

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 9-T1S-R68W**

**UNITED B S16-20-16C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**18 January, 2018**



Project: Broomfield County  
Site: Sec 9-T1S-R68W  
Well: UNITED B S16-20-16C  
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: 8.24°

Magnetic Field  
Strength: 52084.5nT  
Dip Angle: 66.47°  
Date: 1/5/2018  
Model: IGRF2015

WELL DETAILS: UNITED B S16-20-16C

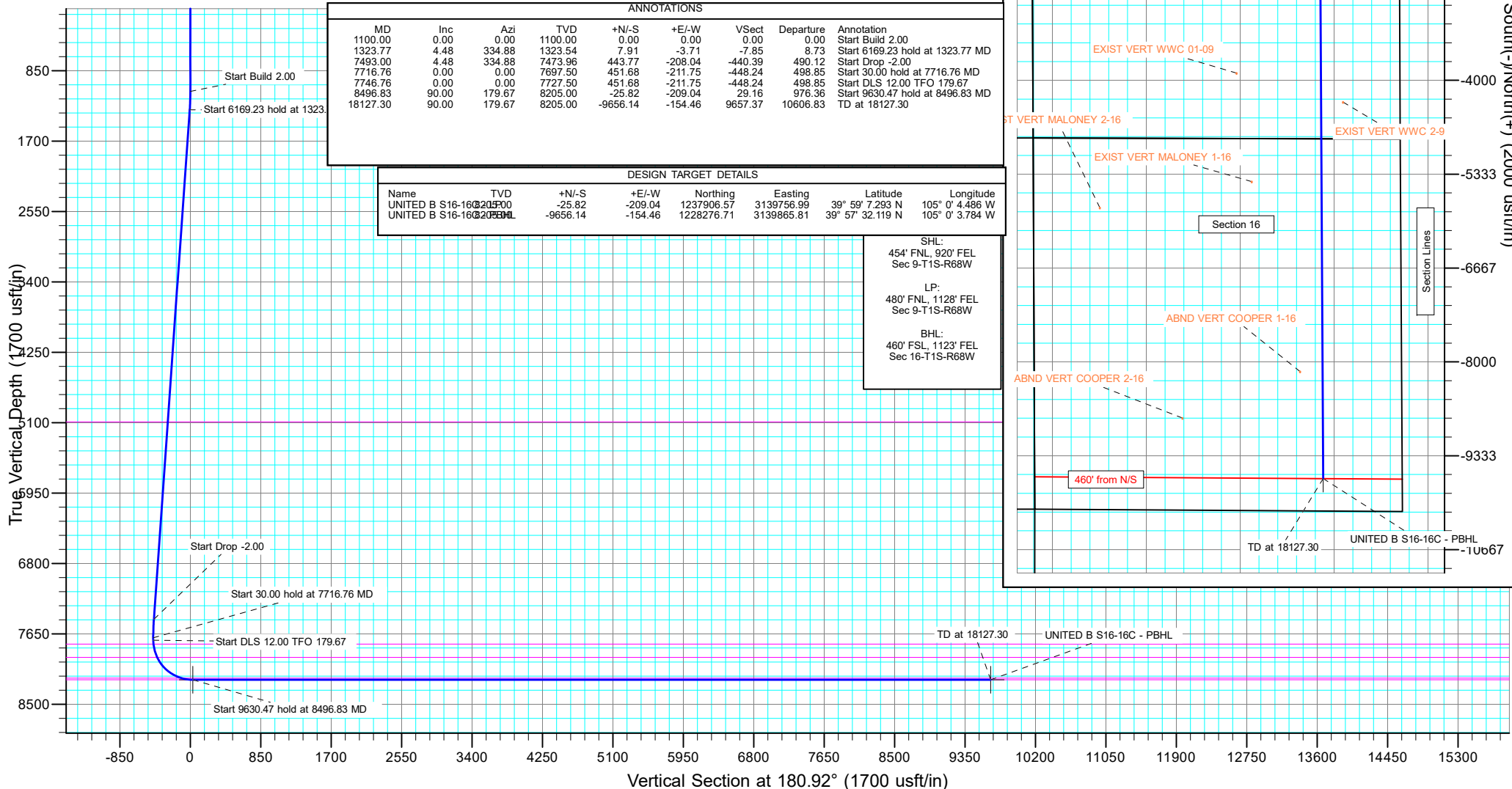
+N/-S	+E/-W	Northing	Easting	5254.00	Latitude	Longitude	Slot
0.00	0.00	1237933.57	3139965.88		39° 59' 7.548 N	105° 0' 1.800 W	

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	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	1323.77	4.48	334.88	1323.54	7.91	-3.71	2.00	334.88	-7.85	
4	7493.00	4.48	334.88	7473.96	443.77	-208.04	0.00	0.00	-440.39	
5	7716.76	0.00	0.00	7697.50	451.68	-211.75	2.00	180.00	-448.24	
6	7746.76	0.00	0.00	7727.50	451.68	-211.75	0.00	0.00	-448.24	
7	8496.83	90.00	179.67	8205.00	-25.82	-209.04	12.00	179.67	29.16	UNITED B S16-16C - LP
8	18127.30	90.00	179.67	8205.00	-9656.14	-154.46	0.00	0.00	9657.37	UNITED B S16-16C - PBHL

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
5090.00	5101.75	SUSSEX
7775.00	7794.34	NIOBRARA
7935.00	7961.42	NIO B TARGET
8185.00	8358.13	FORT HAYS
8205.00	8496.83	CODELL



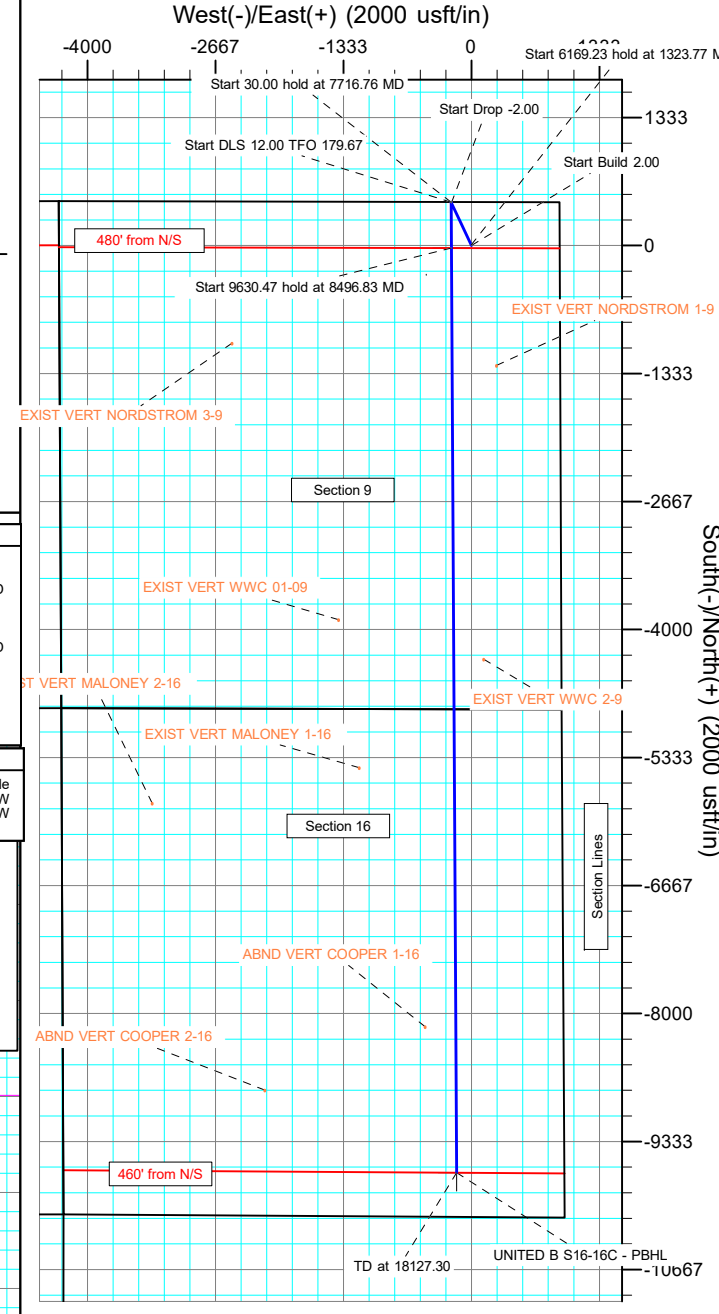
ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	Start Build 2.00	
1323.77	4.48	334.88	1323.54	7.91	-3.71	-7.85	8.73	Start 6169.23 hold at 1323.77 MD	
7493.00	4.48	334.88	7473.96	443.77	-208.04	-440.39	490.12	Start Drop -2.00	
7716.76	0.00	0.00	7697.50	451.68	-211.75	-448.24	498.85	Start 30.00 hold at 7716.76 MD	
7746.76	0.00	0.00	7727.50	451.68	-211.75	-448.24	498.85	Start DLS 12.00 TFO 179.67	
8496.83	90.00	179.67	8205.00	-25.82	-209.04	29.16	976.36	Start 9630.47 hold at 8496.83 MD	
18127.30	90.00	179.67	8205.00	-9656.14	-154.46	9657.37	10606.83	TD at 18127.30	

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
UNITED B S16-16C - LP	8205.00	-25.82	-209.04	1237906.57	3139756.99	39° 59' 7.293 N	105° 0' 4.486 W
UNITED B S16-16C - PBHL	8205.00	-9656.14	-154.46	1228276.71	3139865.81	39° 57' 32.119 N	105° 0' 3.784 W

SHL:  
454' FNL, 920' FEL  
Sec 9-T1S-R68W

LP:  
480' FNL, 1128' FEL  
Sec 9-T1S-R68W

BHL:  
460' FSL, 1123' FEL  
Sec 16-T1S-R68W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well UNITED B S16-20-16C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	Broomfield County		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		Sec 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 S16-20-16C					
Well Position	+N/-S	-462.29 usft	Northing:	1,237,933.56 usft	Latitude:	39° 59' 7.548 N
	+E/-W	4,298.59 usft	Easting:	3,139,965.88 usft	Longitude:	105° 0' 1.800 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,254.00 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	1/5/2018	8.24	66.47	52,084.45617869

<b>Design</b>	PROPOSAL 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	180.92

<b>Plan Survey Tool Program</b>	<b>Date</b>	1/18/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	18,127.26	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,323.77	4.48	334.88	1,323.54	7.91	-3.71	2.00	2.00	0.00	334.88	
7,493.00	4.48	334.88	7,473.96	443.77	-208.04	0.00	0.00	0.00	0.00	
7,716.76	0.00	0.00	7,697.50	451.68	-211.75	2.00	-2.00	0.00	180.00	
7,746.76	0.00	0.00	7,727.50	451.68	-211.75	0.00	0.00	0.00	0.00	
8,496.83	90.00	179.67	8,205.00	-25.82	-209.04	12.00	12.00	23.95	179.67	UNITED B S16-16C -
18,127.30	90.00	179.67	8,205.00	-9,656.14	-154.46	0.00	0.00	0.00	0.00	UNITED B S16-16C -

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well UNITED B S16-20-16C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Start Build 2.00									
1,200.00	2.00	334.88	1,199.98	1.58	-0.74	-1.57	2.00	2.00	0.00
1,300.00	4.00	334.88	1,299.84	6.32	-2.96	-6.27	2.00	2.00	0.00
1,323.77	4.48	334.88	1,323.54	7.91	-3.71	-7.85	2.00	2.00	0.00
Start 6169.23 hold at 1323.77 MD									
1,400.00	4.48	334.88	1,399.54	13.29	-6.23	-13.19	0.00	0.00	0.00
1,500.00	4.48	334.88	1,499.24	20.36	-9.54	-20.20	0.00	0.00	0.00
1,600.00	4.48	334.88	1,598.93	27.42	-12.86	-27.22	0.00	0.00	0.00
1,700.00	4.48	334.88	1,698.63	34.49	-16.17	-34.23	0.00	0.00	0.00
1,800.00	4.48	334.88	1,798.32	41.56	-19.48	-41.24	0.00	0.00	0.00
1,900.00	4.48	334.88	1,898.02	48.62	-22.79	-48.25	0.00	0.00	0.00
2,000.00	4.48	334.88	1,997.71	55.69	-26.11	-55.26	0.00	0.00	0.00
2,100.00	4.48	334.88	2,097.41	62.75	-29.42	-62.27	0.00	0.00	0.00
2,200.00	4.48	334.88	2,197.10	69.82	-32.73	-69.28	0.00	0.00	0.00
2,300.00	4.48	334.88	2,296.80	76.88	-36.04	-76.29	0.00	0.00	0.00
2,400.00	4.48	334.88	2,396.49	83.95	-39.35	-83.31	0.00	0.00	0.00
2,500.00	4.48	334.88	2,496.19	91.01	-42.67	-90.32	0.00	0.00	0.00
2,600.00	4.48	334.88	2,595.88	98.08	-45.98	-97.33	0.00	0.00	0.00
2,700.00	4.48	334.88	2,695.58	105.14	-49.29	-104.34	0.00	0.00	0.00
2,800.00	4.48	334.88	2,795.27	112.21	-52.60	-111.35	0.00	0.00	0.00
2,900.00	4.48	334.88	2,894.97	119.27	-55.91	-118.36	0.00	0.00	0.00
3,000.00	4.48	334.88	2,994.66	126.34	-59.23	-125.37	0.00	0.00	0.00
3,100.00	4.48	334.88	3,094.36	133.40	-62.54	-132.38	0.00	0.00	0.00
3,200.00	4.48	334.88	3,194.05	140.47	-65.85	-139.40	0.00	0.00	0.00
3,300.00	4.48	334.88	3,293.75	147.53	-69.16	-146.41	0.00	0.00	0.00
3,400.00	4.48	334.88	3,393.44	154.60	-72.48	-153.42	0.00	0.00	0.00
3,500.00	4.48	334.88	3,493.14	161.66	-75.79	-160.43	0.00	0.00	0.00
3,600.00	4.48	334.88	3,592.83	168.73	-79.10	-167.44	0.00	0.00	0.00
3,700.00	4.48	334.88	3,692.53	175.79	-82.41	-174.45	0.00	0.00	0.00
3,800.00	4.48	334.88	3,792.22	182.86	-85.72	-181.46	0.00	0.00	0.00
3,900.00	4.48	334.88	3,891.92	189.92	-89.04	-188.47	0.00	0.00	0.00
4,000.00	4.48	334.88	3,991.61	196.99	-92.35	-195.49	0.00	0.00	0.00
4,100.00	4.48	334.88	4,091.31	204.05	-95.66	-202.50	0.00	0.00	0.00
4,200.00	4.48	334.88	4,191.00	211.12	-98.97	-209.51	0.00	0.00	0.00
4,300.00	4.48	334.88	4,290.70	218.18	-102.29	-216.52	0.00	0.00	0.00
4,400.00	4.48	334.88	4,390.39	225.25	-105.60	-223.53	0.00	0.00	0.00
4,500.00	4.48	334.88	4,490.09	232.31	-108.91	-230.54	0.00	0.00	0.00
4,600.00	4.48	334.88	4,589.78	239.38	-112.22	-237.55	0.00	0.00	0.00
4,700.00	4.48	334.88	4,689.48	246.44	-115.53	-244.56	0.00	0.00	0.00
4,800.00	4.48	334.88	4,789.17	253.51	-118.85	-251.57	0.00	0.00	0.00
4,900.00	4.48	334.88	4,888.87	260.57	-122.16	-258.59	0.00	0.00	0.00

# Planning Report

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
5,000.00	4.48	334.88	4,988.56	267.64	-125.47	-265.60	0.00	0.00	0.00	
5,100.00	4.48	334.88	5,088.26	274.70	-128.78	-272.61	0.00	0.00	0.00	
5,101.75	4.48	334.88	5,090.00	274.83	-128.84	-272.73	0.00	0.00	0.00	
<b>SUSSEX</b>										
5,200.00	4.48	334.88	5,187.95	281.77	-132.09	-279.62	0.00	0.00	0.00	
5,300.00	4.48	334.88	5,287.65	288.83	-135.41	-286.63	0.00	0.00	0.00	
5,400.00	4.48	334.88	5,387.34	295.90	-138.72	-293.64	0.00	0.00	0.00	
5,500.00	4.48	334.88	5,487.04	302.96	-142.03	-300.65	0.00	0.00	0.00	
5,600.00	4.48	334.88	5,586.73	310.03	-145.34	-307.66	0.00	0.00	0.00	
5,700.00	4.48	334.88	5,686.43	317.09	-148.66	-314.68	0.00	0.00	0.00	
5,800.00	4.48	334.88	5,786.12	324.16	-151.97	-321.69	0.00	0.00	0.00	
5,900.00	4.48	334.88	5,885.82	331.22	-155.28	-328.70	0.00	0.00	0.00	
6,000.00	4.48	334.88	5,985.52	338.29	-158.59	-335.71	0.00	0.00	0.00	
6,100.00	4.48	334.88	6,085.21	345.35	-161.90	-342.72	0.00	0.00	0.00	
6,200.00	4.48	334.88	6,184.91	352.42	-165.22	-349.73	0.00	0.00	0.00	
6,300.00	4.48	334.88	6,284.60	359.48	-168.53	-356.74	0.00	0.00	0.00	
6,400.00	4.48	334.88	6,384.30	366.55	-171.84	-363.75	0.00	0.00	0.00	
6,500.00	4.48	334.88	6,483.99	373.61	-175.15	-370.77	0.00	0.00	0.00	
6,600.00	4.48	334.88	6,583.69	380.68	-178.46	-377.78	0.00	0.00	0.00	
6,700.00	4.48	334.88	6,683.38	387.75	-181.78	-384.79	0.00	0.00	0.00	
6,800.00	4.48	334.88	6,783.08	394.81	-185.09	-391.80	0.00	0.00	0.00	
6,900.00	4.48	334.88	6,882.77	401.88	-188.40	-398.81	0.00	0.00	0.00	
7,000.00	4.48	334.88	6,982.47	408.94	-191.71	-405.82	0.00	0.00	0.00	
7,100.00	4.48	334.88	7,082.16	416.01	-195.03	-412.83	0.00	0.00	0.00	
7,200.00	4.48	334.88	7,181.86	423.07	-198.34	-419.84	0.00	0.00	0.00	
7,300.00	4.48	334.88	7,281.55	430.14	-201.65	-426.86	0.00	0.00	0.00	
7,400.00	4.48	334.88	7,381.25	437.20	-204.96	-433.87	0.00	0.00	0.00	
7,493.00	4.48	334.88	7,473.96	443.77	-208.04	-440.39	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
7,500.00	4.34	334.88	7,480.94	444.26	-208.27	-440.87	2.00	-2.00	0.00	
7,600.00	2.34	334.88	7,580.77	449.53	-210.74	-446.10	2.00	-2.00	0.00	
7,700.00	0.34	334.88	7,680.74	451.64	-211.73	-448.19	2.00	-2.00	0.00	
7,716.76	0.00	0.00	7,697.50	451.68	-211.75	-448.24	2.00	-2.00	0.00	
<b>Start 30.00 hold at 7716.76 MD</b>										
7,746.76	0.00	0.00	7,727.50	451.68	-211.75	-448.24	0.00	0.00	0.00	
<b>Start DLS 12.00 TFO 179.67</b>										
7,750.00	0.39	179.67	7,730.74	451.67	-211.75	-448.22	12.00	12.00	0.00	
7,775.00	3.39	179.67	7,755.72	450.85	-211.75	-447.40	12.00	12.00	0.00	
7,794.34	5.71	179.67	7,775.00	449.31	-211.74	-445.87	12.00	12.00	0.00	
<b>NIOBRARA</b>										
7,800.00	6.39	179.67	7,780.63	448.72	-211.73	-445.27	12.00	12.00	0.00	
7,825.00	9.39	179.67	7,805.39	445.29	-211.71	-441.84	12.00	12.00	0.00	
7,850.00	12.39	179.67	7,829.93	440.56	-211.69	-437.12	12.00	12.00	0.00	
7,875.00	15.39	179.67	7,854.20	434.56	-211.65	-431.12	12.00	12.00	0.00	
7,900.00	18.39	179.67	7,878.12	427.30	-211.61	-423.86	12.00	12.00	0.00	
7,925.00	21.39	179.67	7,901.63	418.80	-211.56	-415.36	12.00	12.00	0.00	
7,950.00	24.39	179.67	7,924.65	409.08	-211.51	-405.64	12.00	12.00	0.00	
7,961.42	25.76	179.67	7,935.00	404.24	-211.48	-400.80	12.00	12.00	0.00	
<b>NIO B TARGET</b>										
7,975.00	27.39	179.67	7,947.14	398.17	-211.45	-394.73	12.00	12.00	0.00	
8,000.00	30.39	179.67	7,969.03	386.09	-211.38	-382.66	12.00	12.00	0.00	
8,025.00	33.39	179.67	7,990.26	372.89	-211.30	-369.46	12.00	12.00	0.00	
8,050.00	36.39	179.67	8,010.76	358.59	-211.22	-355.17	12.00	12.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well UNITED B S16-20-16C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,075.00	39.39	179.67	8,030.49	343.24	-211.13	-339.82	12.00	12.00	0.00	
8,100.00	42.39	179.67	8,049.39	326.88	-211.04	-323.46	12.00	12.00	0.00	
8,125.00	45.38	179.67	8,067.40	309.55	-210.94	-306.14	12.00	12.00	0.00	
8,150.00	48.38	179.67	8,084.49	291.30	-210.84	-287.89	12.00	12.00	0.00	
8,175.00	51.38	179.67	8,100.60	272.19	-210.73	-268.78	12.00	12.00	0.00	
8,200.00	54.38	179.67	8,115.68	252.25	-210.62	-248.85	12.00	12.00	0.00	
8,225.00	57.38	179.67	8,129.70	231.56	-210.50	-228.16	12.00	12.00	0.00	
8,250.00	60.38	179.67	8,142.62	210.16	-210.38	-206.77	12.00	12.00	0.00	
8,275.00	63.38	179.67	8,154.40	188.11	-210.25	-184.72	12.00	12.00	0.00	
8,300.00	66.38	179.67	8,165.01	165.48	-210.12	-162.10	12.00	12.00	0.00	
8,325.00	69.38	179.67	8,174.42	142.32	-209.99	-138.94	12.00	12.00	0.00	
8,350.00	72.38	179.67	8,182.61	118.70	-209.86	-115.33	12.00	12.00	0.00	
8,358.13	73.36	179.67	8,185.00	110.93	-209.81	-107.56	12.00	12.00	0.00	
<b>FORT HAYS</b>										
8,375.00	75.38	179.67	8,189.54	94.69	-209.72	-91.32	12.00	12.00	0.00	
8,400.00	78.38	179.67	8,195.22	70.34	-209.58	-66.98	12.00	12.00	0.00	
8,425.00	81.38	179.67	8,199.61	45.74	-209.44	-42.38	12.00	12.00	0.00	
8,450.00	84.38	179.67	8,202.71	20.93	-209.30	-17.58	12.00	12.00	0.00	
8,475.00	87.38	179.67	8,204.50	-4.00	-209.16	7.35	12.00	12.00	0.00	
8,496.83	90.00	179.67	8,205.00	-25.82	-209.04	29.16	12.00	12.00	0.00	
<b>Start 9630.47 hold at 8496.83 MD - CODELL</b>										
8,500.00	90.00	179.67	8,205.00	-28.99	-209.02	32.33	0.00	0.00	0.00	
8,600.00	90.00	179.67	8,205.00	-128.99	-208.45	132.31	0.00	0.00	0.00	
8,700.00	90.00	179.67	8,205.00	-228.99	-207.88	232.28	0.00	0.00	0.00	
8,800.00	90.00	179.67	8,205.00	-328.99	-207.31	332.26	0.00	0.00	0.00	
8,900.00	90.00	179.67	8,204.99	-428.99	-206.75	432.24	0.00	0.00	0.00	
9,000.00	90.00	179.67	8,204.99	-528.98	-206.18	532.21	0.00	0.00	0.00	
9,100.00	90.00	179.67	8,204.99	-628.98	-205.61	632.19	0.00	0.00	0.00	
9,200.00	90.00	179.67	8,204.99	-728.98	-205.04	732.17	0.00	0.00	0.00	
9,300.00	90.00	179.67	8,204.99	-828.98	-204.47	832.14	0.00	0.00	0.00	
9,400.00	90.00	179.67	8,204.99	-928.98	-203.90	932.12	0.00	0.00	0.00	
9,500.00	90.00	179.67	8,204.98	-1,028.98	-203.34	1,032.10	0.00	0.00	0.00	
9,600.00	90.00	179.67	8,204.98	-1,128.97	-202.77	1,132.07	0.00	0.00	0.00	
9,700.00	90.00	179.67	8,204.98	-1,228.97	-202.20	1,232.05	0.00	0.00	0.00	
9,800.00	90.00	179.67	8,204.98	-1,328.97	-201.63	1,332.03	0.00	0.00	0.00	
9,900.00	90.00	179.67	8,204.98	-1,428.97	-201.06	1,432.00	0.00	0.00	0.00	
10,000.00	90.00	179.67	8,204.98	-1,528.97	-200.50	1,531.98	0.00	0.00	0.00	
10,100.00	90.00	179.67	8,204.97	-1,628.97	-199.93	1,631.96	0.00	0.00	0.00	
10,200.00	90.00	179.67	8,204.97	-1,728.96	-199.36	1,731.93	0.00	0.00	0.00	
10,300.00	90.00	179.67	8,204.97	-1,828.96	-198.79	1,831.91	0.00	0.00	0.00	
10,400.00	90.00	179.67	8,204.97	-1,928.96	-198.22	1,931.89	0.00	0.00	0.00	
10,500.00	90.00	179.67	8,204.97	-2,028.96	-197.65	2,031.86	0.00	0.00	0.00	
10,600.00	90.00	179.67	8,204.97	-2,128.96	-197.09	2,131.84	0.00	0.00	0.00	
10,700.00	90.00	179.67	8,204.96	-2,228.96	-196.52	2,231.81	0.00	0.00	0.00	
10,800.00	90.00	179.67	8,204.96	-2,328.96	-195.95	2,331.79	0.00	0.00	0.00	
10,900.00	90.00	179.67	8,204.96	-2,428.95	-195.38	2,431.77	0.00	0.00	0.00	
11,000.00	90.00	179.67	8,204.96	-2,528.95	-194.81	2,531.74	0.00	0.00	0.00	
11,100.00	90.00	179.67	8,204.96	-2,628.95	-194.24	2,631.72	0.00	0.00	0.00	
11,200.00	90.00	179.67	8,204.96	-2,728.95	-193.68	2,731.70	0.00	0.00	0.00	
11,300.00	90.00	179.67	8,204.95	-2,828.95	-193.11	2,831.67	0.00	0.00	0.00	
11,400.00	90.00	179.67	8,204.95	-2,928.95	-192.54	2,931.65	0.00	0.00	0.00	
11,500.00	90.00	179.67	8,204.95	-3,028.94	-191.97	3,031.63	0.00	0.00	0.00	
11,600.00	90.00	179.67	8,204.95	-3,128.94	-191.40	3,131.60	0.00	0.00	0.00	
11,700.00	90.00	179.67	8,204.95	-3,228.94	-190.84	3,231.58	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well UNITED B S16-20-16C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,800.00	90.00	179.67	8,204.95	-3,328.94	-190.27	3,331.56	0.00	0.00	0.00
11,900.00	90.00	179.67	8,204.95	-3,428.94	-189.70	3,431.53	0.00	0.00	0.00
12,000.00	90.00	179.67	8,204.94	-3,528.94	-189.13	3,531.51	0.00	0.00	0.00
12,100.00	90.00	179.67	8,204.94	-3,628.93	-188.56	3,631.49	0.00	0.00	0.00
12,200.00	90.00	179.67	8,204.94	-3,728.93	-187.99	3,731.46	0.00	0.00	0.00
12,300.00	90.00	179.67	8,204.94	-3,828.93	-187.43	3,831.44	0.00	0.00	0.00
12,400.00	90.00	179.67	8,204.94	-3,928.93	-186.86	3,931.42	0.00	0.00	0.00
12,500.00	90.00	179.67	8,204.94	-4,028.93	-186.29	4,031.39	0.00	0.00	0.00
12,600.00	90.00	179.67	8,204.93	-4,128.93	-185.72	4,131.37	0.00	0.00	0.00
12,700.00	90.00	179.67	8,204.93	-4,228.92	-185.15	4,231.35	0.00	0.00	0.00
12,800.00	90.00	179.67	8,204.93	-4,328.92	-184.58	4,331.32	0.00	0.00	0.00
12,900.00	90.00	179.67	8,204.93	-4,428.92	-184.02	4,431.30	0.00	0.00	0.00
13,000.00	90.00	179.67	8,204.93	-4,528.92	-183.45	4,531.27	0.00	0.00	0.00
13,100.00	90.00	179.67	8,204.93	-4,628.92	-182.88	4,631.25	0.00	0.00	0.00
13,200.00	90.00	179.67	8,204.92	-4,728.92	-182.31	4,731.23	0.00	0.00	0.00
13,300.00	90.00	179.67	8,204.92	-4,828.91	-181.74	4,831.20	0.00	0.00	0.00
13,400.00	90.00	179.67	8,204.92	-4,928.91	-181.18	4,931.18	0.00	0.00	0.00
13,500.00	90.00	179.67	8,204.92	-5,028.91	-180.61	5,031.16	0.00	0.00	0.00
13,600.00	90.00	179.67	8,204.92	-5,128.91	-180.04	5,131.13	0.00	0.00	0.00
13,700.00	90.00	179.67	8,204.92	-5,228.91	-179.47	5,231.11	0.00	0.00	0.00
13,800.00	90.00	179.67	8,204.91	-5,328.91	-178.90	5,331.09	0.00	0.00	0.00
13,900.00	90.00	179.67	8,204.91	-5,428.91	-178.33	5,431.06	0.00	0.00	0.00
14,000.00	90.00	179.67	8,204.91	-5,528.90	-177.77	5,531.04	0.00	0.00	0.00
14,100.00	90.00	179.67	8,204.91	-5,628.90	-177.20	5,631.02	0.00	0.00	0.00
14,200.00	90.00	179.67	8,204.91	-5,728.90	-176.63	5,730.99	0.00	0.00	0.00
14,300.00	90.00	179.67	8,204.91	-5,828.90	-176.06	5,830.97	0.00	0.00	0.00
14,400.00	90.00	179.67	8,204.90	-5,928.90	-175.49	5,930.95	0.00	0.00	0.00
14,500.00	90.00	179.67	8,204.90	-6,028.90	-174.93	6,030.92	0.00	0.00	0.00
14,600.00	90.00	179.67	8,204.90	-6,128.89	-174.36	6,130.90	0.00	0.00	0.00
14,700.00	90.00	179.67	8,204.90	-6,228.89	-173.79	6,230.88	0.00	0.00	0.00
14,800.00	90.00	179.67	8,204.90	-6,328.89	-173.22	6,330.85	0.00	0.00	0.00
14,900.00	90.00	179.67	8,204.90	-6,428.89	-172.65	6,430.83	0.00	0.00	0.00
15,000.00	90.00	179.67	8,204.90	-6,528.89	-172.08	6,530.80	0.00	0.00	0.00
15,100.00	90.00	179.67	8,204.89	-6,628.89	-171.52	6,630.78	0.00	0.00	0.00
15,200.00	90.00	179.67	8,204.89	-6,728.88	-170.95	6,730.76	0.00	0.00	0.00
15,300.00	90.00	179.67	8,204.89	-6,828.88	-170.38	6,830.73	0.00	0.00	0.00
15,400.00	90.00	179.67	8,204.89	-6,928.88	-169.81	6,930.71	0.00	0.00	0.00
15,500.00	90.00	179.67	8,204.89	-7,028.88	-169.24	7,030.69	0.00	0.00	0.00
15,600.00	90.00	179.67	8,204.89	-7,128.88	-168.67	7,130.66	0.00	0.00	0.00
15,700.00	90.00	179.67	8,204.88	-7,228.88	-168.11	7,230.64	0.00	0.00	0.00
15,800.00	90.00	179.67	8,204.88	-7,328.87	-167.54	7,330.62	0.00	0.00	0.00
15,900.00	90.00	179.67	8,204.88	-7,428.87	-166.97	7,430.59	0.00	0.00	0.00
16,000.00	90.00	179.67	8,204.88	-7,528.87	-166.40	7,530.57	0.00	0.00	0.00
16,100.00	90.00	179.67	8,204.88	-7,628.87	-165.83	7,630.55	0.00	0.00	0.00
16,200.00	90.00	179.67	8,204.88	-7,728.87	-165.27	7,730.52	0.00	0.00	0.00
16,300.00	90.00	179.67	8,204.87	-7,828.87	-164.70	7,830.50	0.00	0.00	0.00
16,400.00	90.00	179.67	8,204.87	-7,928.87	-164.13	7,930.48	0.00	0.00	0.00
16,500.00	90.00	179.67	8,204.87	-8,028.86	-163.56	8,030.45	0.00	0.00	0.00
16,600.00	90.00	179.67	8,204.87	-8,128.86	-162.99	8,130.43	0.00	0.00	0.00
16,700.00	90.00	179.67	8,204.87	-8,228.86	-162.42	8,230.41	0.00	0.00	0.00
16,800.00	90.00	179.67	8,204.87	-8,328.86	-161.86	8,330.38	0.00	0.00	0.00
16,900.00	90.00	179.67	8,204.86	-8,428.86	-161.29	8,430.36	0.00	0.00	0.00
17,000.00	90.00	179.67	8,204.86	-8,528.86	-160.72	8,530.33	0.00	0.00	0.00
17,100.00	90.00	179.67	8,204.86	-8,628.85	-160.15	8,630.31	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well UNITED B S16-20-16C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5279.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5279.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	UNITED B S16-20-16C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
17,200.00	90.00	179.67	8,204.86	-8,728.85	-159.58	8,730.29	0.00	0.00	0.00	
17,300.00	90.00	179.67	8,204.86	-8,828.85	-159.01	8,830.26	0.00	0.00	0.00	
17,400.00	90.00	179.67	8,204.86	-8,928.85	-158.45	8,930.24	0.00	0.00	0.00	
17,500.00	90.00	179.67	8,204.85	-9,028.85	-157.88	9,030.22	0.00	0.00	0.00	
17,600.00	90.00	179.67	8,204.85	-9,128.85	-157.31	9,130.19	0.00	0.00	0.00	
17,700.00	90.00	179.67	8,204.85	-9,228.84	-156.74	9,230.17	0.00	0.00	0.00	
17,800.00	90.00	179.67	8,204.85	-9,328.84	-156.17	9,330.15	0.00	0.00	0.00	
17,900.00	90.00	179.67	8,204.85	-9,428.84	-155.61	9,430.12	0.00	0.00	0.00	
18,000.00	90.00	179.67	8,204.85	-9,528.84	-155.04	9,530.10	0.00	0.00	0.00	
18,100.00	90.00	179.67	8,204.85	-9,628.84	-154.47	9,630.08	0.00	0.00	0.00	
18,127.30	90.00	179.67	8,205.00	-9,656.14	-154.46	9,657.37	0.00	0.00	0.00	
TD at 18127.30										

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 S16-16C - LF	0.00	0.00	8,205.00	-25.82	-209.04	1,237,906.57	3,139,756.99	39° 59' 7.293 N	105° 0' 4.486 W
- plan hits target center									
- Point									
UNITED B S16-16C - PE	0.00	0.00	8,205.00	-9,656.14	-154.46	1,228,276.71	3,139,865.81	39° 57' 32.119 N	105° 0' 3.784 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,101.75	5,090.00	SUSSEX				
7,794.34	7,775.00	NIOBRARA				
7,961.42	7,935.00	NIO B TARGET				
8,358.13	8,185.00	FORT HAYS				
8,496.83	8,205.00	CODELL				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00	
1,323.77	1,323.54	7.91	-3.71	Start 6169.23 hold at 1323.77 MD	
7,493.00	7,473.96	443.77	-208.04	Start Drop -2.00	
7,716.76	7,697.50	451.68	-211.75	Start 30.00 hold at 7716.76 MD	
7,746.76	7,727.50	451.68	-211.75	Start DLS 12.00 TFO 179.67	
8,496.83	8,205.00	-25.82	-209.04	Start 9630.47 hold at 8496.83 MD	
18,127.30	8,205.00	-9,656.14	-154.46	TD at 18127.30	