

EXTRACTION OIL & GAS

Broomfield County

Sec 9-T1S-R68W

UNITED A S16-20-10C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

18 January, 2018



Project: Broomfield County
Site: Sec 9-T1S-R68W
Well: UNITED A S16-20-10C
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: 52084.8nT
Dip Angle: 66.47°
Date: 1/4/2018
Model: IGRF2015

WELL DETAILS: UNITED A S16-20-10C

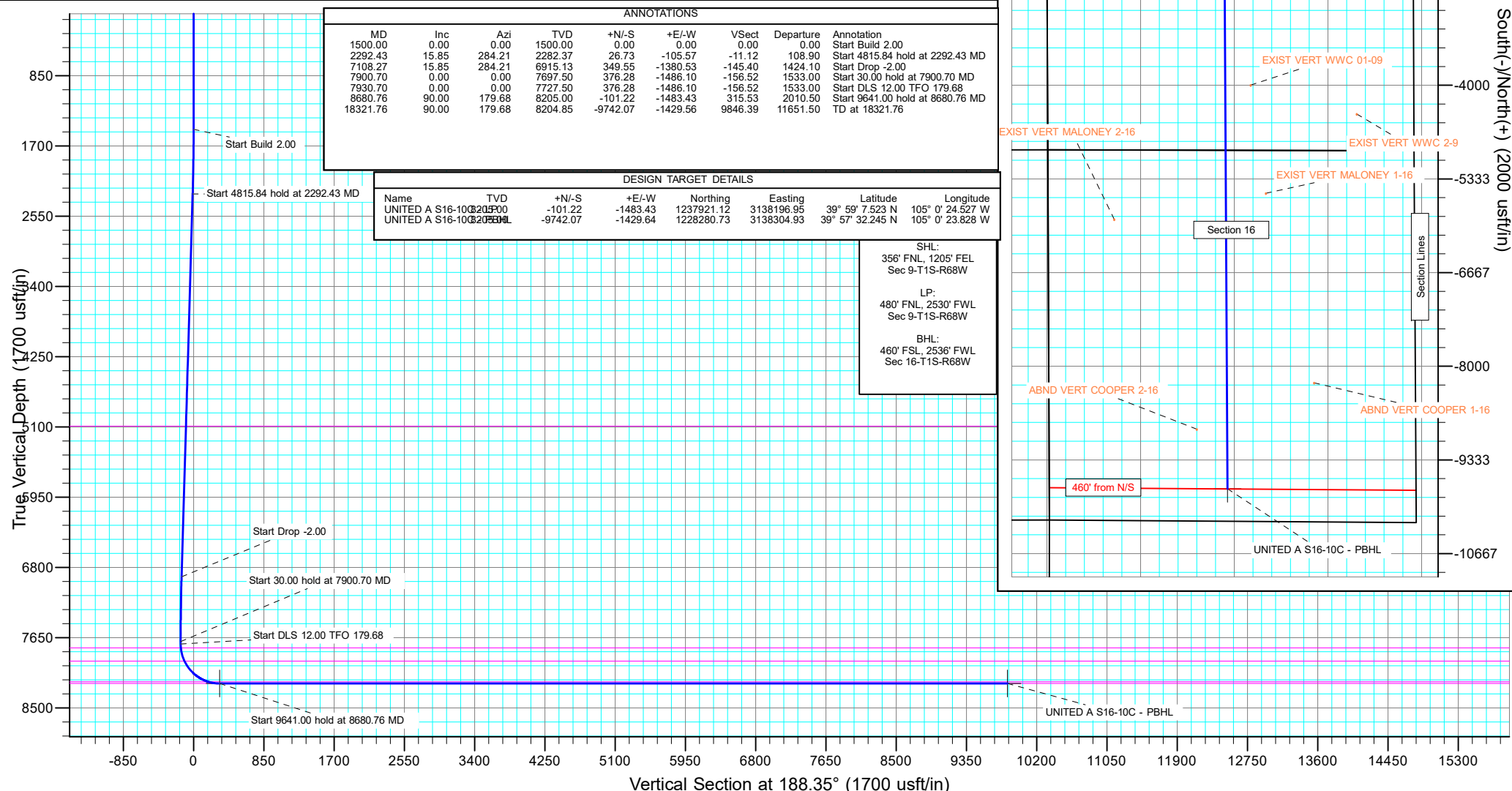
+N/-S	+E/-W	Northing	Easting	5257.00	Latitude	Longitude	Slot
0.00	0.00	1238030.68	3139679.79		39° 59' 8.523 N	105° 0' 5.468 W	

SECTION DETAILS

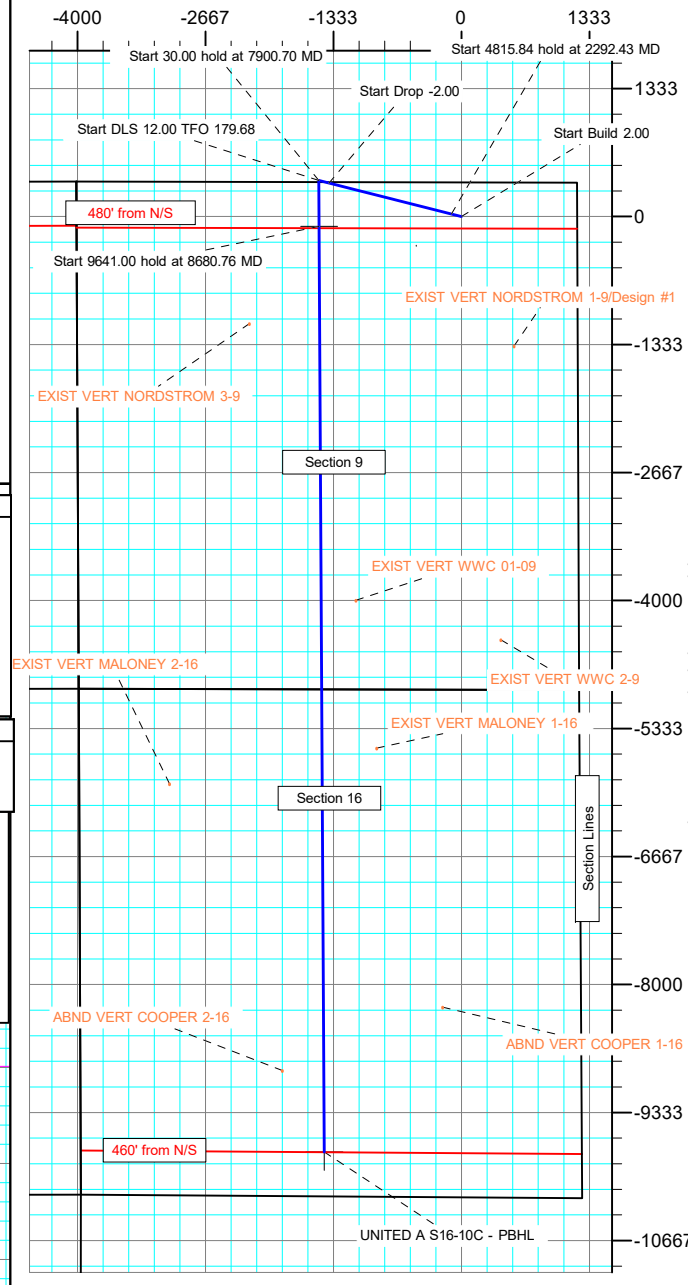
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	
3	2292.43	15.85	284.21	2292.37	26.73	-105.57	2.00	284.21	-11.12	
4	7108.27	15.85	284.21	6915.13	349.55	-1380.53	0.00	0.00	-145.40	
5	7900.70	0.00	0.00	7697.50	376.28	-1486.10	2.00	180.00	-156.52	
6	7930.70	0.00	0.00	7727.50	376.28	-1486.10	0.00	0.00	-156.52	
7	8680.76	90.00	179.68	8205.00	-101.22	-1483.43	12.00	179.68	315.53	UNITED A S16-10C - LP
8	18321.76	90.00	179.68	8205.00	-9742.07	-1429.64	0.00	0.00	9846.41	UNITED A S16-10C - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5090.00	5211.01	SUSSEX
7775.00	7978.28	NIORARA
7935.00	8145.36	NIO B TARGET
8185.00	8542.07	FORT HAYS
8205.00	8680.76	CODELL



West(-)/East(+) (2000 usft/in)



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED A S16-20-10C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5282.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5282.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED A S16-20-10C	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 A S16-20-10C				
Well Position	+N/-S	-363.62 usft	Northing:	1,238,030.67 usft	Latitude:	39° 59' 8.523 N
	+E/-W	4,013.03 usft	Easting:	3,139,679.79 usft	Longitude:	105° 0' 5.468 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,257.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/4/2018	8.24	66.47	52,084.77758194

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	188.35

Plan Survey Tool Program	Date	1/18/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,321.10	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	
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,292.43	15.85	284.21	2,282.37	26.73	-105.57	2.00	2.00	0.00	284.21	
7,108.27	15.85	284.21	6,915.13	349.55	-1,380.53	0.00	0.00	0.00	0.00	
7,900.70	0.00	0.00	7,697.50	376.28	-1,486.10	2.00	-2.00	0.00	180.00	
7,930.70	0.00	0.00	7,727.50	376.28	-1,486.10	0.00	0.00	0.00	0.00	
8,680.76	90.00	179.68	8,205.00	-101.22	-1,483.43	12.00	12.00	23.96	179.68	UNITED A S16-10C -
18,321.76	90.00	179.68	8,205.00	-9,742.07	-1,429.64	0.00	0.00	0.00	0.00	UNITED A S16-10C -

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Project:	Broomfield County	MD Reference:	KB 25' @ 5282.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED A S16-20-10C	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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,600.00	2.00	284.21	1,599.98	0.43	-1.69	-0.18	2.00	2.00	0.00
1,700.00	4.00	284.21	1,699.84	1.71	-6.77	-0.71	2.00	2.00	0.00
1,800.00	6.00	284.21	1,799.45	3.85	-15.21	-1.60	2.00	2.00	0.00
1,900.00	8.00	284.21	1,898.70	6.84	-27.03	-2.85	2.00	2.00	0.00
2,000.00	10.00	284.21	1,997.47	10.68	-42.19	-4.44	2.00	2.00	0.00
2,100.00	12.00	284.21	2,095.62	15.37	-60.69	-6.39	2.00	2.00	0.00
2,200.00	14.00	284.21	2,193.06	20.89	-82.49	-8.69	2.00	2.00	0.00
2,292.43	15.85	284.21	2,282.37	26.73	-105.57	-11.12	2.00	2.00	0.00
Start 4815.84 hold at 2292.43 MD									
2,300.00	15.85	284.21	2,289.65	27.24	-107.57	-11.33	0.00	0.00	0.00
2,400.00	15.85	284.21	2,385.84	33.94	-134.05	-14.12	0.00	0.00	0.00
2,500.00	15.85	284.21	2,482.04	40.64	-160.52	-16.91	0.00	0.00	0.00
2,600.00	15.85	284.21	2,578.24	47.35	-187.00	-19.69	0.00	0.00	0.00
2,700.00	15.85	284.21	2,674.44	54.05	-213.47	-22.48	0.00	0.00	0.00
2,800.00	15.85	284.21	2,770.64	60.75	-239.94	-25.27	0.00	0.00	0.00
2,900.00	15.85	284.21	2,866.84	67.46	-266.42	-28.06	0.00	0.00	0.00
3,000.00	15.85	284.21	2,963.04	74.16	-292.89	-30.85	0.00	0.00	0.00
3,100.00	15.85	284.21	3,059.23	80.86	-319.37	-33.64	0.00	0.00	0.00
3,200.00	15.85	284.21	3,155.43	87.57	-345.84	-36.42	0.00	0.00	0.00
3,300.00	15.85	284.21	3,251.63	94.27	-372.32	-39.21	0.00	0.00	0.00
3,400.00	15.85	284.21	3,347.83	100.97	-398.79	-42.00	0.00	0.00	0.00
3,500.00	15.85	284.21	3,444.03	107.68	-425.27	-44.79	0.00	0.00	0.00
3,600.00	15.85	284.21	3,540.23	114.38	-451.74	-47.58	0.00	0.00	0.00
3,700.00	15.85	284.21	3,636.43	121.08	-478.21	-50.37	0.00	0.00	0.00
3,800.00	15.85	284.21	3,732.62	127.79	-504.69	-53.15	0.00	0.00	0.00
3,900.00	15.85	284.21	3,828.82	134.49	-531.16	-55.94	0.00	0.00	0.00
4,000.00	15.85	284.21	3,925.02	141.19	-557.64	-58.73	0.00	0.00	0.00
4,100.00	15.85	284.21	4,021.22	147.90	-584.11	-61.52	0.00	0.00	0.00
4,200.00	15.85	284.21	4,117.42	154.60	-610.59	-64.31	0.00	0.00	0.00
4,300.00	15.85	284.21	4,213.62	161.30	-637.06	-67.10	0.00	0.00	0.00
4,400.00	15.85	284.21	4,309.82	168.01	-663.53	-69.88	0.00	0.00	0.00
4,500.00	15.85	284.21	4,406.02	174.71	-690.01	-72.67	0.00	0.00	0.00
4,600.00	15.85	284.21	4,502.21	181.41	-716.48	-75.46	0.00	0.00	0.00
4,700.00	15.85	284.21	4,598.41	188.12	-742.96	-78.25	0.00	0.00	0.00
4,800.00	15.85	284.21	4,694.61	194.82	-769.43	-81.04	0.00	0.00	0.00
4,900.00	15.85	284.21	4,790.81	201.52	-795.91	-83.83	0.00	0.00	0.00

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Project:	Broomfield County	MD Reference:	KB 25' @ 5282.00usft
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Well:	UNITED A S16-20-10C	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	15.85	284.21	4,887.01	208.23	-822.38	-86.61	0.00	0.00	0.00
5,100.00	15.85	284.21	4,983.21	214.93	-848.85	-89.40	0.00	0.00	0.00
5,200.00	15.85	284.21	5,079.41	221.63	-875.33	-92.19	0.00	0.00	0.00
5,211.01	15.85	284.21	5,090.00	222.37	-878.24	-92.50	0.00	0.00	0.00
SUSSEX									
5,300.00	15.85	284.21	5,175.60	228.34	-901.80	-94.98	0.00	0.00	0.00
5,400.00	15.85	284.21	5,271.80	235.04	-928.28	-97.77	0.00	0.00	0.00
5,500.00	15.85	284.21	5,368.00	241.74	-954.75	-100.56	0.00	0.00	0.00
5,600.00	15.85	284.21	5,464.20	248.45	-981.23	-103.34	0.00	0.00	0.00
5,700.00	15.85	284.21	5,560.40	255.15	-1,007.70	-106.13	0.00	0.00	0.00
5,800.00	15.85	284.21	5,656.60	261.85	-1,034.17	-108.92	0.00	0.00	0.00
5,900.00	15.85	284.21	5,752.80	268.56	-1,060.65	-111.71	0.00	0.00	0.00
6,000.00	15.85	284.21	5,848.99	275.26	-1,087.12	-114.50	0.00	0.00	0.00
6,100.00	15.85	284.21	5,945.19	281.96	-1,113.60	-117.29	0.00	0.00	0.00
6,200.00	15.85	284.21	6,041.39	288.67	-1,140.07	-120.07	0.00	0.00	0.00
6,300.00	15.85	284.21	6,137.59	295.37	-1,166.55	-122.86	0.00	0.00	0.00
6,400.00	15.85	284.21	6,233.79	302.07	-1,193.02	-125.65	0.00	0.00	0.00
6,500.00	15.85	284.21	6,329.99	308.78	-1,219.50	-128.44	0.00	0.00	0.00
6,600.00	15.85	284.21	6,426.19	315.48	-1,245.97	-131.23	0.00	0.00	0.00
6,700.00	15.85	284.21	6,522.39	322.18	-1,272.44	-134.02	0.00	0.00	0.00
6,800.00	15.85	284.21	6,618.58	328.89	-1,298.92	-136.80	0.00	0.00	0.00
6,900.00	15.85	284.21	6,714.78	335.59	-1,325.39	-139.59	0.00	0.00	0.00
7,000.00	15.85	284.21	6,810.98	342.29	-1,351.87	-142.38	0.00	0.00	0.00
7,108.27	15.85	284.21	6,915.13	349.55	-1,380.53	-145.40	0.00	0.00	0.00
Start Drop -2.00									
7,200.00	14.01	284.21	7,003.76	355.35	-1,403.44	-147.81	2.00	-2.00	0.00
7,300.00	12.01	284.21	7,101.19	360.88	-1,425.27	-150.11	2.00	-2.00	0.00
7,400.00	10.01	284.21	7,199.34	365.57	-1,443.79	-152.06	2.00	-2.00	0.00
7,500.00	8.01	284.21	7,298.10	369.41	-1,458.98	-153.66	2.00	-2.00	0.00
7,600.00	6.01	284.21	7,397.35	372.41	-1,470.82	-154.91	2.00	-2.00	0.00
7,700.00	4.01	284.21	7,496.96	374.56	-1,479.29	-155.80	2.00	-2.00	0.00
7,800.00	2.01	284.21	7,596.82	375.85	-1,484.38	-156.34	2.00	-2.00	0.00
7,900.70	0.00	0.00	7,697.50	376.28	-1,486.10	-156.52	2.00	-2.00	0.00
Start 30.00 hold at 7900.70 MD									
7,930.70	0.00	0.00	7,727.50	376.28	-1,486.10	-156.52	0.00	0.00	0.00
Start DLS 12.00 TFO 179.68									
7,950.00	2.32	179.68	7,746.79	375.89	-1,486.10	-156.13	12.00	12.00	0.00
7,975.00	5.32	179.68	7,771.74	374.23	-1,486.09	-154.49	12.00	12.00	0.00
7,978.28	5.71	179.68	7,775.00	373.91	-1,486.09	-154.18	12.00	12.00	0.00
NIOBRARA									
8,000.00	8.32	179.68	7,796.56	371.26	-1,486.07	-151.56	12.00	12.00	0.00
8,025.00	11.31	179.68	7,821.19	367.00	-1,486.05	-147.34	12.00	12.00	0.00
8,050.00	14.31	179.68	7,845.56	361.45	-1,486.02	-141.86	12.00	12.00	0.00
8,075.00	17.31	179.68	7,869.61	354.64	-1,485.98	-135.13	12.00	12.00	0.00
8,100.00	20.31	179.68	7,893.27	346.58	-1,485.93	-127.16	12.00	12.00	0.00
8,125.00	23.31	179.68	7,916.48	337.29	-1,485.88	-117.98	12.00	12.00	0.00
8,145.36	25.76	179.68	7,935.00	328.84	-1,485.83	-109.62	12.00	12.00	0.00
NIO B TARGET									
8,150.00	26.31	179.68	7,939.17	326.80	-1,485.82	-107.61	12.00	12.00	0.00
8,175.00	29.31	179.68	7,961.28	315.14	-1,485.76	-96.08	12.00	12.00	0.00
8,200.00	32.31	179.68	7,982.75	302.33	-1,485.69	-83.42	12.00	12.00	0.00
8,225.00	35.31	179.68	8,003.52	288.42	-1,485.61	-69.66	12.00	12.00	0.00
8,250.00	38.31	179.68	8,023.53	273.45	-1,485.53	-54.86	12.00	12.00	0.00

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Well:	UNITED A S16-20-10C	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)	
8,275.00	41.31	179.68	8,042.73	257.44	-1,485.44	-39.04	12.00	12.00	0.00	
8,300.00	44.31	179.68	8,061.07	240.45	-1,485.34	-22.24	12.00	12.00	0.00	
8,325.00	47.31	179.68	8,078.49	222.53	-1,485.24	-4.52	12.00	12.00	0.00	
8,350.00	50.31	179.68	8,094.95	203.72	-1,485.14	14.08	12.00	12.00	0.00	
8,375.00	53.31	179.68	8,110.41	184.07	-1,485.03	33.50	12.00	12.00	0.00	
8,400.00	56.31	179.68	8,124.81	163.64	-1,484.91	53.69	12.00	12.00	0.00	
8,425.00	59.31	179.68	8,138.13	142.49	-1,484.79	74.61	12.00	12.00	0.00	
8,450.00	62.31	179.68	8,150.32	120.66	-1,484.67	96.18	12.00	12.00	0.00	
8,475.00	65.31	179.68	8,161.35	98.23	-1,484.55	118.36	12.00	12.00	0.00	
8,500.00	68.31	179.68	8,171.19	75.26	-1,484.42	141.07	12.00	12.00	0.00	
8,525.00	71.31	179.68	8,179.82	51.79	-1,484.29	164.26	12.00	12.00	0.00	
8,542.07	73.36	179.68	8,185.00	35.53	-1,484.20	180.34	12.00	12.00	0.00	
FORT HAYS										
8,550.00	74.31	179.68	8,187.21	27.91	-1,484.15	187.87	12.00	12.00	0.00	
8,575.00	77.31	179.68	8,193.34	3.68	-1,484.02	211.83	12.00	12.00	0.00	
8,600.00	80.31	179.68	8,198.19	-20.84	-1,483.88	236.07	12.00	12.00	0.00	
8,625.00	83.31	179.68	8,201.75	-45.58	-1,483.74	260.53	12.00	12.00	0.00	
8,650.00	86.31	179.68	8,204.01	-70.48	-1,483.60	285.14	12.00	12.00	0.00	
8,675.00	89.31	179.68	8,204.97	-95.46	-1,483.46	309.84	12.00	12.00	0.00	
8,680.76	90.00	179.68	8,205.00	-101.22	-1,483.43	315.53	12.00	12.00	0.00	
Start 9641.00 hold at 8680.76 MD - CODELL										
8,700.00	90.00	179.68	8,205.00	-120.46	-1,483.32	334.55	0.00	0.00	0.00	
8,800.00	90.00	179.68	8,205.00	-220.45	-1,482.77	433.41	0.00	0.00	0.00	
8,900.00	90.00	179.68	8,205.00	-320.45	-1,482.21	532.26	0.00	0.00	0.00	
9,000.00	90.00	179.68	8,205.00	-420.45	-1,481.65	631.12	0.00	0.00	0.00	
9,100.00	90.00	179.68	8,204.99	-520.45	-1,481.09	729.98	0.00	0.00	0.00	
9,200.00	90.00	179.68	8,204.99	-620.45	-1,480.53	828.84	0.00	0.00	0.00	
9,300.00	90.00	179.68	8,204.99	-720.45	-1,479.97	927.70	0.00	0.00	0.00	
9,400.00	90.00	179.68	8,204.99	-820.44	-1,479.41	1,026.55	0.00	0.00	0.00	
9,500.00	90.00	179.68	8,204.99	-920.44	-1,478.85	1,125.41	0.00	0.00	0.00	
9,600.00	90.00	179.68	8,204.99	-1,020.44	-1,478.29	1,224.27	0.00	0.00	0.00	
9,700.00	90.00	179.68	8,204.98	-1,120.44	-1,477.74	1,323.13	0.00	0.00	0.00	
9,800.00	90.00	179.68	8,204.98	-1,220.44	-1,477.18	1,421.98	0.00	0.00	0.00	
9,900.00	90.00	179.68	8,204.98	-1,320.44	-1,476.62	1,520.84	0.00	0.00	0.00	
10,000.00	90.00	179.68	8,204.98	-1,420.44	-1,476.06	1,619.70	0.00	0.00	0.00	
10,100.00	90.00	179.68	8,204.98	-1,520.43	-1,475.50	1,718.56	0.00	0.00	0.00	
10,200.00	90.00	179.68	8,204.98	-1,620.43	-1,474.94	1,817.41	0.00	0.00	0.00	
10,300.00	90.00	179.68	8,204.97	-1,720.43	-1,474.38	1,916.27	0.00	0.00	0.00	
10,400.00	90.00	179.68	8,204.97	-1,820.43	-1,473.82	2,015.13	0.00	0.00	0.00	
10,500.00	90.00	179.68	8,204.97	-1,920.43	-1,473.27	2,113.99	0.00	0.00	0.00	
10,600.00	90.00	179.68	8,204.97	-2,020.43	-1,472.71	2,212.84	0.00	0.00	0.00	
10,700.00	90.00	179.68	8,204.97	-2,120.42	-1,472.15	2,311.70	0.00	0.00	0.00	
10,800.00	90.00	179.68	8,204.97	-2,220.42	-1,471.59	2,410.56	0.00	0.00	0.00	
10,900.00	90.00	179.68	8,204.97	-2,320.42	-1,471.03	2,509.42	0.00	0.00	0.00	
11,000.00	90.00	179.68	8,204.96	-2,420.42	-1,470.47	2,608.27	0.00	0.00	0.00	
11,100.00	90.00	179.68	8,204.96	-2,520.42	-1,469.91	2,707.13	0.00	0.00	0.00	
11,200.00	90.00	179.68	8,204.96	-2,620.42	-1,469.35	2,805.99	0.00	0.00	0.00	
11,300.00	90.00	179.68	8,204.96	-2,720.41	-1,468.79	2,904.85	0.00	0.00	0.00	
11,400.00	90.00	179.68	8,204.96	-2,820.41	-1,468.24	3,003.71	0.00	0.00	0.00	
11,500.00	90.00	179.68	8,204.96	-2,920.41	-1,467.68	3,102.56	0.00	0.00	0.00	
11,600.00	90.00	179.68	8,204.95	-3,020.41	-1,467.12	3,201.42	0.00	0.00	0.00	
11,700.00	90.00	179.68	8,204.95	-3,120.41	-1,466.56	3,300.28	0.00	0.00	0.00	
11,800.00	90.00	179.68	8,204.95	-3,220.41	-1,466.00	3,399.14	0.00	0.00	0.00	
11,900.00	90.00	179.68	8,204.95	-3,320.41	-1,465.44	3,497.99	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED A S16-20-10C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5282.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5282.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED A S16-20-10C	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	8,204.95	-3,420.40	-1,464.88	3,596.85	0.00	0.00	0.00
12,100.00	90.00	179.68	8,204.95	-3,520.40	-1,464.32	3,695.71	0.00	0.00	0.00
12,200.00	90.00	179.68	8,204.95	-3,620.40	-1,463.77	3,794.57	0.00	0.00	0.00
12,300.00	90.00	179.68	8,204.94	-3,720.40	-1,463.21	3,893.42	0.00	0.00	0.00
12,400.00	90.00	179.68	8,204.94	-3,820.40	-1,462.65	3,992.28	0.00	0.00	0.00
12,500.00	90.00	179.68	8,204.94	-3,920.40	-1,462.09	4,091.14	0.00	0.00	0.00
12,600.00	90.00	179.68	8,204.94	-4,020.39	-1,461.53	4,190.00	0.00	0.00	0.00
12,700.00	90.00	179.68	8,204.94	-4,120.39	-1,460.97	4,288.85	0.00	0.00	0.00
12,800.00	90.00	179.68	8,204.94	-4,220.39	-1,460.41	4,387.71	0.00	0.00	0.00
12,900.00	90.00	179.68	8,204.93	-4,320.39	-1,459.85	4,486.57	0.00	0.00	0.00
13,000.00	90.00	179.68	8,204.93	-4,420.39	-1,459.30	4,585.43	0.00	0.00	0.00
13,100.00	90.00	179.68	8,204.93	-4,520.39	-1,458.74	4,684.29	0.00	0.00	0.00
13,200.00	90.00	179.68	8,204.93	-4,620.39	-1,458.18	4,783.14	0.00	0.00	0.00
13,300.00	90.00	179.68	8,204.93	-4,720.38	-1,457.62	4,882.00	0.00	0.00	0.00
13,400.00	90.00	179.68	8,204.93	-4,820.38	-1,457.06	4,980.86	0.00	0.00	0.00
13,500.00	90.00	179.68	8,204.92	-4,920.38	-1,456.50	5,079.72	0.00	0.00	0.00
13,600.00	90.00	179.68	8,204.92	-5,020.38	-1,455.94	5,178.57	0.00	0.00	0.00
13,700.00	90.00	179.68	8,204.92	-5,120.38	-1,455.38	5,277.43	0.00	0.00	0.00
13,800.00	90.00	179.68	8,204.92	-5,220.38	-1,454.82	5,376.29	0.00	0.00	0.00
13,900.00	90.00	179.68	8,204.92	-5,320.37	-1,454.27	5,475.15	0.00	0.00	0.00
14,000.00	90.00	179.68	8,204.92	-5,420.37	-1,453.71	5,574.00	0.00	0.00	0.00
14,100.00	90.00	179.68	8,204.92	-5,520.37	-1,453.15	5,672.86	0.00	0.00	0.00
14,200.00	90.00	179.68	8,204.91	-5,620.37	-1,452.59	5,771.72	0.00	0.00	0.00
14,300.00	90.00	179.68	8,204.91	-5,720.37	-1,452.03	5,870.58	0.00	0.00	0.00
14,400.00	90.00	179.68	8,204.91	-5,820.37	-1,451.47	5,969.43	0.00	0.00	0.00
14,500.00	90.00	179.68	8,204.91	-5,920.36	-1,450.91	6,068.29	0.00	0.00	0.00
14,600.00	90.00	179.68	8,204.91	-6,020.36	-1,450.35	6,167.15	0.00	0.00	0.00
14,700.00	90.00	179.68	8,204.91	-6,120.36	-1,449.80	6,266.01	0.00	0.00	0.00
14,800.00	90.00	179.68	8,204.90	-6,220.36	-1,449.24	6,364.87	0.00	0.00	0.00
14,900.00	90.00	179.68	8,204.90	-6,320.36	-1,448.68	6,463.72	0.00	0.00	0.00
15,000.00	90.00	179.68	8,204.90	-6,420.36	-1,448.12	6,562.58	0.00	0.00	0.00
15,100.00	90.00	179.68	8,204.90	-6,520.36	-1,447.56	6,661.44	0.00	0.00	0.00
15,200.00	90.00	179.68	8,204.90	-6,620.35	-1,447.00	6,760.30	0.00	0.00	0.00
15,300.00	90.00	179.68	8,204.90	-6,720.35	-1,446.44	6,859.15	0.00	0.00	0.00
15,400.00	90.00	179.68	8,204.90	-6,820.35	-1,445.88	6,958.01	0.00	0.00	0.00
15,500.00	90.00	179.68	8,204.89	-6,920.35	-1,445.32	7,056.87	0.00	0.00	0.00
15,600.00	90.00	179.68	8,204.89	-7,020.35	-1,444.77	7,155.73	0.00	0.00	0.00
15,700.00	90.00	179.68	8,204.89	-7,120.35	-1,444.21	7,254.58	0.00	0.00	0.00
15,800.00	90.00	179.68	8,204.89	-7,220.34	-1,443.65	7,353.44	0.00	0.00	0.00
15,900.00	90.00	179.68	8,204.89	-7,320.34	-1,443.09	7,452.30	0.00	0.00	0.00
16,000.00	90.00	179.68	8,204.89	-7,420.34	-1,442.53	7,551.16	0.00	0.00	0.00
16,100.00	90.00	179.68	8,204.88	-7,520.34	-1,441.97	7,650.01	0.00	0.00	0.00
16,200.00	90.00	179.68	8,204.88	-7,620.34	-1,441.41	7,748.87	0.00	0.00	0.00
16,300.00	90.00	179.68	8,204.88	-7,720.34	-1,440.85	7,847.73	0.00	0.00	0.00
16,400.00	90.00	179.68	8,204.88	-7,820.34	-1,440.30	7,946.59	0.00	0.00	0.00
16,500.00	90.00	179.68	8,204.88	-7,920.33	-1,439.74	8,045.44	0.00	0.00	0.00
16,600.00	90.00	179.68	8,204.88	-8,020.33	-1,439.18	8,144.30	0.00	0.00	0.00
16,700.00	90.00	179.68	8,204.87	-8,120.33	-1,438.62	8,243.16	0.00	0.00	0.00
16,800.00	90.00	179.68	8,204.87	-8,220.33	-1,438.06	8,342.02	0.00	0.00	0.00
16,900.00	90.00	179.68	8,204.87	-8,320.33	-1,437.50	8,440.88	0.00	0.00	0.00
17,000.00	90.00	179.68	8,204.87	-8,420.33	-1,436.94	8,539.73	0.00	0.00	0.00
17,100.00	90.00	179.68	8,204.87	-8,520.32	-1,436.38	8,638.59	0.00	0.00	0.00
17,200.00	90.00	179.68	8,204.87	-8,620.32	-1,435.82	8,737.45	0.00	0.00	0.00
17,300.00	90.00	179.68	8,204.87	-8,720.32	-1,435.27	8,836.31	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well UNITED A S16-20-10C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5282.00usft
Project:	Broomfield County	MD Reference:	KB 25' @ 5282.00usft
Site:	Sec 9-T1S-R68W	North Reference:	True
Well:	UNITED A S16-20-10C	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	8,204.86	-8,820.32	-1,434.71	8,935.16	0.00	0.00	0.00	
17,500.00	90.00	179.68	8,204.86	-8,920.32	-1,434.15	9,034.02	0.00	0.00	0.00	
17,600.00	90.00	179.68	8,204.86	-9,020.32	-1,433.59	9,132.88	0.00	0.00	0.00	
17,700.00	90.00	179.68	8,204.86	-9,120.32	-1,433.03	9,231.74	0.00	0.00	0.00	
17,800.00	90.00	179.68	8,204.86	-9,220.31	-1,432.47	9,330.59	0.00	0.00	0.00	
17,900.00	90.00	179.68	8,204.86	-9,320.31	-1,431.91	9,429.45	0.00	0.00	0.00	
18,000.00	90.00	179.68	8,204.85	-9,420.31	-1,431.35	9,528.31	0.00	0.00	0.00	
18,100.00	90.00	179.68	8,204.85	-9,520.31	-1,430.80	9,627.17	0.00	0.00	0.00	
18,200.00	90.00	179.68	8,204.85	-9,620.31	-1,430.24	9,726.02	0.00	0.00	0.00	
18,300.00	90.00	179.68	8,204.85	-9,720.31	-1,429.68	9,824.88	0.00	0.00	0.00	
18,321.76	90.00	179.68	8,205.00	-9,742.07	-1,429.64	9,846.41	0.00	0.00	0.00	
TD at 18321.76										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude		Longitude
UNITED A S16-10C - LF - hit/miss target - Shape - Point	0.00	0.00	8,205.00	-101.22	-1,483.43	1,237,921.12	3,138,196.95	39° 59' 7.523 N		105° 0' 24.527 W
UNITED A S16-10C - PE - plan hits target center - Point	0.00	0.00	8,205.00	-9,742.07	-1,429.64	1,228,280.73	3,138,304.93	39° 57' 32.245 N		105° 0' 23.828 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,211.01	5,090.00	SUSSEX				
7,978.28	7,775.00	NIORARA				
8,145.36	7,935.00	NIO B TARGET				
8,542.07	8,185.00	FORT HAYS				
8,680.76	8,205.00	CODELL				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,500.00	1,500.00	0.00	0.00	Start Build 2.00	
2,292.43	2,282.37	26.73	-105.57	Start 4815.84 hold at 2292.43 MD	
7,108.27	6,915.13	349.55	-1,380.53	Start Drop -2.00	
7,900.70	7,697.50	376.28	-1,486.10	Start 30.00 hold at 7900.70 MD	
7,930.70	7,727.50	376.28	-1,486.10	Start DLS 12.00 TFO 179.68	
8,680.76	8,205.00	-101.22	-1,483.43	Start 9641.00 hold at 8680.76 MD	
18,321.76	8,205.00	-9,742.07	-1,429.64	TD at 18321.76	