

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 9-T1S-R68W**

**NORTHWEST A S20-25-11C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**18 January, 2018**



Project: Broomfield County  
Site: Sec 9-T1S-R68W  
Well: NORTHWEST A S20-25-11C  
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: 8.25°

Magnetic Field  
Strength: 52081.9snT  
Dip Angle: 66.47°  
Date: 1/4/2018  
Model: IGRF2015

WELL DETAILS: NORTHWEST A S20-25-11C

+N/-S	+E/-W	Northing	Easting	5293.00	Latitude	Longitude	Slot
0.00	0.00	1237090.70	3136508.42		39° 58' 59.408 N	105° 0' 46.278 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	2893.78	35.88	291.67	2778.85	200.67	-505.08	2.00	291.67	-58.70	
4	6943.95	35.88	291.67	6060.65	1077.03	-2710.87	0.00	0.00	-315.04	
5	8737.73	0.00	0.00	7739.50	1277.70	-3215.95	2.00	180.00	-373.74	
6	8767.73	0.00	0.00	7769.50	1277.70	-3215.95	0.00	0.00	-373.74	
7	9517.79	90.00	179.81	8247.00	800.20	-3214.33	12.00	179.81	86.03	NORTHWEST A S20-11C - LP
8	21782.61	90.00	179.81	8247.00	-11464.55	-3172.46	0.00	0.00	11895.39	NORTHWEST A S20-11C - PBHL

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
5122.00	5785.53	SUSSEX
7825.00	8823.35	NIORARA
7993.00	9000.32	NIO B TARGET
8226.00	9375.64	FORT HAYS
8247.00	9517.79	CODELL

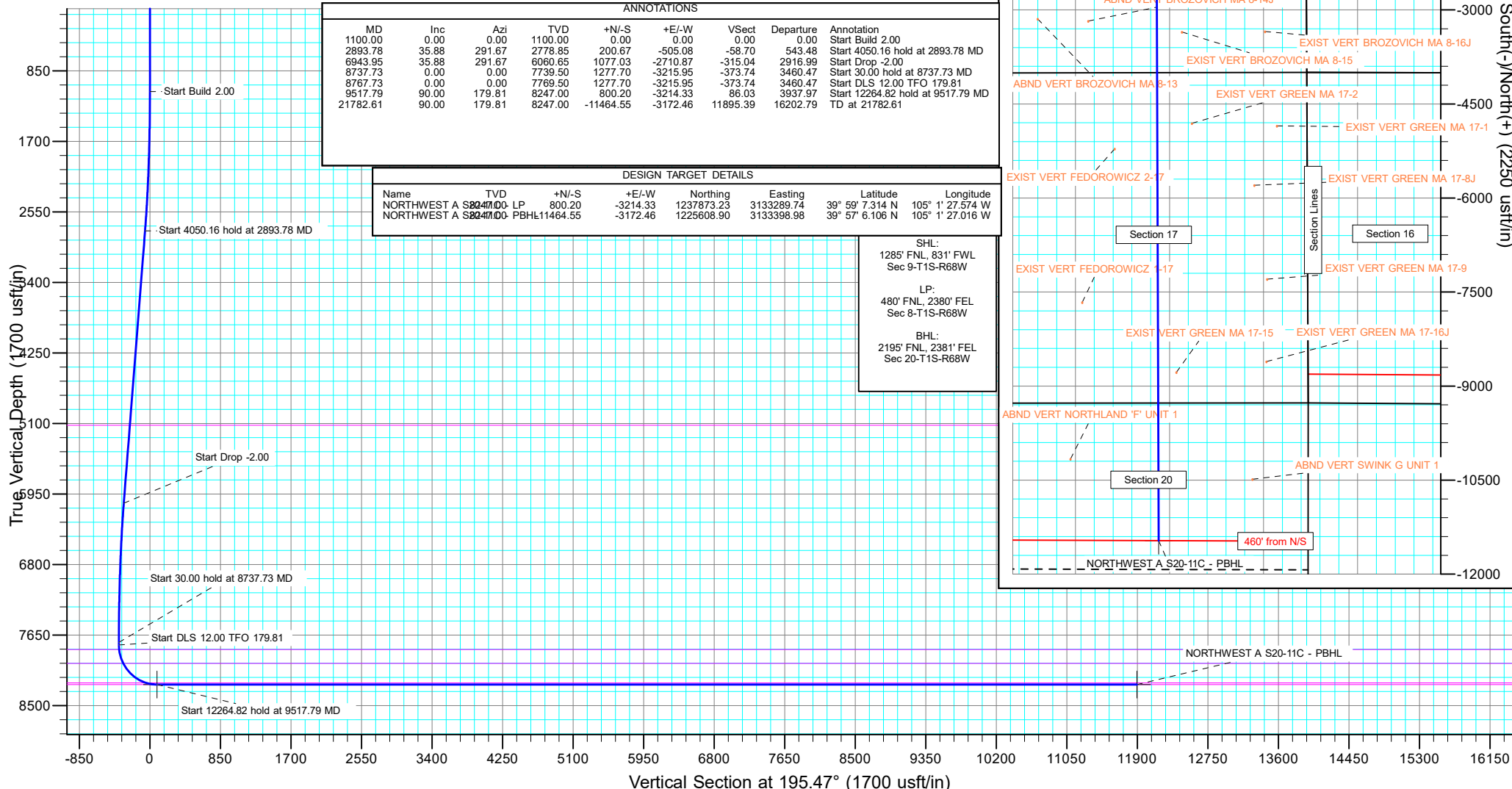
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	Start Build 2.00
2893.78	35.88	291.67	2778.85	200.67	-505.08	-58.70	543.48	Start 4050.16 hold at 2893.78 MD
6943.95	35.88	291.67	6060.65	1077.03	-2710.87	-315.04	2916.99	Start Drop -2.00
8737.73	0.00	0.00	7739.50	1277.70	-3215.95	-373.74	3460.47	Start 30.00 hold at 8737.73 MD
8767.73	0.00	0.00	7769.50	1277.70	-3215.95	-373.74	3460.47	Start DLS 12.00 TFO 179.81
9517.79	90.00	179.81	8247.00	800.20	-3214.33	86.03	3937.97	Start 12264.82 hold at 9517.79 MD
21782.61	90.00	179.81	8247.00	-11464.55	-3172.46	11895.39	16202.79	TD at 21782.61

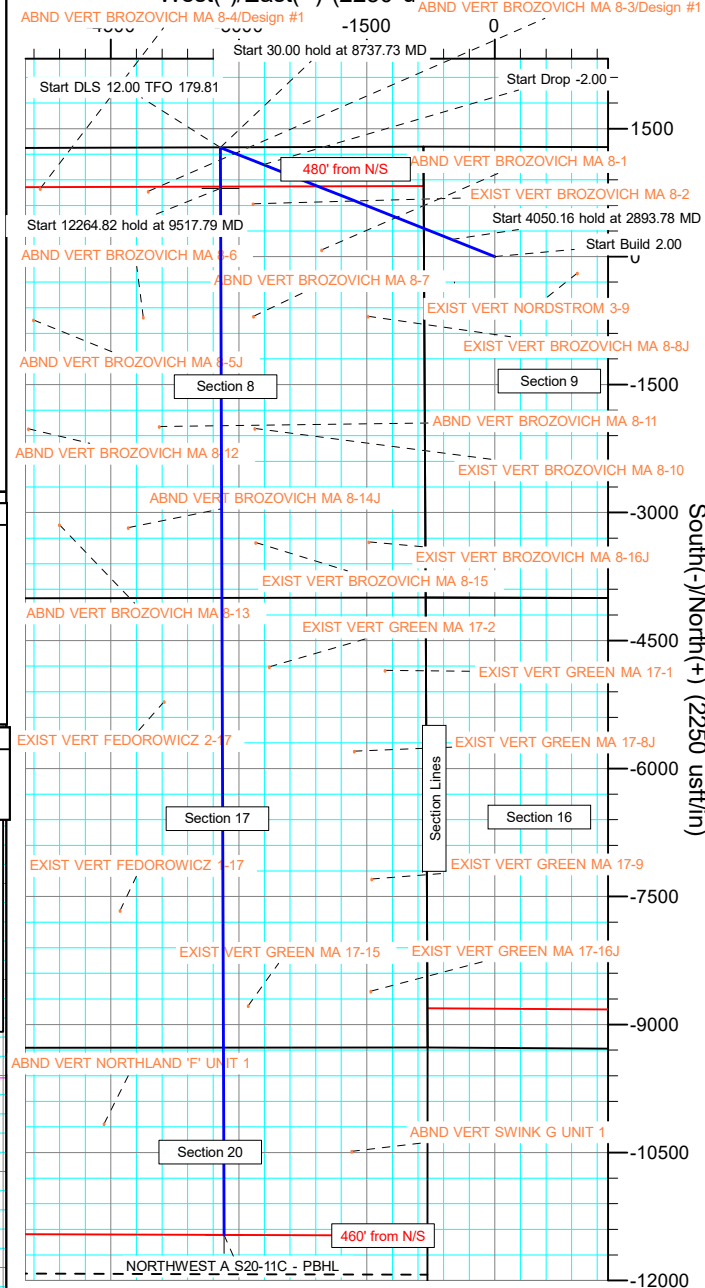
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
NORTHWEST A S20-11C - LP	800.20	-3214.33	1237873.23	3133289.74	39° 59' 7.314 N	105° 1' 27.574 W	
NORTHWEST A S20-11C - PBHL	11464.55	-3172.46	1225608.90	3133398.98	39° 57' 6.106 N	105° 1' 27.016 W	

SHL:  
1285' FNL, 831' FWL  
Sec 9-T1S-R68W  
  
LP:  
480' FNL, 2380' FEL  
Sec 8-T1S-R68W  
  
BHL:  
2195' FNL, 2381' FEL  
Sec 20-T1S-R68W



West(-)/East(+) (2250 usft/in)



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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	NORTHWEST A S20-25-11C					
Well Position	+N/-S	-1,286.27 usft	Northing:	1,237,090.69 usft	Latitude:	39° 58' 59.408 N
	+E/-W	836.58 usft	Easting:	3,136,508.42 usft	Longitude:	105° 0' 46.278 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,293.00 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	1/4/2018	8.25	66.47	52,081.94307800

<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	195.47

<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	21,781.74	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	
2,893.78	35.88	291.67	2,778.85	200.67	-505.08	2.00	2.00	0.00	291.67	
6,943.95	35.88	291.67	6,060.65	1,077.03	-2,710.87	0.00	0.00	0.00	0.00	
8,737.73	0.00	0.00	7,739.50	1,277.70	-3,215.95	2.00	-2.00	0.00	180.00	
8,767.73	0.00	0.00	7,769.50	1,277.70	-3,215.95	0.00	0.00	0.00	0.00	
9,517.79	90.00	179.81	8,247.00	800.20	-3,214.33	12.00	12.00	23.97	179.81	NORTHWEST A S20-
21,782.61	90.00	179.81	8,247.00	-11,464.55	-3,172.46	0.00	0.00	0.00	0.00	NORTHWEST A S20-

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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	291.67	1,199.98	0.64	-1.62	-0.19	2.00	2.00	0.00
1,300.00	4.00	291.67	1,299.84	2.58	-6.49	-0.75	2.00	2.00	0.00
1,400.00	6.00	291.67	1,399.45	5.79	-14.58	-1.69	2.00	2.00	0.00
1,500.00	8.00	291.67	1,498.70	10.29	-25.91	-3.01	2.00	2.00	0.00
1,600.00	10.00	291.67	1,597.47	16.07	-40.45	-4.70	2.00	2.00	0.00
1,700.00	12.00	291.67	1,695.62	23.11	-58.18	-6.76	2.00	2.00	0.00
1,800.00	14.00	291.67	1,793.06	31.42	-79.08	-9.19	2.00	2.00	0.00
1,900.00	16.00	291.67	1,889.64	40.98	-103.14	-11.99	2.00	2.00	0.00
2,000.00	18.00	291.67	1,985.27	51.77	-130.31	-15.14	2.00	2.00	0.00
2,100.00	20.00	291.67	2,079.82	63.79	-160.56	-18.66	2.00	2.00	0.00
2,200.00	22.00	291.67	2,173.17	77.02	-193.86	-22.53	2.00	2.00	0.00
2,300.00	24.00	291.67	2,265.21	91.45	-230.17	-26.75	2.00	2.00	0.00
2,400.00	26.00	291.67	2,355.84	107.05	-269.45	-31.31	2.00	2.00	0.00
2,500.00	28.00	291.67	2,444.94	123.81	-311.64	-36.22	2.00	2.00	0.00
2,600.00	30.00	291.67	2,532.39	141.71	-356.69	-41.45	2.00	2.00	0.00
2,700.00	32.00	291.67	2,618.11	160.73	-404.55	-47.01	2.00	2.00	0.00
2,800.00	34.00	291.67	2,701.97	180.84	-455.16	-52.90	2.00	2.00	0.00
2,893.78	35.88	291.67	2,778.85	200.67	-505.08	-58.70	2.00	2.00	0.00
Start 4050.16 hold at 2893.78 MD									
2,900.00	35.88	291.67	2,783.88	202.01	-508.46	-59.09	0.00	0.00	0.00
3,000.00	35.88	291.67	2,864.91	223.65	-562.92	-65.42	0.00	0.00	0.00
3,100.00	35.88	291.67	2,945.94	245.29	-617.39	-71.75	0.00	0.00	0.00
3,200.00	35.88	291.67	3,026.97	266.93	-671.85	-78.08	0.00	0.00	0.00
3,300.00	35.88	291.67	3,108.00	288.56	-726.31	-84.41	0.00	0.00	0.00
3,400.00	35.88	291.67	3,189.03	310.20	-780.77	-90.74	0.00	0.00	0.00
3,500.00	35.88	291.67	3,270.06	331.84	-835.23	-97.07	0.00	0.00	0.00
3,600.00	35.88	291.67	3,351.09	353.48	-889.70	-103.40	0.00	0.00	0.00
3,700.00	35.88	291.67	3,432.12	375.11	-944.16	-109.72	0.00	0.00	0.00
3,800.00	35.88	291.67	3,513.15	396.75	-998.62	-116.05	0.00	0.00	0.00
3,900.00	35.88	291.67	3,594.17	418.39	-1,053.08	-122.38	0.00	0.00	0.00
4,000.00	35.88	291.67	3,675.20	440.03	-1,107.54	-128.71	0.00	0.00	0.00
4,100.00	35.88	291.67	3,756.23	461.67	-1,162.01	-135.04	0.00	0.00	0.00
4,200.00	35.88	291.67	3,837.26	483.30	-1,216.47	-141.37	0.00	0.00	0.00
4,300.00	35.88	291.67	3,918.29	504.94	-1,270.93	-147.70	0.00	0.00	0.00
4,400.00	35.88	291.67	3,999.32	526.58	-1,325.39	-154.03	0.00	0.00	0.00
4,500.00	35.88	291.67	4,080.35	548.22	-1,379.85	-160.36	0.00	0.00	0.00
4,600.00	35.88	291.67	4,161.38	569.85	-1,434.32	-166.69	0.00	0.00	0.00
4,700.00	35.88	291.67	4,242.41	591.49	-1,488.78	-173.02	0.00	0.00	0.00
4,800.00	35.88	291.67	4,323.44	613.13	-1,543.24	-179.35	0.00	0.00	0.00
4,900.00	35.88	291.67	4,404.46	634.77	-1,597.70	-185.68	0.00	0.00	0.00

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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	35.88	291.67	4,485.49	656.41	-1,652.16	-192.00	0.00	0.00	0.00
5,100.00	35.88	291.67	4,566.52	678.04	-1,706.62	-198.33	0.00	0.00	0.00
5,200.00	35.88	291.67	4,647.55	699.68	-1,761.09	-204.66	0.00	0.00	0.00
5,300.00	35.88	291.67	4,728.58	721.32	-1,815.55	-210.99	0.00	0.00	0.00
5,400.00	35.88	291.67	4,809.61	742.96	-1,870.01	-217.32	0.00	0.00	0.00
5,500.00	35.88	291.67	4,890.64	764.59	-1,924.47	-223.65	0.00	0.00	0.00
5,600.00	35.88	291.67	4,971.67	786.23	-1,978.93	-229.98	0.00	0.00	0.00
5,700.00	35.88	291.67	5,052.70	807.87	-2,033.40	-236.31	0.00	0.00	0.00
5,785.53	35.88	291.67	5,122.00	826.38	-2,079.98	-241.72	0.00	0.00	0.00
SUSSEX									
5,800.00	35.88	291.67	5,133.73	829.51	-2,087.86	-242.64	0.00	0.00	0.00
5,900.00	35.88	291.67	5,214.75	851.15	-2,142.32	-248.97	0.00	0.00	0.00
6,000.00	35.88	291.67	5,295.78	872.78	-2,196.78	-255.30	0.00	0.00	0.00
6,100.00	35.88	291.67	5,376.81	894.42	-2,251.24	-261.63	0.00	0.00	0.00
6,200.00	35.88	291.67	5,457.84	916.06	-2,305.71	-267.96	0.00	0.00	0.00
6,300.00	35.88	291.67	5,538.87	937.70	-2,360.17	-274.28	0.00	0.00	0.00
6,400.00	35.88	291.67	5,619.90	959.34	-2,414.63	-280.61	0.00	0.00	0.00
6,500.00	35.88	291.67	5,700.93	980.97	-2,469.09	-286.94	0.00	0.00	0.00
6,600.00	35.88	291.67	5,781.96	1,002.61	-2,523.55	-293.27	0.00	0.00	0.00
6,700.00	35.88	291.67	5,862.99	1,024.25	-2,578.02	-299.60	0.00	0.00	0.00
6,800.00	35.88	291.67	5,944.02	1,045.89	-2,632.48	-305.93	0.00	0.00	0.00
6,900.00	35.88	291.67	6,025.04	1,067.52	-2,686.94	-312.26	0.00	0.00	0.00
6,943.95	35.88	291.67	6,060.65	1,077.03	-2,710.87	-315.04	0.00	0.00	0.00
Start Drop -2.00									
7,000.00	34.75	291.67	6,106.39	1,089.00	-2,740.99	-318.54	2.00	-2.00	0.00
7,100.00	32.75	291.67	6,189.53	1,109.51	-2,792.62	-324.54	2.00	-2.00	0.00
7,200.00	30.75	291.67	6,274.56	1,128.94	-2,841.53	-330.23	2.00	-2.00	0.00
7,300.00	28.75	291.67	6,361.37	1,147.27	-2,887.65	-335.59	2.00	-2.00	0.00
7,400.00	26.75	291.67	6,449.86	1,164.46	-2,930.93	-340.61	2.00	-2.00	0.00
7,500.00	24.75	291.67	6,539.92	1,180.50	-2,971.30	-345.31	2.00	-2.00	0.00
7,600.00	22.75	291.67	6,631.44	1,195.37	-3,008.74	-349.66	2.00	-2.00	0.00
7,700.00	20.75	291.67	6,724.32	1,209.06	-3,043.18	-353.66	2.00	-2.00	0.00
7,800.00	18.75	291.67	6,818.43	1,221.54	-3,074.59	-357.31	2.00	-2.00	0.00
7,900.00	16.75	291.67	6,913.66	1,232.80	-3,102.93	-360.60	2.00	-2.00	0.00
8,000.00	14.75	291.67	7,009.90	1,242.82	-3,128.16	-363.54	2.00	-2.00	0.00
8,100.00	12.75	291.67	7,107.03	1,251.60	-3,150.26	-366.10	2.00	-2.00	0.00
8,200.00	10.75	291.67	7,204.92	1,259.12	-3,169.19	-368.30	2.00	-2.00	0.00
8,300.00	8.75	291.67	7,303.47	1,265.38	-3,184.93	-370.13	2.00	-2.00	0.00
8,400.00	6.75	291.67	7,402.55	1,270.36	-3,197.47	-371.59	2.00	-2.00	0.00
8,500.00	4.75	291.67	7,502.04	1,274.06	-3,206.79	-372.67	2.00	-2.00	0.00
8,600.00	2.75	291.67	7,601.82	1,276.48	-3,212.87	-373.38	2.00	-2.00	0.00
8,700.00	0.75	291.67	7,701.77	1,277.61	-3,215.72	-373.71	2.00	-2.00	0.00
8,737.73	0.00	0.00	7,739.50	1,277.70	-3,215.95	-373.74	2.00	-2.00	0.00
Start 30.00 hold at 8737.73 MD									
8,767.73	0.00	0.00	7,769.50	1,277.70	-3,215.95	-373.74	0.00	0.00	0.00
Start DLS 12.00 TFO 179.81									
8,775.00	0.87	179.81	7,776.77	1,277.64	-3,215.95	-373.69	12.00	12.00	0.00
8,800.00	3.87	179.81	7,801.75	1,276.61	-3,215.95	-372.69	12.00	12.00	0.00
8,823.36	6.67	179.81	7,825.00	1,274.46	-3,215.94	-370.62	12.00	12.00	0.00
NIOBRARA									
8,825.00	6.87	179.81	7,826.63	1,274.27	-3,215.94	-370.44	12.00	12.00	0.00
8,850.00	9.87	179.81	7,851.36	1,270.63	-3,215.93	-366.93	12.00	12.00	0.00
8,875.00	12.87	179.81	7,875.87	1,265.70	-3,215.91	-362.19	12.00	12.00	0.00
8,900.00	15.87	179.81	7,900.09	1,259.50	-3,215.89	-356.21	12.00	12.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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)
8,925.00	18.87	179.81	7,923.94	1,252.03	-3,215.86	-349.03	12.00	12.00	0.00
8,950.00	21.87	179.81	7,947.38	1,243.33	-3,215.83	-340.65	12.00	12.00	0.00
8,975.00	24.87	179.81	7,970.32	1,233.42	-3,215.80	-331.10	12.00	12.00	0.00
9,000.00	27.87	179.81	7,992.72	1,222.31	-3,215.76	-320.41	12.00	12.00	0.00
9,000.32	27.91	179.81	7,993.00	1,222.16	-3,215.76	-320.27	12.00	12.00	0.00
NIO B TARGET									
9,025.00	30.87	179.81	8,014.50	1,210.05	-3,215.72	-308.60	12.00	12.00	0.00
9,050.00	33.87	179.81	8,035.62	1,196.67	-3,215.67	-295.72	12.00	12.00	0.00
9,075.00	36.87	179.81	8,056.00	1,182.20	-3,215.63	-281.79	12.00	12.00	0.00
9,100.00	39.87	179.81	8,075.60	1,166.68	-3,215.57	-266.84	12.00	12.00	0.00
9,125.00	42.87	179.81	8,094.36	1,150.16	-3,215.52	-250.94	12.00	12.00	0.00
9,150.00	45.87	179.81	8,112.23	1,132.68	-3,215.46	-234.11	12.00	12.00	0.00
9,175.00	48.87	179.81	8,129.16	1,114.29	-3,215.40	-216.40	12.00	12.00	0.00
9,200.00	51.87	179.81	8,145.10	1,095.04	-3,215.33	-197.86	12.00	12.00	0.00
9,225.00	54.87	179.81	8,160.02	1,074.98	-3,215.26	-178.55	12.00	12.00	0.00
9,250.00	57.87	179.81	8,173.86	1,054.17	-3,215.19	-158.51	12.00	12.00	0.00
9,275.00	60.87	179.81	8,186.60	1,032.66	-3,215.12	-137.80	12.00	12.00	0.00
9,300.00	63.87	179.81	8,198.19	1,010.51	-3,215.04	-116.47	12.00	12.00	0.00
9,325.00	66.87	179.81	8,208.61	987.79	-3,214.97	-94.59	12.00	12.00	0.00
9,350.00	69.87	179.81	8,217.82	964.55	-3,214.89	-72.22	12.00	12.00	0.00
9,375.00	72.87	179.81	8,225.81	940.87	-3,214.81	-49.41	12.00	12.00	0.00
9,375.64	72.94	179.81	8,226.00	940.25	-3,214.80	-48.82	12.00	12.00	0.00
FORT HAYS									
9,400.00	75.87	179.81	8,232.55	916.80	-3,214.72	-26.23	12.00	12.00	0.00
9,425.00	78.87	179.81	8,238.01	892.40	-3,214.64	-2.75	12.00	12.00	0.00
9,450.00	81.87	179.81	8,242.20	867.76	-3,214.56	20.98	12.00	12.00	0.00
9,475.00	84.87	179.81	8,245.08	842.93	-3,214.47	44.89	12.00	12.00	0.00
9,500.00	87.87	179.81	8,246.67	817.98	-3,214.39	68.91	12.00	12.00	0.00
9,517.79	90.00	179.81	8,247.00	800.20	-3,214.33	86.03	12.00	12.00	0.00
Start 12264.82 hold at 9517.79 MD - CODELL									
9,600.00	90.00	179.81	8,247.00	717.99	-3,214.05	165.19	0.00	0.00	0.00
9,700.00	90.00	179.81	8,247.00	617.99	-3,213.71	261.48	0.00	0.00	0.00
9,800.00	90.00	179.81	8,247.00	517.99	-3,213.37	357.77	0.00	0.00	0.00
9,900.00	90.00	179.81	8,247.00	417.99	-3,213.03	454.06	0.00	0.00	0.00
10,000.00	90.00	179.81	8,247.00	317.99	-3,212.69	550.34	0.00	0.00	0.00
10,100.00	90.00	179.81	8,247.00	217.99	-3,212.35	646.63	0.00	0.00	0.00
10,200.00	90.00	179.81	8,247.00	117.99	-3,212.01	742.92	0.00	0.00	0.00
10,300.00	90.00	179.81	8,247.00	17.99	-3,211.67	839.20	0.00	0.00	0.00
10,400.00	90.00	179.81	8,247.00	-82.01	-3,211.33	935.49	0.00	0.00	0.00
10,500.00	90.00	179.81	8,246.99	-182.01	-3,210.99	1,031.78	0.00	0.00	0.00
10,600.00	90.00	179.81	8,246.99	-282.01	-3,210.65	1,128.06	0.00	0.00	0.00
10,700.00	90.00	179.81	8,246.99	-382.01	-3,210.32	1,224.35	0.00	0.00	0.00
10,800.00	90.00	179.81	8,246.99	-482.01	-3,209.98	1,320.64	0.00	0.00	0.00
10,900.00	90.00	179.81	8,246.99	-582.00	-3,209.64	1,416.92	0.00	0.00	0.00
11,000.00	90.00	179.81	8,246.99	-682.00	-3,209.30	1,513.21	0.00	0.00	0.00
11,100.00	90.00	179.81	8,246.99	-782.00	-3,208.96	1,609.50	0.00	0.00	0.00
11,200.00	90.00	179.81	8,246.99	-882.00	-3,208.62	1,705.79	0.00	0.00	0.00
11,300.00	90.00	179.81	8,246.99	-982.00	-3,208.28	1,802.07	0.00	0.00	0.00
11,400.00	90.00	179.81	8,246.99	-1,082.00	-3,207.94	1,898.36	0.00	0.00	0.00
11,500.00	90.00	179.81	8,246.99	-1,182.00	-3,207.60	1,994.65	0.00	0.00	0.00
11,600.00	90.00	179.81	8,246.99	-1,282.00	-3,207.26	2,090.93	0.00	0.00	0.00
11,700.00	90.00	179.81	8,246.99	-1,382.00	-3,206.92	2,187.22	0.00	0.00	0.00
11,800.00	90.00	179.81	8,246.99	-1,482.00	-3,206.58	2,283.51	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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)	
11,900.00	90.00	179.81	8,246.99	-1,582.00	-3,206.24	2,379.79	0.00	0.00	0.00	
12,000.00	90.00	179.81	8,246.99	-1,682.00	-3,205.90	2,476.08	0.00	0.00	0.00	
12,100.00	90.00	179.81	8,246.99	-1,782.00	-3,205.56	2,572.37	0.00	0.00	0.00	
12,200.00	90.00	179.81	8,246.98	-1,882.00	-3,205.22	2,668.66	0.00	0.00	0.00	
12,300.00	90.00	179.81	8,246.98	-1,982.00	-3,204.88	2,764.94	0.00	0.00	0.00	
12,400.00	90.00	179.81	8,246.98	-2,082.00	-3,204.54	2,861.23	0.00	0.00	0.00	
12,500.00	90.00	179.81	8,246.98	-2,182.00	-3,204.20	2,957.52	0.00	0.00	0.00	
12,600.00	90.00	179.81	8,246.98	-2,282.00	-3,203.86	3,053.80	0.00	0.00	0.00	
12,700.00	90.00	179.81	8,246.98	-2,381.99	-3,203.53	3,150.09	0.00	0.00	0.00	
12,800.00	90.00	179.81	8,246.98	-2,481.99	-3,203.19	3,246.38	0.00	0.00	0.00	
12,900.00	90.00	179.81	8,246.98	-2,581.99	-3,202.85	3,342.66	0.00	0.00	0.00	
13,000.00	90.00	179.81	8,246.98	-2,681.99	-3,202.51	3,438.95	0.00	0.00	0.00	
13,100.00	90.00	179.81	8,246.98	-2,781.99	-3,202.17	3,535.24	0.00	0.00	0.00	
13,200.00	90.00	179.81	8,246.98	-2,881.99	-3,201.83	3,631.52	0.00	0.00	0.00	
13,300.00	90.00	179.81	8,246.98	-2,981.99	-3,201.49	3,727.81	0.00	0.00	0.00	
13,400.00	90.00	179.81	8,246.98	-3,081.99	-3,201.15	3,824.10	0.00	0.00	0.00	
13,500.00	90.00	179.81	8,246.98	-3,181.99	-3,200.81	3,920.39	0.00	0.00	0.00	
13,600.00	90.00	179.81	8,246.98	-3,281.99	-3,200.47	4,016.67	0.00	0.00	0.00	
13,700.00	90.00	179.81	8,246.98	-3,381.99	-3,200.13	4,112.96	0.00	0.00	0.00	
13,800.00	90.00	179.81	8,246.98	-3,481.99	-3,199.79	4,209.25	0.00	0.00	0.00	
13,900.00	90.00	179.81	8,246.97	-3,581.99	-3,199.45	4,305.53	0.00	0.00	0.00	
14,000.00	90.00	179.81	8,246.97	-3,681.99	-3,199.11	4,401.82	0.00	0.00	0.00	
14,100.00	90.00	179.81	8,246.97	-3,781.99	-3,198.77	4,498.11	0.00	0.00	0.00	
14,200.00	90.00	179.81	8,246.97	-3,881.99	-3,198.43	4,594.39	0.00	0.00	0.00	
14,300.00	90.00	179.81	8,246.97	-3,981.99	-3,198.09	4,690.68	0.00	0.00	0.00	
14,400.00	90.00	179.81	8,246.97	-4,081.98	-3,197.75	4,786.97	0.00	0.00	0.00	
14,500.00	90.00	179.81	8,246.97	-4,181.98	-3,197.41	4,883.26	0.00	0.00	0.00	
14,600.00	90.00	179.81	8,246.97	-4,281.98	-3,197.07	4,979.54	0.00	0.00	0.00	
14,700.00	90.00	179.81	8,246.97	-4,381.98	-3,196.74	5,075.83	0.00	0.00	0.00	
14,800.00	90.00	179.81	8,246.97	-4,481.98	-3,196.40	5,172.12	0.00	0.00	0.00	
14,900.00	90.00	179.81	8,246.97	-4,581.98	-3,196.06	5,268.40	0.00	0.00	0.00	
15,000.00	90.00	179.81	8,246.97	-4,681.98	-3,195.72	5,364.69	0.00	0.00	0.00	
15,100.00	90.00	179.81	8,246.97	-4,781.98	-3,195.38	5,460.98	0.00	0.00	0.00	
15,200.00	90.00	179.81	8,246.97	-4,881.98	-3,195.04	5,557.26	0.00	0.00	0.00	
15,300.00	90.00	179.81	8,246.97	-4,981.98	-3,194.70	5,653.55	0.00	0.00	0.00	
15,400.00	90.00	179.81	8,246.97	-5,081.98	-3,194.36	5,749.84	0.00	0.00	0.00	
15,500.00	90.00	179.81	8,246.97	-5,181.98	-3,194.02	5,846.12	0.00	0.00	0.00	
15,600.00	90.00	179.81	8,246.97	-5,281.98	-3,193.68	5,942.41	0.00	0.00	0.00	
15,700.00	90.00	179.81	8,246.96	-5,381.98	-3,193.34	6,038.70	0.00	0.00	0.00	
15,800.00	90.00	179.81	8,246.96	-5,481.98	-3,193.00	6,134.99	0.00	0.00	0.00	
15,900.00	90.00	179.81	8,246.96	-5,581.98	-3,192.66	6,231.27	0.00	0.00	0.00	
16,000.00	90.00	179.81	8,246.96	-5,681.98	-3,192.32	6,327.56	0.00	0.00	0.00	
16,100.00	90.00	179.81	8,246.96	-5,781.98	-3,191.98	6,423.85	0.00	0.00	0.00	
16,200.00	90.00	179.81	8,246.96	-5,881.97	-3,191.64	6,520.13	0.00	0.00	0.00	
16,300.00	90.00	179.81	8,246.96	-5,981.97	-3,191.30	6,616.42	0.00	0.00	0.00	
16,400.00	90.00	179.81	8,246.96	-6,081.97	-3,190.96	6,712.71	0.00	0.00	0.00	
16,500.00	90.00	179.81	8,246.96	-6,181.97	-3,190.62	6,808.99	0.00	0.00	0.00	
16,600.00	90.00	179.81	8,246.96	-6,281.97	-3,190.28	6,905.28	0.00	0.00	0.00	
16,700.00	90.00	179.81	8,246.96	-6,381.97	-3,189.95	7,001.57	0.00	0.00	0.00	
16,800.00	90.00	179.81	8,246.96	-6,481.97	-3,189.61	7,097.85	0.00	0.00	0.00	
16,900.00	90.00	179.81	8,246.96	-6,581.97	-3,189.27	7,194.14	0.00	0.00	0.00	
17,000.00	90.00	179.81	8,246.96	-6,681.97	-3,188.93	7,290.43	0.00	0.00	0.00	
17,100.00	90.00	179.81	8,246.96	-6,781.97	-3,188.59	7,386.72	0.00	0.00	0.00	
17,200.00	90.00	179.81	8,246.96	-6,881.97	-3,188.25	7,483.00	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<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)
17,300.00	90.00	179.81	8,246.96	-6,981.97	-3,187.91	7,579.29	0.00	0.00	0.00
17,400.00	90.00	179.81	8,246.95	-7,081.97	-3,187.57	7,675.58	0.00	0.00	0.00
17,500.00	90.00	179.81	8,246.95	-7,181.97	-3,187.23	7,771.86	0.00	0.00	0.00
17,600.00	90.00	179.81	8,246.95	-7,281.97	-3,186.89	7,868.15	0.00	0.00	0.00
17,700.00	90.00	179.81	8,246.95	-7,381.97	-3,186.55	7,964.44	0.00	0.00	0.00
17,800.00	90.00	179.81	8,246.95	-7,481.97	-3,186.21	8,060.72	0.00	0.00	0.00
17,900.00	90.00	179.81	8,246.95	-7,581.96	-3,185.87	8,157.01	0.00	0.00	0.00
18,000.00	90.00	179.81	8,246.95	-7,681.96	-3,185.53	8,253.30	0.00	0.00	0.00
18,100.00	90.00	179.81	8,246.95	-7,781.96	-3,185.19	8,349.59	0.00	0.00	0.00
18,200.00	90.00	179.81	8,246.95	-7,881.96	-3,184.85	8,445.87	0.00	0.00	0.00
18,300.00	90.00	179.81	8,246.95	-7,981.96	-3,184.51	8,542.16	0.00	0.00	0.00
18,400.00	90.00	179.81	8,246.95	-8,081.96	-3,184.17	8,638.45	0.00	0.00	0.00
18,500.00	90.00	179.81	8,246.95	-8,181.96	-3,183.83	8,734.73	0.00	0.00	0.00
18,600.00	90.00	179.81	8,246.95	-8,281.96	-3,183.49	8,831.02	0.00	0.00	0.00
18,700.00	90.00	179.81	8,246.95	-8,381.96	-3,183.16	8,927.31	0.00	0.00	0.00
18,800.00	90.00	179.81	8,246.95	-8,481.96	-3,182.82	9,023.59	0.00	0.00	0.00
18,900.00	90.00	179.81	8,246.95	-8,581.96	-3,182.48	9,119.88	0.00	0.00	0.00
19,000.00	90.00	179.81	8,246.95	-8,681.96	-3,182.14	9,216.17	0.00	0.00	0.00
19,100.00	90.00	179.81	8,246.94	-8,781.96	-3,181.80	9,312.45	0.00	0.00	0.00
19,200.00	90.00	179.81	8,246.94	-8,881.96	-3,181.46	9,408.74	0.00	0.00	0.00
19,300.00	90.00	179.81	8,246.94	-8,981.96	-3,181.12	9,505.03	0.00	0.00	0.00
19,400.00	90.00	179.81	8,246.94	-9,081.96	-3,180.78	9,601.32	0.00	0.00	0.00
19,500.00	90.00	179.81	8,246.94	-9,181.96	-3,180.44	9,697.60	0.00	0.00	0.00
19,600.00	90.00	179.81	8,246.94	-9,281.95	-3,180.10	9,793.89	0.00	0.00	0.00
19,700.00	90.00	179.81	8,246.94	-9,381.95	-3,179.76	9,890.18	0.00	0.00	0.00
19,800.00	90.00	179.81	8,246.94	-9,481.95	-3,179.42	9,986.46	0.00	0.00	0.00
19,900.00	90.00	179.81	8,246.94	-9,581.95	-3,179.08	10,082.75	0.00	0.00	0.00
20,000.00	90.00	179.81	8,246.94	-9,681.95	-3,178.74	10,179.04	0.00	0.00	0.00
20,100.00	90.00	179.81	8,246.94	-9,781.95	-3,178.40	10,275.32	0.00	0.00	0.00
20,200.00	90.00	179.81	8,246.94	-9,881.95	-3,178.06	10,371.61	0.00	0.00	0.00
20,300.00	90.00	179.81	8,246.94	-9,981.95	-3,177.72	10,467.90	0.00	0.00	0.00
20,400.00	90.00	179.81	8,246.94	-10,081.95	-3,177.38	10,564.19	0.00	0.00	0.00
20,500.00	90.00	179.81	8,246.94	-10,181.95	-3,177.04	10,660.47	0.00	0.00	0.00
20,600.00	90.00	179.81	8,246.94	-10,281.95	-3,176.70	10,756.76	0.00	0.00	0.00
20,700.00	90.00	179.81	8,246.94	-10,381.95	-3,176.37	10,853.05	0.00	0.00	0.00
20,800.00	90.00	179.81	8,246.94	-10,481.95	-3,176.03	10,949.33	0.00	0.00	0.00
20,900.00	90.00	179.81	8,246.93	-10,581.95	-3,175.69	11,045.62	0.00	0.00	0.00
21,000.00	90.00	179.81	8,246.93	-10,681.95	-3,175.35	11,141.91	0.00	0.00	0.00
21,782.61	90.00	179.81	8,247.00	-11,464.55	-3,172.46	11,895.39	0.00	0.00	0.00
TD at 21782.61									



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-11C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5318.00usft
<b>Project:</b>	Broomfield County	<b>MD Reference:</b>	KB 25' @ 5318.00usft
<b>Site:</b>	Sec 9-T1S-R68W	<b>North Reference:</b>	True
<b>Well:</b>	NORTHWEST A S20-25-11C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)		
NORTHWEST A S20-11C - plan hits target center - Point	0.00	0.00	8,247.00	800.20	-3,214.33	1,237,873.22	3,133,289.74	39° 59' 7.314 N	105° 1' 27.574 W
NORTHWEST A S20-11C - plan hits target center - Point	0.00	0.00	8,247.00	-11,464.55	-3,172.46	1,225,608.89	3,133,398.98	39° 57' 6.106 N	105° 1' 27.016 W

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
5,785.53	5,122.00	SUSSEX				
8,823.36	7,825.00	NIOBRARA				
9,000.32	7,993.00	NIO B TARGET				
9,375.64	8,226.00	FORT HAYS				
9,517.79	8,247.00	CODELL				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00
2,893.78	2,778.85	200.67	-505.08	Start 4050.16 hold at 2893.78 MD
6,943.95	6,060.65	1,077.03	-2,710.87	Start Drop -2.00
8,737.73	7,739.50	1,277.70	-3,215.95	Start 30.00 hold at 8737.73 MD
8,767.73	7,769.50	1,277.70	-3,215.95	Start DLS 12.00 TFO 179.81
9,517.79	8,247.00	800.20	-3,214.33	Start 12264.82 hold at 9517.79 MD
21,782.61	8,247.00	-11,464.55	-3,172.46	TD at 21782.61