

# **EXTRACTION OIL & GAS**

**Broomfield County**

**Sec 9-T1S-R68W**

**NORTHWEST A S20-25-8C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**18 January, 2018**



Project: Broomfield County  
Site: Sec 9-T1S-R68W  
Well: NORTHWEST A S20-25-8C  
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 S20-25-8C

+N/-S  
0.00

+E/-W  
0.00

Northing  
1237078.75

Easting  
3136455.80

5293.00  
Latitude  
39° 58' 59.293 N

Longitude  
105° 0' 46.955 W

Slot

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5122.00	6084.52	SUSSEX
7825.00	9170.39	NIOBRARA
7993.00	9347.35	NIO B TARGET
8226.00	9722.68	FORT HAYS
8247.00	9864.82	CODELL

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	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	2456.78	39.14	287.70	2308.14	195.36	-612.29	2.00	287.70	16.99	
4	7127.98	39.14	287.70	5931.36	1091.56	-3421.06	0.00	0.00	94.95	
5	9084.76	0.00	0.00	7739.50	1286.92	-4033.35	2.00	180.00	111.95	
6	9114.76	0.00	0.00	7769.50	1286.92	-4033.35	0.00	0.00	111.95	
7	9864.82	90.00	179.80	8247.00	809.42	-4031.71	12.00	179.80	562.32	NORTHWEST A S20-8C - LP
8	22124.53	90.00	179.80	8247.00	-11450.22	-3989.97	0.00	0.00	12125.49	NORTHWEST A S20-8C - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	Start Build 2.00
2456.78	39.14	287.70	2308.14	195.36	-612.29	16.99	642.71	Start 4671.20 hold at 2456.78 MD
7127.98	39.14	287.70	5931.36	1091.56	-3421.06	94.95	3590.98	Start Drop -2.00
9084.76	0.00	0.00	7739.50	1286.92	-4033.35	111.95	4233.68	Start 30.00 hold at 9084.76 MD
9114.76	0.00	0.00	7769.50	1286.92	-4033.35	111.95	4233.68	Start DLS 12.00 TFO 179.80
9864.82	90.00	179.80	8247.00	809.42	-4031.71	562.32	4711.19	Start 12259.71 hold at 9864.82 MD
22124.53	90.00	179.80	8246.93	-11450.22	-3989.66	12125.38	16970.90	TD at 22124.53

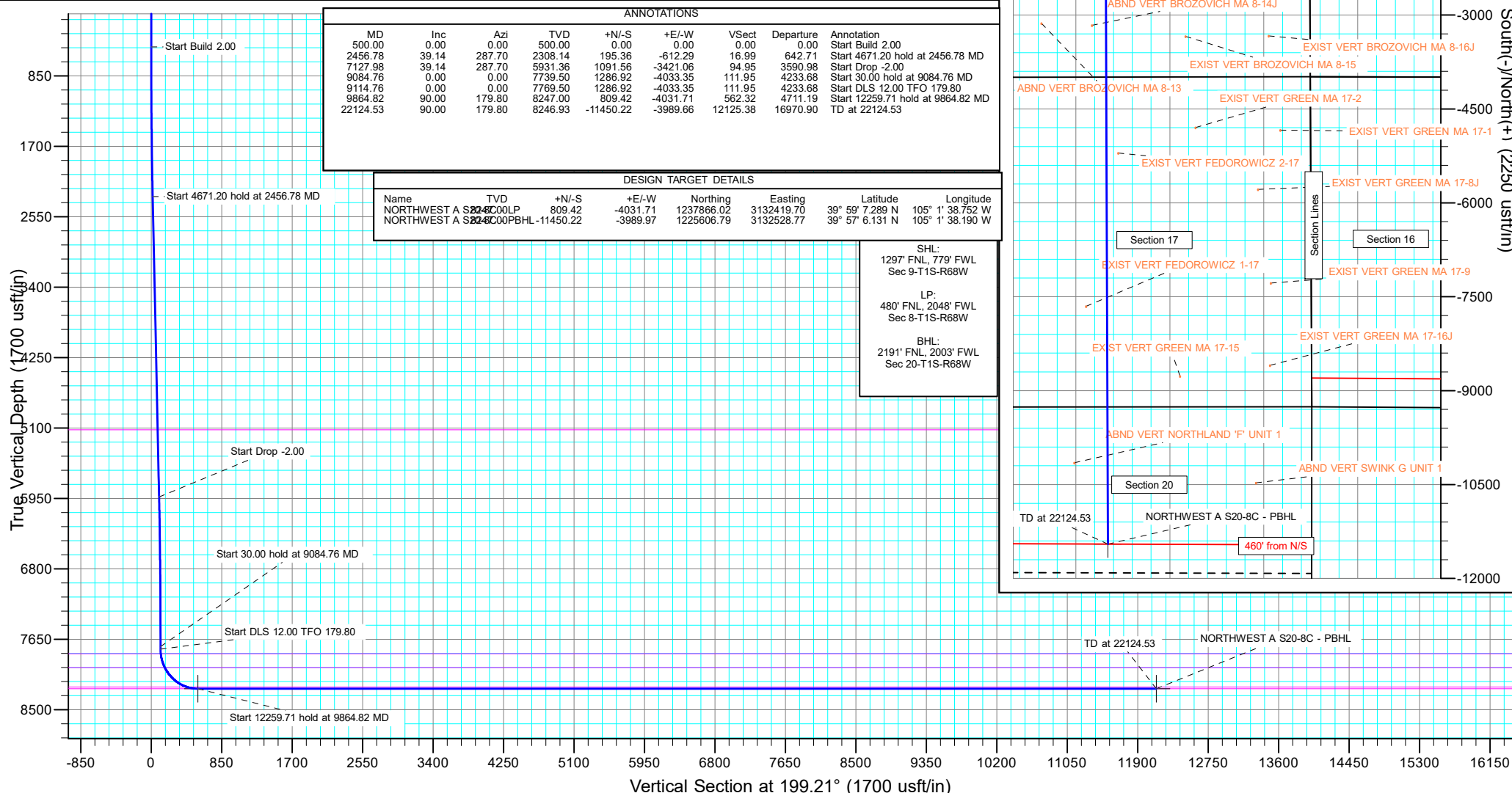
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
NORTHWEST A S20-8C00LP	809.42	-4031.71	1237866.02	3132419.70	39° 59' 7.289 N	105° 1' 38.752 W	
NORTHWEST A S20-8C00PBHL	-11450.22	-3989.97	1225606.79	3132528.77	39° 57' 6.131 N	105° 1' 38.190 W	

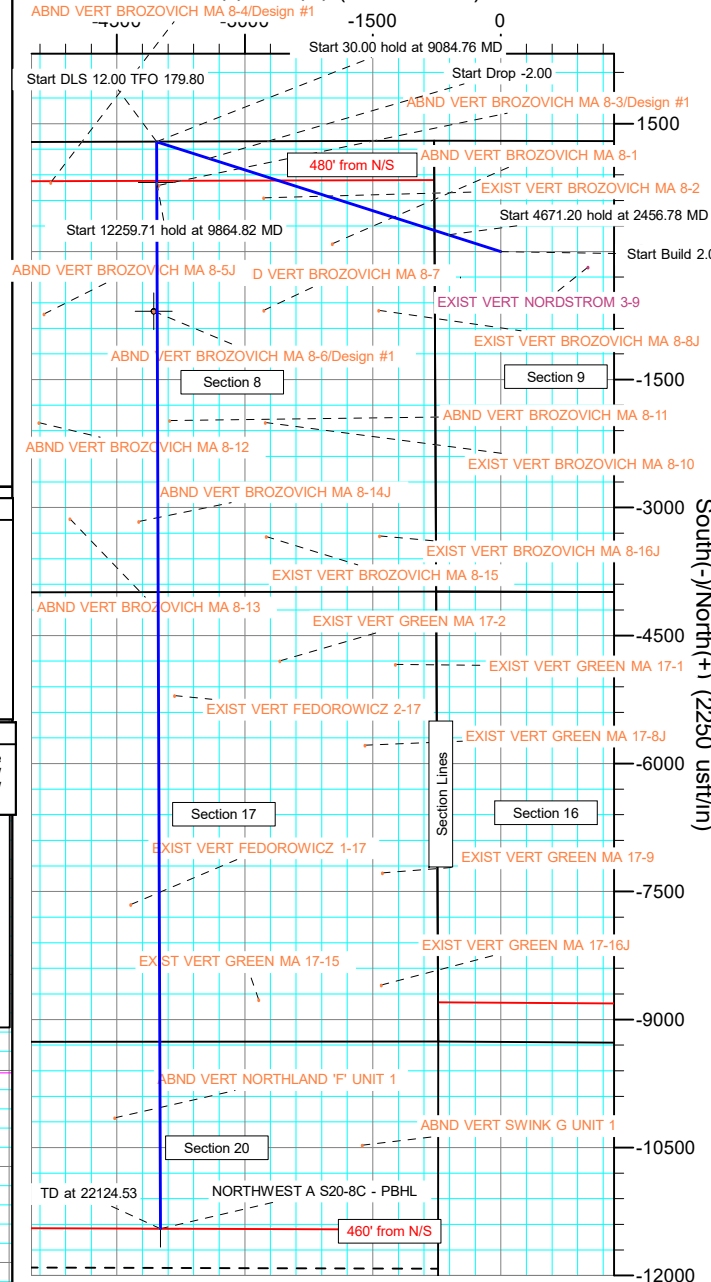
SHL:  
1297' FNL, 779' FWL  
Sec 9-T1S-R68W

LP:  
480' FNL, 2048' FWL  
Sec 8-T1S-R68W

BHL:  
2191' FNL, 2003' FWL  
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 S20-25-8C
<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 S20-25-8C	<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 S20-25-8C					
Well Position	+N/-S	-1,297.92 usft	Northing:	1,237,078.75 usft	Latitude:	39° 58' 59.293 N
	+E/-W	783.90 usft	Easting:	3,136,455.80 usft	Longitude:	105° 0' 46.955 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	52,081.90608840

<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	199.21

<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	22,124.51	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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,456.78	39.14	287.70	2,308.14	195.36	-612.29	2.00	2.00	0.00	287.70	
7,127.98	39.14	287.70	5,931.36	1,091.56	-3,421.06	0.00	0.00	0.00	0.00	
9,084.76	0.00	0.00	7,739.50	1,286.92	-4,033.35	2.00	-2.00	0.00	180.00	
9,114.76	0.00	0.00	7,769.50	1,286.92	-4,033.35	0.00	0.00	0.00	0.00	
9,864.82	90.00	179.80	8,247.00	809.42	-4,031.71	12.00	12.00	23.97	179.80	NORTHWEST A S20-
22,124.54	90.00	179.80	8,247.00	-11,450.22	-3,989.97	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 S20-25-8C
<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 S20-25-8C	<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
Start Build 2.00									
600.00	2.00	287.70	599.98	0.53	-1.66	0.05	2.00	2.00	0.00
700.00	4.00	287.70	699.84	2.12	-6.65	0.18	2.00	2.00	0.00
800.00	6.00	287.70	799.45	4.77	-14.95	0.41	2.00	2.00	0.00
900.00	8.00	287.70	898.70	8.47	-26.56	0.74	2.00	2.00	0.00
1,000.00	10.00	287.70	997.47	13.23	-41.46	1.15	2.00	2.00	0.00
1,100.00	12.00	287.70	1,095.62	19.03	-59.64	1.66	2.00	2.00	0.00
1,200.00	14.00	287.70	1,193.06	25.87	-81.07	2.25	2.00	2.00	0.00
1,300.00	16.00	287.70	1,289.64	33.73	-105.73	2.93	2.00	2.00	0.00
1,400.00	18.00	287.70	1,385.27	42.62	-133.58	3.71	2.00	2.00	0.00
1,500.00	20.00	287.70	1,479.82	52.52	-164.59	4.57	2.00	2.00	0.00
1,600.00	22.00	287.70	1,573.17	63.41	-198.73	5.52	2.00	2.00	0.00
1,700.00	24.00	287.70	1,665.21	75.29	-235.95	6.55	2.00	2.00	0.00
1,800.00	26.00	287.70	1,755.84	88.13	-276.21	7.67	2.00	2.00	0.00
1,900.00	28.00	287.70	1,844.94	101.93	-319.46	8.87	2.00	2.00	0.00
2,000.00	30.00	287.70	1,932.39	116.67	-365.65	10.15	2.00	2.00	0.00
2,100.00	32.00	287.70	2,018.11	132.32	-414.71	11.51	2.00	2.00	0.00
2,200.00	34.00	287.70	2,101.97	148.88	-466.60	12.95	2.00	2.00	0.00
2,300.00	36.00	287.70	2,183.88	166.31	-521.24	14.47	2.00	2.00	0.00
2,400.00	38.00	287.70	2,263.74	184.60	-578.57	16.06	2.00	2.00	0.00
2,456.78	39.14	287.70	2,308.14	195.36	-612.29	16.99	2.00	2.00	0.00
Start 4671.20 hold at 2456.78 MD									
2,500.00	39.14	287.70	2,341.66	203.66	-638.28	17.72	0.00	0.00	0.00
2,600.00	39.14	287.70	2,419.22	222.84	-698.41	19.38	0.00	0.00	0.00
2,700.00	39.14	287.70	2,496.79	242.03	-758.54	21.05	0.00	0.00	0.00
2,800.00	39.14	287.70	2,574.35	261.21	-818.67	22.72	0.00	0.00	0.00
2,900.00	39.14	287.70	2,651.92	280.40	-878.80	24.39	0.00	0.00	0.00
3,000.00	39.14	287.70	2,729.48	299.58	-938.93	26.06	0.00	0.00	0.00
3,100.00	39.14	287.70	2,807.05	318.77	-999.06	27.73	0.00	0.00	0.00
3,200.00	39.14	287.70	2,884.61	337.95	-1,059.19	29.40	0.00	0.00	0.00
3,300.00	39.14	287.70	2,962.18	357.14	-1,119.31	31.07	0.00	0.00	0.00
3,400.00	39.14	287.70	3,039.74	376.33	-1,179.44	32.74	0.00	0.00	0.00
3,500.00	39.14	287.70	3,117.31	395.51	-1,239.57	34.41	0.00	0.00	0.00
3,600.00	39.14	287.70	3,194.88	414.70	-1,299.70	36.07	0.00	0.00	0.00
3,700.00	39.14	287.70	3,272.44	433.88	-1,359.83	37.74	0.00	0.00	0.00
3,800.00	39.14	287.70	3,350.01	453.07	-1,419.96	39.41	0.00	0.00	0.00
3,900.00	39.14	287.70	3,427.57	472.25	-1,480.09	41.08	0.00	0.00	0.00
4,000.00	39.14	287.70	3,505.14	491.44	-1,540.22	42.75	0.00	0.00	0.00
4,100.00	39.14	287.70	3,582.70	510.62	-1,600.35	44.42	0.00	0.00	0.00
4,200.00	39.14	287.70	3,660.27	529.81	-1,660.48	46.09	0.00	0.00	0.00
4,300.00	39.14	287.70	3,737.83	548.99	-1,720.61	47.76	0.00	0.00	0.00
4,400.00	39.14	287.70	3,815.40	568.18	-1,780.74	49.43	0.00	0.00	0.00
4,500.00	39.14	287.70	3,892.96	587.37	-1,840.87	51.09	0.00	0.00	0.00
4,600.00	39.14	287.70	3,970.53	606.55	-1,901.00	52.76	0.00	0.00	0.00
4,700.00	39.14	287.70	4,048.09	625.74	-1,961.13	54.43	0.00	0.00	0.00
4,800.00	39.14	287.70	4,125.66	644.92	-2,021.26	56.10	0.00	0.00	0.00
4,900.00	39.14	287.70	4,203.22	664.11	-2,081.39	57.77	0.00	0.00	0.00

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<b>Well:</b>	NORTHWEST A S20-25-8C	<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	39.14	287.70	4,280.79	683.29	-2,141.51	59.44	0.00	0.00	0.00
5,100.00	39.14	287.70	4,358.35	702.48	-2,201.64	61.11	0.00	0.00	0.00
5,200.00	39.14	287.70	4,435.92	721.66	-2,261.77	62.78	0.00	0.00	0.00
5,300.00	39.14	287.70	4,513.49	740.85	-2,321.90	64.45	0.00	0.00	0.00
5,400.00	39.14	287.70	4,591.05	760.03	-2,382.03	66.11	0.00	0.00	0.00
5,500.00	39.14	287.70	4,668.62	779.22	-2,442.16	67.78	0.00	0.00	0.00
5,600.00	39.14	287.70	4,746.18	798.41	-2,502.29	69.45	0.00	0.00	0.00
5,700.00	39.14	287.70	4,823.75	817.59	-2,562.42	71.12	0.00	0.00	0.00
5,800.00	39.14	287.70	4,901.31	836.78	-2,622.55	72.79	0.00	0.00	0.00
5,900.00	39.14	287.70	4,978.88	855.96	-2,682.68	74.46	0.00	0.00	0.00
6,000.00	39.14	287.70	5,056.44	875.15	-2,742.81	76.13	0.00	0.00	0.00
6,084.52	39.14	287.70	5,122.00	891.36	-2,793.63	77.54	0.00	0.00	0.00
SUSSEX									
6,100.00	39.14	287.70	5,134.01	894.33	-2,802.94	77.80	0.00	0.00	0.00
6,200.00	39.14	287.70	5,211.57	913.52	-2,863.07	79.47	0.00	0.00	0.00
6,300.00	39.14	287.70	5,289.14	932.70	-2,923.20	81.14	0.00	0.00	0.00
6,400.00	39.14	287.70	5,366.70	951.89	-2,983.33	82.80	0.00	0.00	0.00
6,500.00	39.14	287.70	5,444.27	971.07	-3,043.46	84.47	0.00	0.00	0.00
6,600.00	39.14	287.70	5,521.83	990.26	-3,103.58	86.14	0.00	0.00	0.00
6,700.00	39.14	287.70	5,599.40	1,009.45	-3,163.71	87.81	0.00	0.00	0.00
6,800.00	39.14	287.70	5,676.97	1,028.63	-3,223.84	89.48	0.00	0.00	0.00
6,900.00	39.14	287.70	5,754.53	1,047.82	-3,283.97	91.15	0.00	0.00	0.00
7,000.00	39.14	287.70	5,832.10	1,067.00	-3,344.10	92.82	0.00	0.00	0.00
7,100.00	39.14	287.70	5,909.66	1,086.19	-3,404.23	94.49	0.00	0.00	0.00
7,127.98	39.14	287.70	5,931.36	1,091.56	-3,421.06	94.95	0.00	0.00	0.00
Start Drop -2.00									
7,200.00	37.70	287.70	5,987.79	1,105.16	-3,463.69	96.14	2.00	-2.00	0.00
7,300.00	35.70	287.70	6,067.97	1,123.32	-3,520.61	97.72	2.00	-2.00	0.00
7,400.00	33.70	287.70	6,150.18	1,140.62	-3,574.84	99.22	2.00	-2.00	0.00
7,500.00	31.70	287.70	6,234.34	1,157.04	-3,626.30	100.65	2.00	-2.00	0.00
7,600.00	29.70	287.70	6,320.32	1,172.56	-3,674.93	102.00	2.00	-2.00	0.00
7,700.00	27.70	287.70	6,408.04	1,187.15	-3,720.67	103.27	2.00	-2.00	0.00
7,800.00	25.70	287.70	6,497.37	1,200.81	-3,763.46	104.46	2.00	-2.00	0.00
7,900.00	23.70	287.70	6,588.22	1,213.51	-3,803.26	105.56	2.00	-2.00	0.00
8,000.00	21.70	287.70	6,680.47	1,225.23	-3,840.02	106.58	2.00	-2.00	0.00
8,100.00	19.70	287.70	6,774.02	1,235.98	-3,873.69	107.52	2.00	-2.00	0.00
8,200.00	17.70	287.70	6,868.73	1,245.72	-3,904.22	108.36	2.00	-2.00	0.00
8,300.00	15.70	287.70	6,964.51	1,254.45	-3,931.59	109.12	2.00	-2.00	0.00
8,400.00	13.70	287.70	7,061.24	1,262.16	-3,955.75	109.79	2.00	-2.00	0.00
8,500.00	11.70	287.70	7,158.79	1,268.84	-3,976.69	110.38	2.00	-2.00	0.00
8,600.00	9.70	287.70	7,257.05	1,274.48	-3,994.37	110.87	2.00	-2.00	0.00
8,700.00	7.70	287.70	7,355.89	1,279.08	-4,008.77	111.27	2.00	-2.00	0.00
8,800.00	5.70	287.70	7,455.21	1,282.62	-4,019.88	111.57	2.00	-2.00	0.00
8,900.00	3.70	287.70	7,554.86	1,285.11	-4,027.68	111.79	2.00	-2.00	0.00
9,000.00	1.70	287.70	7,654.75	1,286.54	-4,032.16	111.91	2.00	-2.00	0.00
9,084.76	0.00	0.00	7,739.50	1,286.92	-4,033.35	111.95	2.00	-2.00	0.00
Start 30.00 hold at 9084.76 MD									
9,100.00	0.00	0.00	7,754.74	1,286.92	-4,033.35	111.95	0.00	0.00	0.00
9,114.76	0.00	0.00	7,769.50	1,286.92	-4,033.35	111.95	0.00	0.00	0.00
Start DLS 12.00 TFO 179.80									
9,125.00	1.23	179.80	7,779.74	1,286.81	-4,033.35	112.05	12.00	12.00	0.00
9,150.00	4.23	179.80	7,804.70	1,285.62	-4,033.35	113.17	12.00	12.00	0.00
9,170.39	6.67	179.80	7,825.00	1,283.68	-4,033.34	115.00	12.00	12.00	0.00
NIOBRARA									

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-8C
<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 S20-25-8C	<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)
9,175.00	7.23	179.80	7,829.58	1,283.13	-4,033.34	115.53	12.00	12.00	0.00
9,200.00	10.23	179.80	7,854.28	1,279.33	-4,033.32	119.10	12.00	12.00	0.00
9,225.00	13.23	179.80	7,878.76	1,274.25	-4,033.31	123.90	12.00	12.00	0.00
9,250.00	16.23	179.80	7,902.94	1,267.90	-4,033.28	129.89	12.00	12.00	0.00
9,275.00	19.23	179.80	7,926.75	1,260.29	-4,033.26	137.07	12.00	12.00	0.00
9,300.00	22.23	179.80	7,950.13	1,251.44	-4,033.23	145.41	12.00	12.00	0.00
9,325.00	25.23	179.80	7,973.01	1,241.38	-4,033.19	154.90	12.00	12.00	0.00
9,347.35	27.91	179.80	7,993.00	1,231.38	-4,033.16	164.33	12.00	12.00	0.00
NIO B TARGET									
9,350.00	28.23	179.80	7,995.34	1,230.14	-4,033.16	165.50	12.00	12.00	0.00
9,375.00	31.23	179.80	8,017.04	1,217.74	-4,033.11	177.19	12.00	12.00	0.00
9,400.00	34.23	179.80	8,038.07	1,204.23	-4,033.07	189.94	12.00	12.00	0.00
9,425.00	37.23	179.80	8,058.37	1,189.63	-4,033.02	203.71	12.00	12.00	0.00
9,450.00	40.23	179.80	8,077.87	1,174.00	-4,032.96	218.46	12.00	12.00	0.00
9,475.00	43.23	179.80	8,096.52	1,157.36	-4,032.91	234.15	12.00	12.00	0.00
9,500.00	46.22	179.80	8,114.28	1,139.77	-4,032.85	250.74	12.00	12.00	0.00
9,525.00	49.22	179.80	8,131.10	1,121.27	-4,032.78	268.18	12.00	12.00	0.00
9,550.00	52.22	179.80	8,146.92	1,101.92	-4,032.72	286.43	12.00	12.00	0.00
9,575.00	55.22	179.80	8,161.71	1,081.77	-4,032.65	305.44	12.00	12.00	0.00
9,600.00	58.22	179.80	8,175.43	1,060.87	-4,032.57	325.15	12.00	12.00	0.00
9,625.00	61.22	179.80	8,188.03	1,039.28	-4,032.50	345.51	12.00	12.00	0.00
9,650.00	64.22	179.80	8,199.49	1,017.07	-4,032.42	366.47	12.00	12.00	0.00
9,675.00	67.22	179.80	8,209.77	994.28	-4,032.35	387.96	12.00	12.00	0.00
9,700.00	70.22	179.80	8,218.84	970.99	-4,032.27	409.93	12.00	12.00	0.00
9,722.68	72.94	179.80	8,226.00	949.47	-4,032.19	430.22	12.00	12.00	0.00
FORT HAYS									
9,725.00	73.22	179.80	8,226.68	947.25	-4,032.18	432.32	12.00	12.00	0.00
9,750.00	76.22	179.80	8,233.26	923.14	-4,032.10	455.06	12.00	12.00	0.00
9,775.00	79.22	179.80	8,238.58	898.71	-4,032.02	478.10	12.00	12.00	0.00
9,800.00	82.22	179.80	8,242.61	874.04	-4,031.93	501.37	12.00	12.00	0.00
9,825.00	85.22	179.80	8,245.34	849.20	-4,031.85	524.80	12.00	12.00	0.00
9,850.00	88.22	179.80	8,246.77	824.24	-4,031.76	548.34	12.00	12.00	0.00
9,864.82	90.00	179.80	8,247.00	809.42	-4,031.71	562.32	12.00	12.00	0.00
Start 12259.71 hold at 9864.82 MD - CODELL									
9,900.00	90.00	179.80	8,247.00	774.24	-4,031.59	595.50	0.00	0.00	0.00
10,000.00	90.00	179.80	8,247.00	674.24	-4,031.25	689.81	0.00	0.00	0.00
10,100.00	90.00	179.80	8,247.00	574.24	-4,030.91	784.13	0.00	0.00	0.00
10,200.00	90.00	179.80	8,247.00	474.24	-4,030.56	878.45	0.00	0.00	0.00
10,300.00	90.00	179.80	8,247.00	374.24	-4,030.22	972.77	0.00	0.00	0.00
10,400.00	90.00	179.80	8,247.00	274.24	-4,029.88	1,067.08	0.00	0.00	0.00
10,500.00	90.00	179.80	8,247.00	174.25	-4,029.53	1,161.40	0.00	0.00	0.00
10,600.00	90.00	179.80	8,247.00	74.25	-4,029.19	1,255.72	0.00	0.00	0.00
10,700.00	90.00	179.80	8,247.00	-25.75	-4,028.85	1,350.04	0.00	0.00	0.00
10,800.00	90.00	179.80	8,246.99	-125.75	-4,028.50	1,444.35	0.00	0.00	0.00
10,900.00	90.00	179.80	8,246.99	-225.75	-4,028.16	1,538.67	0.00	0.00	0.00
11,000.00	90.00	179.80	8,246.99	-325.75	-4,027.82	1,632.99	0.00	0.00	0.00
11,100.00	90.00	179.80	8,246.99	-425.75	-4,027.48	1,727.31	0.00	0.00	0.00
11,200.00	90.00	179.80	8,246.99	-525.75	-4,027.13	1,821.63	0.00	0.00	0.00
11,300.00	90.00	179.80	8,246.99	-625.75	-4,026.79	1,915.94	0.00	0.00	0.00
11,400.00	90.00	179.80	8,246.99	-725.75	-4,026.45	2,010.26	0.00	0.00	0.00
11,500.00	90.00	179.80	8,246.99	-825.75	-4,026.10	2,104.58	0.00	0.00	0.00
11,600.00	90.00	179.80	8,246.99	-925.75	-4,025.76	2,198.90	0.00	0.00	0.00
11,700.00	90.00	179.80	8,246.99	-1,025.75	-4,025.42	2,293.21	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-8C
<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 S20-25-8C	<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	179.80	8,246.99	-1,125.75	-4,025.07	2,387.53	0.00	0.00	0.00	
11,900.00	90.00	179.80	8,246.99	-1,225.75	-4,024.73	2,481.85	0.00	0.00	0.00	
12,000.00	90.00	179.80	8,246.99	-1,325.75	-4,024.39	2,576.17	0.00	0.00	0.00	
12,100.00	90.00	179.80	8,246.99	-1,425.75	-4,024.04	2,670.48	0.00	0.00	0.00	
12,200.00	90.00	179.80	8,246.99	-1,525.74	-4,023.70	2,764.80	0.00	0.00	0.00	
12,300.00	90.00	179.80	8,246.99	-1,625.74	-4,023.36	2,859.12	0.00	0.00	0.00	
12,400.00	90.00	179.80	8,246.99	-1,725.74	-4,023.02	2,953.44	0.00	0.00	0.00	
12,500.00	90.00	179.80	8,246.98	-1,825.74	-4,022.67	3,047.75	0.00	0.00	0.00	
12,600.00	90.00	179.80	8,246.98	-1,925.74	-4,022.33	3,142.07	0.00	0.00	0.00	
12,700.00	90.00	179.80	8,246.98	-2,025.74	-4,021.99	3,236.39	0.00	0.00	0.00	
12,800.00	90.00	179.80	8,246.98	-2,125.74	-4,021.64	3,330.71	0.00	0.00	0.00	
12,900.00	90.00	179.80	8,246.98	-2,225.74	-4,021.30	3,425.02	0.00	0.00	0.00	
13,000.00	90.00	179.80	8,246.98	-2,325.74	-4,020.96	3,519.34	0.00	0.00	0.00	
13,100.00	90.00	179.80	8,246.98	-2,425.74	-4,020.61	3,613.66	0.00	0.00	0.00	
13,200.00	90.00	179.80	8,246.98	-2,525.74	-4,020.27	3,707.98	0.00	0.00	0.00	
13,300.00	90.00	179.80	8,246.98	-2,625.74	-4,019.93	3,802.29	0.00	0.00	0.00	
13,400.00	90.00	179.80	8,246.98	-2,725.74	-4,019.59	3,896.61	0.00	0.00	0.00	
13,500.00	90.00	179.80	8,246.98	-2,825.74	-4,019.24	3,990.93	0.00	0.00	0.00	
13,600.00	90.00	179.80	8,246.98	-2,925.74	-4,018.90	4,085.25	0.00	0.00	0.00	
13,700.00	90.00	179.80	8,246.98	-3,025.74	-4,018.56	4,179.56	0.00	0.00	0.00	
13,800.00	90.00	179.80	8,246.98	-3,125.74	-4,018.21	4,273.88	0.00	0.00	0.00	
13,900.00	90.00	179.80	8,246.98	-3,225.73	-4,017.87	4,368.20	0.00	0.00	0.00	
14,000.00	90.00	179.80	8,246.98	-3,325.73	-4,017.53	4,462.52	0.00	0.00	0.00	
14,100.00	90.00	179.80	8,246.98	-3,425.73	-4,017.18	4,556.84	0.00	0.00	0.00	
14,200.00	90.00	179.80	8,246.97	-3,525.73	-4,016.84	4,651.15	0.00	0.00	0.00	
14,300.00	90.00	179.80	8,246.97	-3,625.73	-4,016.50	4,745.47	0.00	0.00	0.00	
14,400.00	90.00	179.80	8,246.97	-3,725.73	-4,016.16	4,839.79	0.00	0.00	0.00	
14,500.00	90.00	179.80	8,246.97	-3,825.73	-4,015.81	4,934.11	0.00	0.00	0.00	
14,600.00	90.00	179.80	8,246.97	-3,925.73	-4,015.47	5,028.42	0.00	0.00	0.00	
14,700.00	90.00	179.80	8,246.97	-4,025.73	-4,015.13	5,122.74	0.00	0.00	0.00	
14,800.00	90.00	179.80	8,246.97	-4,125.73	-4,014.78	5,217.06	0.00	0.00	0.00	
14,900.00	90.00	179.80	8,246.97	-4,225.73	-4,014.44	5,311.38	0.00	0.00	0.00	
15,000.00	90.00	179.80	8,246.97	-4,325.73	-4,014.10	5,405.69	0.00	0.00	0.00	
15,100.00	90.00	179.80	8,246.97	-4,425.73	-4,013.75	5,500.01	0.00	0.00	0.00	
15,200.00	90.00	179.80	8,246.97	-4,525.73	-4,013.41	5,594.33	0.00	0.00	0.00	
15,300.00	90.00	179.80	8,246.97	-4,625.73	-4,013.07	5,688.65	0.00	0.00	0.00	
15,400.00	90.00	179.80	8,246.97	-4,725.73	-4,012.72	5,782.96	0.00	0.00	0.00	
15,500.00	90.00	179.80	8,246.97	-4,825.73	-4,012.38	5,877.28	0.00	0.00	0.00	
15,600.00	90.00	179.80	8,246.97	-4,925.72	-4,012.04	5,971.60	0.00	0.00	0.00	
15,700.00	90.00	179.80	8,246.97	-5,025.72	-4,011.70	6,065.92	0.00	0.00	0.00	
15,800.00	90.00	179.80	8,246.97	-5,125.72	-4,011.35	6,160.23	0.00	0.00	0.00	
15,900.00	90.00	179.80	8,246.96	-5,225.72	-4,011.01	6,254.55	0.00	0.00	0.00	
16,000.00	90.00	179.80	8,246.96	-5,325.72	-4,010.67	6,348.87	0.00	0.00	0.00	
16,100.00	90.00	179.80	8,246.96	-5,425.72	-4,010.32	6,443.19	0.00	0.00	0.00	
16,200.00	90.00	179.80	8,246.96	-5,525.72	-4,009.98	6,537.50	0.00	0.00	0.00	
16,300.00	90.00	179.80	8,246.96	-5,625.72	-4,009.64	6,631.82	0.00	0.00	0.00	
16,400.00	90.00	179.80	8,246.96	-5,725.72	-4,009.29	6,726.14	0.00	0.00	0.00	
16,500.00	90.00	179.80	8,246.96	-5,825.72	-4,008.95	6,820.46	0.00	0.00	0.00	
16,600.00	90.00	179.80	8,246.96	-5,925.72	-4,008.61	6,914.78	0.00	0.00	0.00	
16,700.00	90.00	179.80	8,246.96	-6,025.72	-4,008.27	7,009.09	0.00	0.00	0.00	
16,800.00	90.00	179.80	8,246.96	-6,125.72	-4,007.92	7,103.41	0.00	0.00	0.00	
16,900.00	90.00	179.80	8,246.96	-6,225.72	-4,007.58	7,197.73	0.00	0.00	0.00	
17,000.00	90.00	179.80	8,246.96	-6,325.72	-4,007.24	7,292.05	0.00	0.00	0.00	
17,100.00	90.00	179.80	8,246.96	-6,425.72	-4,006.89	7,386.36	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-8C
<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 S20-25-8C	<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	179.80	8,246.96	-6,525.72	-4,006.55	7,480.68	0.00	0.00	0.00
17,300.00	90.00	179.80	8,246.96	-6,625.71	-4,006.21	7,575.00	0.00	0.00	0.00
17,400.00	90.00	179.80	8,246.96	-6,725.71	-4,005.86	7,669.32	0.00	0.00	0.00
17,500.00	90.00	179.80	8,246.96	-6,825.71	-4,005.52	7,763.63	0.00	0.00	0.00
17,600.00	90.00	179.80	8,246.95	-6,925.71	-4,005.18	7,857.95	0.00	0.00	0.00
17,700.00	90.00	179.80	8,246.95	-7,025.71	-4,004.83	7,952.27	0.00	0.00	0.00
17,800.00	90.00	179.80	8,246.95	-7,125.71	-4,004.49	8,046.59	0.00	0.00	0.00
17,900.00	90.00	179.80	8,246.95	-7,225.71	-4,004.15	8,140.90	0.00	0.00	0.00
18,000.00	90.00	179.80	8,246.95	-7,325.71	-4,003.81	8,235.22	0.00	0.00	0.00
18,100.00	90.00	179.80	8,246.95	-7,425.71	-4,003.46	8,329.54	0.00	0.00	0.00
18,200.00	90.00	179.80	8,246.95	-7,525.71	-4,003.12	8,423.86	0.00	0.00	0.00
18,300.00	90.00	179.80	8,246.95	-7,625.71	-4,002.78	8,518.17	0.00	0.00	0.00
18,400.00	90.00	179.80	8,246.95	-7,725.71	-4,002.43	8,612.49	0.00	0.00	0.00
18,500.00	90.00	179.80	8,246.95	-7,825.71	-4,002.09	8,706.81	0.00	0.00	0.00
18,600.00	90.00	179.80	8,246.95	-7,925.71	-4,001.75	8,801.13	0.00	0.00	0.00
18,700.00	90.00	179.80	8,246.95	-8,025.71	-4,001.40	8,895.44	0.00	0.00	0.00
18,800.00	90.00	179.80	8,246.95	-8,125.71	-4,001.06	8,989.76	0.00	0.00	0.00
18,900.00	90.00	179.80	8,246.95	-8,225.71	-4,000.72	9,084.08	0.00	0.00	0.00
19,000.00	90.00	179.80	8,246.95	-8,325.70	-4,000.38	9,178.40	0.00	0.00	0.00
19,100.00	90.00	179.80	8,246.95	-8,425.70	-4,000.03	9,272.72	0.00	0.00	0.00
19,200.00	90.00	179.80	8,246.95	-8,525.70	-3,999.69	9,367.03	0.00	0.00	0.00
19,300.00	90.00	179.80	8,246.94	-8,625.70	-3,999.35	9,461.35	0.00	0.00	0.00
19,400.00	90.00	179.80	8,246.94	-8,725.70	-3,999.00	9,555.67	0.00	0.00	0.00
19,500.00	90.00	179.80	8,246.94	-8,825.70	-3,998.66	9,649.99	0.00	0.00	0.00
19,600.00	90.00	179.80	8,246.94	-8,925.70	-3,998.32	9,744.30	0.00	0.00	0.00
19,700.00	90.00	179.80	8,246.94	-9,025.70	-3,997.97	9,838.62	0.00	0.00	0.00
19,800.00	90.00	179.80	8,246.94	-9,125.70	-3,997.63	9,932.94	0.00	0.00	0.00
19,900.00	90.00	179.80	8,246.94	-9,225.70	-3,997.29	10,027.26	0.00	0.00	0.00
20,000.00	90.00	179.80	8,246.94	-9,325.70	-3,996.95	10,121.57	0.00	0.00	0.00
20,100.00	90.00	179.80	8,246.94	-9,425.70	-3,996.60	10,215.89	0.00	0.00	0.00
20,200.00	90.00	179.80	8,246.94	-9,525.70	-3,996.26	10,310.21	0.00	0.00	0.00
20,300.00	90.00	179.80	8,246.94	-9,625.70	-3,995.92	10,404.53	0.00	0.00	0.00
20,400.00	90.00	179.80	8,246.94	-9,725.70	-3,995.57	10,498.84	0.00	0.00	0.00
20,500.00	90.00	179.80	8,246.94	-9,825.70	-3,995.23	10,593.16	0.00	0.00	0.00
20,600.00	90.00	179.80	8,246.94	-9,925.70	-3,994.89	10,687.48	0.00	0.00	0.00
20,700.00	90.00	179.80	8,246.94	-10,025.69	-3,994.54	10,781.80	0.00	0.00	0.00
20,800.00	90.00	179.80	8,246.94	-10,125.69	-3,994.20	10,876.11	0.00	0.00	0.00
20,900.00	90.00	179.80	8,246.94	-10,225.69	-3,993.86	10,970.43	0.00	0.00	0.00
21,000.00	90.00	179.80	8,246.93	-10,325.69	-3,993.51	11,064.75	0.00	0.00	0.00
22,124.54	90.00	179.80	8,247.00	-11,450.22	-3,989.97	12,125.49	0.00	0.00	0.00
TD at 22124.53									



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well NORTHWEST A S20-25-8C
<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 S20-25-8C	<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 S20-8C	0.00	0.00	8,247.00	-11,450.22	-3,989.97	1,225,606.79	3,132,528.77	39° 57' 6.131 N	105° 1' 38.190 W
- plan hits target center									
- Point									
NORTHWEST A S20-8C	0.00	0.00	8,247.00	809.42	-4,031.71	1,237,866.02	3,132,419.70	39° 59' 7.289 N	105° 1' 38.752 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
6,084.52	5,122.00	SUSSEX				
9,170.39	7,825.00	NIOBRARA				
9,347.35	7,993.00	NIO B TARGET				
9,722.68	8,226.00	FORT HAYS				
9,864.82	8,247.00	CODELL				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Start Build 2.00
2,456.78	2,308.14	195.36	-612.29	Start 4671.20 hold at 2456.78 MD
7,127.98	5,931.36	1,091.56	-3,421.06	Start Drop -2.00
9,084.76	7,739.50	1,286.92	-4,033.35	Start 30.00 hold at 9084.76 MD
9,114.76	7,769.50	1,286.92	-4,033.35	Start DLS 12.00 TFO 179.80
9,864.82	8,247.00	809.42	-4,031.71	Start 12259.71 hold at 9864.82 MD
22,124.54	8,247.00	-11,450.22	-3,989.97	TD at 22124.53