950.00	36.25	179.68	7,749.83	449.66	-1,492.03	-222.96	12.00	12.00	0.00	
7,975.00	39.25	179.68	7,769.59	434.36	-1,491.95	-207.84	12.00	12.00	0.00	
7,982.03	40.09	179.68	7,775.00	429.87	-1,491.92	-203.41	12.00	12.00	0.00	
NIOBRARA										
8,000.00	42.25	179.68	7,788.53	418.04	-1,491.86	-191.72	12.00	12.00	0.00	
8,025.00	45.25	179.68	7,806.59	400.76	-1,491.76	-174.64	12.00	12.00	0.00	
8,050.00	48.25	179.68	7,823.72	382.55	-1,491.66	-156.66	12.00	12.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED B S16-20-11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5279.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5279.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED B S16-20-11N	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)
8,075.00	51.25	179.68	7,839.87	363.47	-1,491.55	-137.81	12.00	12.00	0.00
8,100.00	54.24	179.68	7,855.00	343.58	-1,491.44	-118.15	12.00	12.00	0.00
8,125.00	57.24	179.68	7,869.07	322.92	-1,491.32	-97.73	12.00	12.00	0.00
8,150.00	60.24	179.68	7,882.04	301.55	-1,491.20	-76.62	12.00	12.00	0.00
8,175.00	63.24	179.68	7,893.88	279.53	-1,491.08	-54.86	12.00	12.00	0.00
8,200.00	66.24	179.68	7,904.54	256.92	-1,490.95	-32.53	12.00	12.00	0.00
8,225.00	69.24	179.68	7,914.01	233.79	-1,490.82	-9.67	12.00	12.00	0.00
8,250.00	72.24	179.68	7,922.25	210.19	-1,490.69	13.65	12.00	12.00	0.00
8,275.00	75.24	179.68	7,929.25	186.19	-1,490.56	37.36	12.00	12.00	0.00
8,300.00	78.24	179.68	7,934.98	161.86	-1,490.42	61.40	12.00	12.00	0.00
8,300.09	78.24	179.68	7,935.00	161.78	-1,490.42	61.48	0.00	0.00	0.00
NIO B TARGET									
8,325.00	81.24	179.68	7,939.43	137.26	-1,490.28	85.70	12.04	12.04	0.00
8,350.00	84.24	179.68	7,942.59	112.47	-1,490.14	110.20	12.00	12.00	0.00
8,375.00	87.24	179.68	7,944.45	87.54	-1,490.01	134.84	12.00	12.00	0.00
8,397.99	90.00	179.68	7,945.00	64.56	-1,489.88	157.54	12.00	12.00	0.00
Start 9622.09 hold at 8397.99 MD									
8,400.00	90.00	179.68	7,945.00	62.55	-1,489.87	159.53	0.00	0.00	0.00
8,500.00	90.00	179.68	7,945.00	-37.45	-1,489.31	258.33	0.00	0.00	0.00
8,600.00	90.00	179.68	7,945.00	-137.45	-1,488.75	357.14	0.00	0.00	0.00
8,700.00	90.00	179.68	7,945.00	-237.45	-1,488.19	455.94	0.00	0.00	0.00
8,800.00	90.00	179.68	7,944.99	-337.45	-1,487.63	554.75	0.00	0.00	0.00
8,900.00	90.00	179.68	7,944.99	-437.44	-1,487.07	653.55	0.00	0.00	0.00
9,000.00	90.00	179.68	7,944.99	-537.44	-1,486.51	752.36	0.00	0.00	0.00
9,100.00	90.00	179.68	7,944.99	-637.44	-1,485.95	851.16	0.00	0.00	0.00
9,200.00	90.00	179.68	7,944.99	-737.44	-1,485.39	949.97	0.00	0.00	0.00
9,300.00	90.00	179.68	7,944.99	-837.44	-1,484.83	1,048.77	0.00	0.00	0.00
9,400.00	90.00	179.68	7,944.98	-937.44	-1,484.27	1,147.58	0.00	0.00	0.00
9,500.00	90.00	179.68	7,944.98	-1,037.43	-1,483.71	1,246.38	0.00	0.00	0.00
9,600.00	90.00	179.68	7,944.98	-1,137.43	-1,483.15	1,345.19	0.00	0.00	0.00
9,700.00	90.00	179.68	7,944.98	-1,237.43	-1,482.59	1,443.99	0.00	0.00	0.00
9,800.00	90.00	179.68	7,944.98	-1,337.43	-1,482.03	1,542.80	0.00	0.00	0.00
9,900.00	90.00	179.68	7,944.98	-1,437.43	-1,481.47	1,641.60	0.00	0.00	0.00
10,000.00	90.00	179.68	7,944.98	-1,537.43	-1,480.91	1,740.41	0.00	0.00	0.00
10,100.00	90.00	179.68	7,944.97	-1,637.42	-1,480.35	1,839.21	0.00	0.00	0.00
10,200.00	90.00	179.68	7,944.97	-1,737.42	-1,479.79	1,938.02	0.00	0.00	0.00
10,300.00	90.00	179.68	7,944.97	-1,837.42	-1,479.23	2,036.82	0.00	0.00	0.00
10,400.00	90.00	179.68	7,944.97	-1,937.42	-1,478.67	2,135.63	0.00	0.00	0.00
10,500.00	90.00	179.68	7,944.97	-2,037.42	-1,478.11	2,234.44	0.00	0.00	0.00
10,600.00	90.00	179.68	7,944.97	-2,137.42	-1,477.55	2,333.24	0.00	0.00	0.00
10,700.00	90.00	179.68	7,944.96	-2,237.42	-1,476.99	2,432.05	0.00	0.00	0.00
10,800.00	90.00	179.68	7,944.96	-2,337.41	-1,476.43	2,530.85	0.00	0.00	0.00
10,900.00	90.00	179.68	7,944.96	-2,437.41	-1,475.87	2,629.66	0.00	0.00	0.00
11,000.00	90.00	179.68	7,944.96	-2,537.41	-1,475.31	2,728.46	0.00	0.00	0.00
11,100.00	90.00	179.68	7,944.96	-2,637.41	-1,474.75	2,827.27	0.00	0.00	0.00
11,200.00	90.00	179.68	7,944.96	-2,737.41	-1,474.19	2,926.07	0.00	0.00	0.00
11,300.00	90.00	179.68	7,944.95	-2,837.41	-1,473.63	3,024.88	0.00	0.00	0.00
11,400.00	90.00	179.68	7,944.95	-2,937.40	-1,473.07	3,123.68	0.00	0.00	0.00
11,500.00	90.00	179.68	7,944.95	-3,037.40	-1,472.51	3,222.49	0.00	0.00	0.00
11,600.00	90.00	179.68	7,944.95	-3,137.40	-1,471.95	3,321.29	0.00	0.00	0.00
11,700.00	90.00	179.68	7,944.95	-3,237.40	-1,471.39	3,420.10	0.00	0.00	0.00
11,800.00	90.00	179.68	7,944.95	-3,337.40	-1,470.83	3,518.90	0.00	0.00	0.00
11,900.00	90.00	179.68	7,944.95	-3,437.40	-1,470.27	3,617.71	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED B S16-20-11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5279.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5279.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED B S16-20-11N	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)	
12,000.00	90.00	179.68	7,944.94	-3,537.40	-1,469.71	3,716.51	0.00	0.00	0.00	
12,100.00	90.00	179.68	7,944.94	-3,637.39	-1,469.15	3,815.32	0.00	0.00	0.00	
12,200.00	90.00	179.68	7,944.94	-3,737.39	-1,468.59	3,914.12	0.00	0.00	0.00	
12,300.00	90.00	179.68	7,944.94	-3,837.39	-1,468.03	4,012.93	0.00	0.00	0.00	
12,400.00	90.00	179.68	7,944.94	-3,937.39	-1,467.47	4,111.73	0.00	0.00	0.00	
12,500.00	90.00	179.68	7,944.94	-4,037.39	-1,466.91	4,210.54	0.00	0.00	0.00	
12,600.00	90.00	179.68	7,944.93	-4,137.39	-1,466.35	4,309.34	0.00	0.00	0.00	
12,700.00	90.00	179.68	7,944.93	-4,237.38	-1,465.79	4,408.15	0.00	0.00	0.00	
12,800.00	90.00	179.68	7,944.93	-4,337.38	-1,465.23	4,506.95	0.00	0.00	0.00	
12,900.00	90.00	179.68	7,944.93	-4,437.38	-1,464.67	4,605.76	0.00	0.00	0.00	
13,000.00	90.00	179.68	7,944.93	-4,537.38	-1,464.11	4,704.56	0.00	0.00	0.00	
13,100.00	90.00	179.68	7,944.93	-4,637.38	-1,463.55	4,803.37	0.00	0.00	0.00	
13,200.00	90.00	179.68	7,944.92	-4,737.38	-1,462.99	4,902.17	0.00	0.00	0.00	
13,300.00	90.00	179.68	7,944.92	-4,837.37	-1,462.43	5,000.98	0.00	0.00	0.00	
13,400.00	90.00	179.68	7,944.92	-4,937.37	-1,461.87	5,099.78	0.00	0.00	0.00	
13,500.00	90.00	179.68	7,944.92	-5,037.37	-1,461.31	5,198.59	0.00	0.00	0.00	
13,600.00	90.00	179.68	7,944.92	-5,137.37	-1,460.75	5,297.39	0.00	0.00	0.00	
13,700.00	90.00	179.68	7,944.92	-5,237.37	-1,460.19	5,396.20	0.00	0.00	0.00	
13,800.00	90.00	179.68	7,944.92	-5,337.37	-1,459.63	5,495.00	0.00	0.00	0.00	
13,900.00	90.00	179.68	7,944.91	-5,437.37	-1,459.07	5,593.81	0.00	0.00	0.00	
14,000.00	90.00	179.68	7,944.91	-5,537.36	-1,458.51	5,692.61	0.00	0.00	0.00	
14,100.00	90.00	179.68	7,944.91	-5,637.36	-1,457.95	5,791.42	0.00	0.00	0.00	
14,200.00	90.00	179.68	7,944.91	-5,737.36	-1,457.39	5,890.22	0.00	0.00	0.00	
14,300.00	90.00	179.68	7,944.91	-5,837.36	-1,456.83	5,989.03	0.00	0.00	0.00	
14,400.00	90.00	179.68	7,944.91	-5,937.36	-1,456.27	6,087.83	0.00	0.00	0.00	
14,500.00	90.00	179.68	7,944.90	-6,037.36	-1,455.71	6,186.64	0.00	0.00	0.00	
14,600.00	90.00	179.68	7,944.90	-6,137.35	-1,455.15	6,285.45	0.00	0.00	0.00	
14,700.00	90.00	179.68	7,944.90	-6,237.35	-1,454.59	6,384.25	0.00	0.00	0.00	
14,800.00	90.00	179.68	7,944.90	-6,337.35	-1,454.03	6,483.06	0.00	0.00	0.00	
14,900.00	90.00	179.68	7,944.90	-6,437.35	-1,453.47	6,581.86	0.00	0.00	0.00	
15,000.00	90.00	179.68	7,944.90	-6,537.35	-1,452.91	6,680.67	0.00	0.00	0.00	
15,100.00	90.00	179.68	7,944.90	-6,637.35	-1,452.35	6,779.47	0.00	0.00	0.00	
15,200.00	90.00	179.68	7,944.89	-6,737.35	-1,451.79	6,878.28	0.00	0.00	0.00	
15,300.00	90.00	179.68	7,944.89	-6,837.34	-1,451.23	6,977.08	0.00	0.00	0.00	
15,400.00	90.00	179.68	7,944.89	-6,937.34	-1,450.67	7,075.89	0.00	0.00	0.00	
15,500.00	90.00	179.68	7,944.89	-7,037.34	-1,450.11	7,174.69	0.00	0.00	0.00	
15,600.00	90.00	179.68	7,944.89	-7,137.34	-1,449.55	7,273.50	0.00	0.00	0.00	
15,700.00	90.00	179.68	7,944.89	-7,237.34	-1,448.99	7,372.30	0.00	0.00	0.00	
15,800.00	90.00	179.68	7,944.88	-7,337.34	-1,448.43	7,471.11	0.00	0.00	0.00	
15,900.00	90.00	179.68	7,944.88	-7,437.33	-1,447.87	7,569.91	0.00	0.00	0.00	
16,000.00	90.00	179.68	7,944.88	-7,537.33	-1,447.31	7,668.72	0.00	0.00	0.00	
16,100.00	90.00	179.68	7,944.88	-7,637.33	-1,446.75	7,767.52	0.00	0.00	0.00	
16,200.00	90.00	179.68	7,944.88	-7,737.33	-1,446.19	7,866.33	0.00	0.00	0.00	
16,300.00	90.00	179.68	7,944.88	-7,837.33	-1,445.63	7,965.13	0.00	0.00	0.00	
16,400.00	90.00	179.68	7,944.87	-7,937.33	-1,445.07	8,063.94	0.00	0.00	0.00	
16,500.00	90.00	179.68	7,944.87	-8,037.32	-1,444.51	8,162.74	0.00	0.00	0.00	
16,600.00	90.00	179.68	7,944.87	-8,137.32	-1,443.95	8,261.55	0.00	0.00	0.00	
16,700.00	90.00	179.68	7,944.87	-8,237.32	-1,443.39	8,360.35	0.00	0.00	0.00	
16,800.00	90.00	179.68	7,944.87	-8,337.32	-1,442.83	8,459.16	0.00	0.00	0.00	
16,900.00	90.00	179.68	7,944.87	-8,437.32	-1,442.27	8,557.96	0.00	0.00	0.00	
17,000.00	90.00	179.68	7,944.87	-8,537.32	-1,441.71	8,656.77	0.00	0.00	0.00	
17,100.00	90.00	179.68	7,944.86	-8,637.32	-1,441.15	8,755.57	0.00	0.00	0.00	
17,200.00	90.00	179.68	7,944.86	-8,737.31	-1,440.60	8,854.38	0.00	0.00	0.00	
17,300.00	90.00	179.68	7,944.86	-8,837.31	-1,440.04	8,953.18	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED B S16-20-11N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5279.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5279.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED B S16-20-11N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,400.00	90.00	179.68	7,944.86	-8,937.31	-1,439.48	9,051.99	0.00	0.00	0.00
17,500.00	90.00	179.68	7,944.86	-9,037.31	-1,438.92	9,150.79	0.00	0.00	0.00
17,600.00	90.00	179.68	7,944.86	-9,137.31	-1,438.36	9,249.60	0.00	0.00	0.00
17,700.00	90.00	179.68	7,944.85	-9,237.31	-1,437.80	9,348.40	0.00	0.00	0.00
17,800.00	90.00	179.68	7,944.85	-9,337.30	-1,437.24	9,447.21	0.00	0.00	0.00
17,900.00	90.00	179.68	7,944.85	-9,437.30	-1,436.68	9,546.01	0.00	0.00	0.00
18,000.00	90.00	179.68	7,944.85	-9,537.30	-1,436.12	9,644.82	0.00	0.00	0.00
18,020.08	90.00	179.68	7,945.00	-9,557.38	-1,436.09	9,664.67	0.00	0.00	0.00
TD at 18020.08									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
UNITED B S16-11N - PE	0.00	0.00	7,945.00	-9,557.38	-1,436.09	1,228,280.35	3,138,565.08	39° 57' 32.227 N	105° 0' 20.488 W
- plan hits target center									
- Point									
UNITED B S16-11N - LF	0.00	0.00	7,945.00	64.56	-1,489.88	1,237,901.84	3,138,457.10	39° 59' 7.318 N	105° 0' 21.186 W
- plan hits target center									
- Point									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,217.20	5,090.00	SUSSEX			
7,982.03	7,775.00	NIOBRARA			
8,300.09	7,935.00	NIO B TARGET			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.00	0.00	Start Build 2.00
770.11	764.01	26.63	-73.33	Start 6177.71 hold at 770.11 MD
6,947.82	6,773.49	515.43	-1,419.22	Start Drop -2.00
7,617.93	7,437.50	542.06	-1,492.55	Start 30.00 hold at 7617.93 MD
7,647.93	7,467.50	542.06	-1,492.55	Start DLS 12.00 TFO 179.68
8,397.99	7,945.00	64.56	-1,489.88	Start 9622.09 hold at 8397.99 MD
18,020.08	7,945.00	-9,557.38	-1,436.09	TD at 18020.08