

# **EXTRACTION OIL & GAS**

**WELD COUNTY**

**Sec 17-T2N-R68W**

**RINN VALLEY EAST N17-20-1C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**24 May, 2018**



Project: WELD COUNTY  
Site: Sec 17-T2N-R68W  
Well: RINN VALLEY EAST N17-20-1C  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL 1

PROJECT DETAILS: WELD 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: 8.33°  
Magnetic Field  
Strength: 52227.0snT  
Dip Angle: 66.60°  
Date: 6/12/2017  
Model: IGRF2015

WELL DETAILS: RINN VALLEY EAST N17-20-1C

+N/-S	+E/-W	Northing	Easting	4915.00	Latitude	Longitude	Slot
0.00	0.00	1292056.10	3133096.11		40° 8' 2.785 N	105° 1' 26.324 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	100.08	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	990.08	17.80	124.41	975.83	-77.52	113.16	2.00	124.41	-129.95	
4	6320.65	17.80	124.41	6051.17	-998.49	1457.64	0.00	0.00	-1673.93	
5	7210.73	0.00	0.00	6927.00	-1076.01	1570.80	2.00	180.00	-1803.88	
6	7240.73	0.00	0.00	6957.00	-1076.01	1570.80	0.00	0.00	-1803.88	
7	8140.79	90.00	0.03	7530.00	-503.01	1571.12	10.00	0.03	-1346.00	RVE N17-1C - LP
8	17755.61	90.00	0.03	7530.00	9111.80	1576.66	0.00	0.00	6336.94	RVE N17-1C - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3477.00	3617.03	PARKMAN
4047.00	4215.69	SUSSEX
4452.00	4641.06	SHANNON
7242.00	7539.02	NIOBRARA
7270.00	7571.85	NIO B TARGET
7510.00	7988.95	FORT HAYS
7530.00	8140.79	CODELL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	Start Build 2.00
990.08	17.80	124.41	975.83	-77.52	113.16	-129.95	137.16	Start 5330.57 hold at 990.08 MD
6320.65	17.80	124.41	6051.17	-998.49	1457.64	-1673.93	1766.84	Start Drop -2.00
7210.73	0.00	0.00	6927.00	-1076.01	1570.80	-1803.88	1904.00	Start 30.00 hold at 7210.73 MD
7240.73	0.00	0.00	6957.00	-1076.01	1570.80	-1803.88	1904.00	Start DLS 10.00 TFO 0.03
8140.79	90.00	0.03	7530.00	-503.01	1571.12	-1346.00	2477.00	Start 9614.81 hold at 8140.79 MD
17755.61	90.00	0.03	7530.00	9111.80	1576.66	6336.94	12091.81	TD at 17755.61

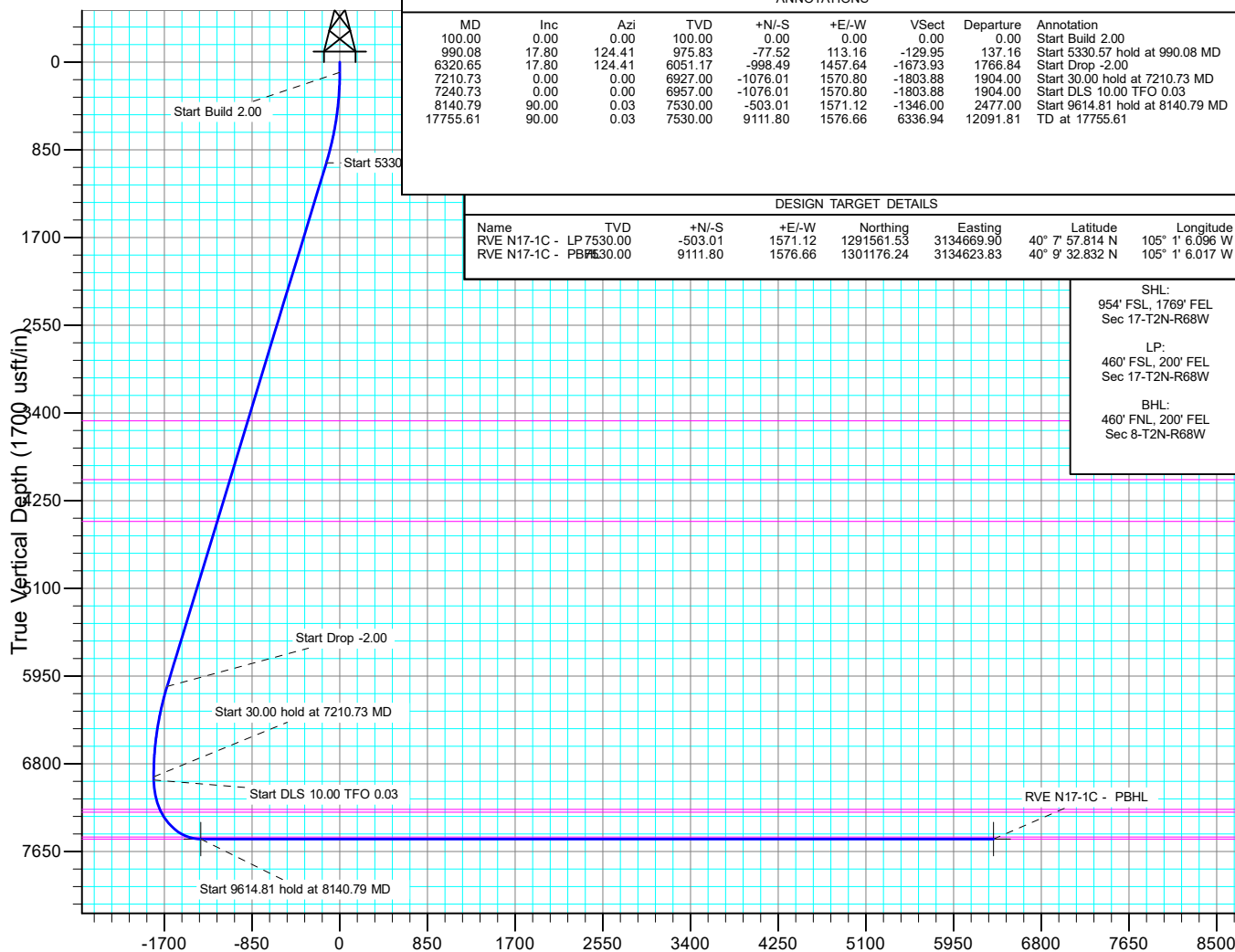
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
RVE N17-1C - LP	7530.00	-503.01	1571.12	1291561.53	3134669.90	40° 7' 57.814 N	105° 1' 6.096 W
RVE N17-1C - PBHL	7530.00	9111.80	1576.66	1301176.24	3134623.83	40° 9' 32.832 N	105° 1' 6.017 W

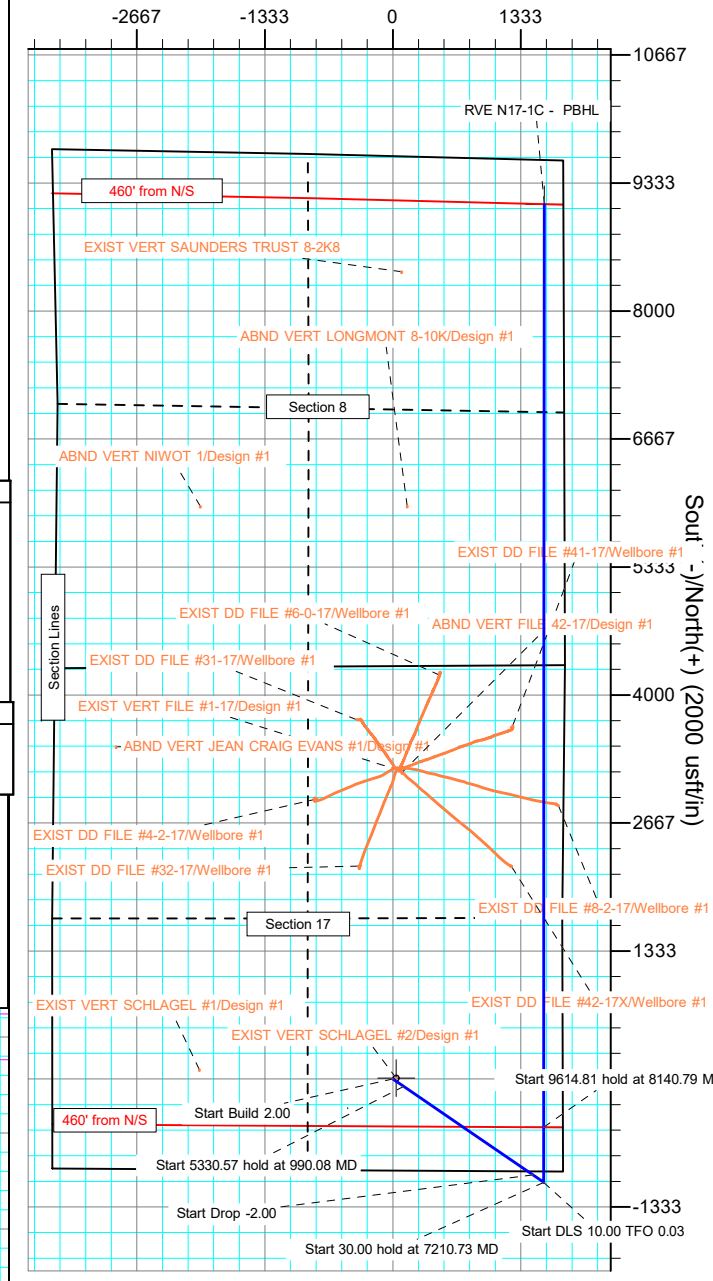
SHL:  
954' FSL, 1769' FEL  
Sec 17-T2N-R68W

LP:  
460' FSL, 200' FEL  
Sec 17-T2N-R68W

BHL:  
460' FNL, 200' FEL  
Sec 8-T2N-R68W



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



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well RINN VALLEY EAST N17-20-1C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	WELD 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 17-T2N-R68W			
Site Position:		Northing:	1,291,101.45 usft	Latitude:	40° 7' 53.256 N
From:	Lat/Long	Easting:	3,134,873.45 usft	Longitude:	105° 1' 3.508 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.31 °

Well	RINN VALLEY EAST N17-20-1C					
Well Position	+N/-S	964.30 usft	Northing:	1,292,056.10 usft	Latitude:	40° 8' 2.785 N
	+E/-W	-1,772.12 usft	Easting:	3,133,096.11 usft	Longitude:	105° 1' 26.324 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,915.00 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	6/12/2017	8.33	66.60	52,226.95688586

<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	323.07

<b>Plan Survey Tool Program</b>	<b>Date</b>	5/24/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	17,755.43	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
990.08	17.80	124.41	975.83	-77.52	113.16	2.00	2.00	0.00	124.41	
6,320.65	17.80	124.41	6,051.17	-998.49	1,457.64	0.00	0.00	0.00	0.00	
7,210.73	0.00	0.00	6,927.00	-1,076.01	1,570.80	2.00	-2.00	0.00	180.00	
7,240.73	0.00	0.00	6,957.00	-1,076.01	1,570.80	0.00	0.00	0.00	0.00	
8,140.79	90.00	0.03	7,530.00	-503.01	1,571.12	10.00	10.00	0.00	0.03	RVE N17-1C - LP
17,755.61	90.00	0.03	7,530.00	9,111.80	1,576.66	0.00	0.00	0.00	0.00	RVE N17-1C - PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well RINN VALLEY EAST N17-20-1C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<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
Start Build 2.00									
200.00	2.00	124.41	199.98	-0.99	1.44	-1.65	2.00	2.00	0.00
300.00	4.00	124.41	299.84	-3.94	5.76	-6.61	2.00	2.00	0.00
400.00	6.00	124.41	399.45	-8.87	12.95	-14.87	2.00	2.00	0.00
500.00	8.00	124.41	498.70	-15.76	23.00	-26.41	2.00	2.00	0.00
600.00	10.00	124.41	597.47	-24.60	35.91	-41.23	2.00	2.00	0.00
700.00	12.00	124.41	695.62	-35.38	51.65	-59.31	2.00	2.00	0.00
800.00	14.00	124.41	793.06	-48.09	70.20	-80.62	2.00	2.00	0.00
900.00	16.00	124.41	889.64	-62.72	91.56	-105.14	2.00	2.00	0.00
990.08	17.80	124.41	975.83	-77.52	113.16	-129.95	2.00	2.00	0.00
Start 5330.57 hold at 990.08 MD									
1,000.00	17.80	124.41	985.27	-79.23	115.66	-132.82	0.00	0.00	0.00
1,100.00	17.80	124.41	1,080.49	-96.51	140.88	-161.79	0.00	0.00	0.00
1,200.00	17.80	124.41	1,175.70	-113.78	166.11	-190.75	0.00	0.00	0.00
1,300.00	17.80	124.41	1,270.91	-131.06	191.33	-219.72	0.00	0.00	0.00
1,400.00	17.80	124.41	1,366.12	-148.34	216.55	-248.68	0.00	0.00	0.00
1,500.00	17.80	124.41	1,461.33	-165.62	241.77	-277.65	0.00	0.00	0.00
1,600.00	17.80	124.41	1,556.55	-182.89	266.99	-306.61	0.00	0.00	0.00
1,700.00	17.80	124.41	1,651.76	-200.17	292.22	-335.58	0.00	0.00	0.00
1,800.00	17.80	124.41	1,746.97	-217.45	317.44	-364.54	0.00	0.00	0.00
1,900.00	17.80	124.41	1,842.18	-234.73	342.66	-393.51	0.00	0.00	0.00
2,000.00	17.80	124.41	1,937.39	-252.00	367.88	-422.47	0.00	0.00	0.00
2,100.00	17.80	124.41	2,032.61	-269.28	393.11	-451.43	0.00	0.00	0.00
2,200.00	17.80	124.41	2,127.82	-286.56	418.33	-480.40	0.00	0.00	0.00
2,300.00	17.80	124.41	2,223.03	-303.83	443.55	-509.36	0.00	0.00	0.00
2,400.00	17.80	124.41	2,318.24	-321.11	468.77	-538.33	0.00	0.00	0.00
2,500.00	17.80	124.41	2,413.46	-338.39	493.99	-567.29	0.00	0.00	0.00
2,600.00	17.80	124.41	2,508.67	-355.67	519.22	-596.26	0.00	0.00	0.00
2,700.00	17.80	124.41	2,603.88	-372.94	544.44	-625.22	0.00	0.00	0.00
2,800.00	17.80	124.41	2,699.09	-390.22	569.66	-654.19	0.00	0.00	0.00
2,900.00	17.80	124.41	2,794.30	-407.50	594.88	-683.15	0.00	0.00	0.00
3,000.00	17.80	124.41	2,889.52	-424.78	620.10	-712.12	0.00	0.00	0.00
3,100.00	17.80	124.41	2,984.73	-442.05	645.33	-741.08	0.00	0.00	0.00
3,200.00	17.80	124.41	3,079.94	-459.33	670.55	-770.05	0.00	0.00	0.00
3,300.00	17.80	124.41	3,175.15	-476.61	695.77	-799.01	0.00	0.00	0.00
3,400.00	17.80	124.41	3,270.36	-493.89	720.99	-827.97	0.00	0.00	0.00
3,500.00	17.80	124.41	3,365.58	-511.16	746.21	-856.94	0.00	0.00	0.00
3,600.00	17.80	124.41	3,460.79	-528.44	771.44	-885.90	0.00	0.00	0.00
3,617.03	17.80	124.41	3,477.00	-531.38	775.73	-890.84	0.00	0.00	0.00
PARKMAN									
3,700.00	17.80	124.41	3,556.00	-545.72	796.66	-914.87	0.00	0.00	0.00
3,800.00	17.80	124.41	3,651.21	-562.99	821.88	-943.83	0.00	0.00	0.00
3,900.00	17.80	124.41	3,746.42	-580.27	847.10	-972.80	0.00	0.00	0.00
4,000.00	17.80	124.41	3,841.64	-597.55	872.32	-1,001.76	0.00	0.00	0.00
4,100.00	17.80	124.41	3,936.85	-614.83	897.55	-1,030.73	0.00	0.00	0.00
4,200.00	17.80	124.41	4,032.06	-632.10	922.77	-1,059.69	0.00	0.00	0.00
4,215.69	17.80	124.41	4,047.00	-634.81	926.73	-1,064.24	0.00	0.00	0.00
SUSSEX									
4,300.00	17.80	124.41	4,127.27	-649.38	947.99	-1,088.66	0.00	0.00	0.00
4,400.00	17.80	124.41	4,222.48	-666.66	973.21	-1,117.62	0.00	0.00	0.00
4,500.00	17.80	124.41	4,317.70	-683.94	998.44	-1,146.58	0.00	0.00	0.00

# Planning Report

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<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<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)
4,600.00	17.80	124.41	4,412.91	-701.21	1,023.66	-1,175.55	0.00	0.00	0.00
4,641.06	17.80	124.41	4,452.00	-708.31	1,034.01	-1,187.44	0.00	0.00	0.00
SHANNON									
4,700.00	17.80	124.41	4,508.12	-718.49	1,048.88	-1,204.51	0.00	0.00	0.00
4,800.00	17.80	124.41	4,603.33	-735.77	1,074.10	-1,233.48	0.00	0.00	0.00
4,900.00	17.80	124.41	4,698.55	-753.04	1,099.32	-1,262.44	0.00	0.00	0.00
5,000.00	17.80	124.41	4,793.76	-770.32	1,124.55	-1,291.41	0.00	0.00	0.00
5,100.00	17.80	124.41	4,888.97	-787.60	1,149.77	-1,320.37	0.00	0.00	0.00
5,200.00	17.80	124.41	4,984.18	-804.88	1,174.99	-1,349.34	0.00	0.00	0.00
5,300.00	17.80	124.41	5,079.39	-822.15	1,200.21	-1,378.30	0.00	0.00	0.00
5,400.00	17.80	124.41	5,174.61	-839.43	1,225.43	-1,407.27	0.00	0.00	0.00
5,500.00	17.80	124.41	5,269.82	-856.71	1,250.66	-1,436.23	0.00	0.00	0.00
5,600.00	17.80	124.41	5,365.03	-873.99	1,275.88	-1,465.19	0.00	0.00	0.00
5,700.00	17.80	124.41	5,460.24	-891.26	1,301.10	-1,494.16	0.00	0.00	0.00
5,800.00	17.80	124.41	5,555.45	-908.54	1,326.32	-1,523.12	0.00	0.00	0.00
5,900.00	17.80	124.41	5,650.67	-925.82	1,351.54	-1,552.09	0.00	0.00	0.00
6,000.00	17.80	124.41	5,745.88	-943.10	1,376.77	-1,581.05	0.00	0.00	0.00
6,100.00	17.80	124.41	5,841.09	-960.37	1,401.99	-1,610.02	0.00	0.00	0.00
6,200.00	17.80	124.41	5,936.30	-977.65	1,427.21	-1,638.98	0.00	0.00	0.00
6,300.00	17.80	124.41	6,031.51	-994.93	1,452.43	-1,667.95	0.00	0.00	0.00
6,320.65	17.80	124.41	6,051.17	-998.49	1,457.64	-1,673.93	0.00	0.00	0.00
Start Drop -2.00									
6,400.00	16.21	124.41	6,127.05	-1,011.61	1,476.79	-1,695.92	2.00	-2.00	0.00
6,500.00	14.21	124.41	6,223.54	-1,026.44	1,498.44	-1,720.78	2.00	-2.00	0.00
6,600.00	12.21	124.41	6,320.89	-1,039.36	1,517.30	-1,742.44	2.00	-2.00	0.00
6,700.00	10.21	124.41	6,418.98	-1,050.35	1,533.34	-1,760.86	2.00	-2.00	0.00
6,800.00	8.21	124.41	6,517.68	-1,059.40	1,546.55	-1,776.03	2.00	-2.00	0.00
6,900.00	6.21	124.41	6,616.88	-1,066.50	1,556.91	-1,787.93	2.00	-2.00	0.00
7,000.00	4.21	124.41	6,716.46	-1,071.63	1,564.41	-1,796.54	2.00	-2.00	0.00
7,100.00	2.21	124.41	6,816.30	-1,074.80	1,569.03	-1,801.85	2.00	-2.00	0.00
7,200.00	0.21	124.41	6,916.27	-1,076.00	1,570.78	-1,803.86	2.00	-2.00	0.00
7,210.73	0.00	0.00	6,927.00	-1,076.01	1,570.80	-1,803.88	2.00	-2.00	0.00
Start 30.00 hold at 7210.73 MD									
7,240.73	0.00	0.00	6,957.00	-1,076.01	1,570.80	-1,803.88	0.00	0.00	0.00
Start DLS 10.00 TFO 0.03									
7,250.00	0.93	0.03	6,966.27	-1,075.93	1,570.80	-1,803.82	10.00	10.00	0.00
7,300.00	5.93	0.03	7,016.17	-1,072.95	1,570.80	-1,801.43	10.00	10.00	0.00
7,350.00	10.93	0.03	7,065.61	-1,065.62	1,570.81	-1,795.58	10.00	10.00	0.00
7,400.00	15.93	0.03	7,114.23	-1,054.02	1,570.81	-1,786.30	10.00	10.00	0.00
7,450.00	20.93	0.03	7,161.65	-1,038.22	1,570.82	-1,773.68	10.00	10.00	0.00
7,500.00	25.93	0.03	7,207.52	-1,018.35	1,570.83	-1,757.80	10.00	10.00	0.00
7,539.02	29.83	0.03	7,242.00	-1,000.11	1,570.84	-1,743.22	10.00	10.00	0.00
NIOBRARA									
7,550.00	30.93	0.03	7,251.48	-994.55	1,570.85	-1,738.79	10.00	10.00	0.00
7,571.85	33.11	0.03	7,270.00	-982.97	1,570.85	-1,729.53	10.00	10.00	0.00
NIO B TARGET									
7,600.00	35.92	0.03	7,293.19	-967.02	1,570.86	-1,716.78	10.00	10.00	0.00
7,650.00	40.92	0.03	7,332.35	-935.95	1,570.88	-1,691.96	10.00	10.00	0.00
7,700.00	45.92	0.03	7,368.65	-901.60	1,570.90	-1,664.51	10.00	10.00	0.00
7,750.00	50.92	0.03	7,401.82	-864.20	1,570.92	-1,634.63	10.00	10.00	0.00
7,800.00	55.92	0.03	7,431.61	-824.06	1,570.94	-1,602.55	10.00	10.00	0.00
7,850.00	60.92	0.03	7,457.78	-781.48	1,570.96	-1,568.52	10.00	10.00	0.00
7,900.00	65.92	0.03	7,480.15	-736.78	1,570.99	-1,532.80	10.00	10.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well RINN VALLEY EAST N17-20-1C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<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)
7,950.00	70.92	0.03	7,498.53	-690.30	1,571.01	-1,495.66	10.00	10.00	0.00
7,988.95	74.82	0.03	7,510.00	-653.08	1,571.04	-1,465.92	10.00	10.00	0.00
<b>FORT HAYS</b>									
8,000.00	75.92	0.03	7,512.79	-642.39	1,571.04	-1,457.38	10.00	10.00	0.00
8,050.00	80.92	0.03	7,522.82	-593.42	1,571.07	-1,418.25	10.00	10.00	0.00
8,100.00	85.92	0.03	7,528.55	-543.77	1,571.10	-1,378.57	10.00	10.00	0.00
8,140.79	90.00	0.03	7,530.00	-503.01	1,571.12	-1,346.00	10.00	10.00	0.00
<b>Start 9614.81 hold at 8140.79 MD - CODELL</b>									
8,200.00	90.00	0.03	7,530.00	-443.80	1,571.15	-1,298.69	0.00	0.00	0.00
8,300.00	90.00	0.03	7,530.00	-343.80	1,571.21	-1,218.78	0.00	0.00	0.00
8,400.00	90.00	0.03	7,530.00	-243.80	1,571.26	-1,138.87	0.00	0.00	0.00
8,500.00	90.00	0.03	7,530.00	-143.80	1,571.32	-1,058.96	0.00	0.00	0.00
8,600.00	90.00	0.03	7,530.00	-43.80	1,571.38	-979.06	0.00	0.00	0.00
8,700.00	90.00	0.03	7,530.00	56.20	1,571.43	-899.15	0.00	0.00	0.00
8,800.00	90.00	0.03	7,530.00	156.20	1,571.49	-819.24	0.00	0.00	0.00
8,900.00	90.00	0.03	7,530.00	256.20	1,571.54	-739.33	0.00	0.00	0.00
9,000.00	90.00	0.03	7,530.00	356.20	1,571.60	-659.42	0.00	0.00	0.00
9,100.00	90.00	0.03	7,530.00	456.20	1,571.65	-579.51	0.00	0.00	0.00
9,200.00	90.00	0.03	7,530.00	556.20	1,571.71	-499.61	0.00	0.00	0.00
9,300.00	90.00	0.03	7,530.00	656.20	1,571.77	-419.70	0.00	0.00	0.00
9,400.00	90.00	0.03	7,530.00	756.20	1,571.82	-339.79	0.00	0.00	0.00
9,500.00	90.00	0.03	7,529.99	856.20	1,571.88	-259.88	0.00	0.00	0.00
9,600.00	90.00	0.03	7,529.99	956.20	1,571.93	-179.97	0.00	0.00	0.00
9,700.00	90.00	0.03	7,529.99	1,056.20	1,571.99	-100.06	0.00	0.00	0.00
9,800.00	90.00	0.03	7,529.99	1,156.20	1,572.04	-20.15	0.00	0.00	0.00
9,900.00	90.00	0.03	7,529.99	1,256.20	1,572.10	59.75	0.00	0.00	0.00
10,000.00	90.00	0.03	7,529.99	1,356.20	1,572.16	139.66	0.00	0.00	0.00
10,100.00	90.00	0.03	7,529.99	1,456.20	1,572.21	219.57	0.00	0.00	0.00
10,200.00	90.00	0.03	7,529.99	1,556.20	1,572.27	299.48	0.00	0.00	0.00
10,300.00	90.00	0.03	7,529.99	1,656.20	1,572.32	379.39	0.00	0.00	0.00
10,400.00	90.00	0.03	7,529.99	1,756.20	1,572.38	459.30	0.00	0.00	0.00
10,500.00	90.00	0.03	7,529.99	1,856.20	1,572.43	539.21	0.00	0.00	0.00
10,600.00	90.00	0.03	7,529.99	1,956.20	1,572.49	619.11	0.00	0.00	0.00
10,700.00	90.00	0.03	7,529.99	2,056.20	1,572.55	699.02	0.00	0.00	0.00
10,800.00	90.00	0.03	7,529.99	2,156.20	1,572.60	778.93	0.00	0.00	0.00
10,900.00	90.00	0.03	7,529.99	2,256.20	1,572.66	858.84	0.00	0.00	0.00
11,000.00	90.00	0.03	7,529.99	2,356.20	1,572.71	938.75	0.00	0.00	0.00
11,100.00	90.00	0.03	7,529.99	2,456.20	1,572.77	1,018.66	0.00	0.00	0.00
11,200.00	90.00	0.03	7,529.99	2,556.20	1,572.82	1,098.56	0.00	0.00	0.00
11,300.00	90.00	0.03	7,529.99	2,656.20	1,572.88	1,178.47	0.00	0.00	0.00
11,400.00	90.00	0.03	7,529.99	2,756.20	1,572.94	1,258.38	0.00	0.00	0.00
11,500.00	90.00	0.03	7,529.99	2,856.20	1,572.99	1,338.29	0.00	0.00	0.00
11,600.00	90.00	0.03	7,529.99	2,956.20	1,573.05	1,418.20	0.00	0.00	0.00
11,700.00	90.00	0.03	7,529.99	3,056.20	1,573.10	1,498.11	0.00	0.00	0.00
11,800.00	90.00	0.03	7,529.99	3,156.20	1,573.16	1,578.02	0.00	0.00	0.00
11,900.00	90.00	0.03	7,529.99	3,256.20	1,573.21	1,657.92	0.00	0.00	0.00
12,000.00	90.00	0.03	7,529.98	3,356.20	1,573.27	1,737.83	0.00	0.00	0.00
12,100.00	90.00	0.03	7,529.98	3,456.20	1,573.33	1,817.74	0.00	0.00	0.00
12,200.00	90.00	0.03	7,529.98	3,556.20	1,573.38	1,897.65	0.00	0.00	0.00
12,300.00	90.00	0.03	7,529.98	3,656.20	1,573.44	1,977.56	0.00	0.00	0.00
12,400.00	90.00	0.03	7,529.98	3,756.20	1,573.49	2,057.47	0.00	0.00	0.00
12,500.00	90.00	0.03	7,529.98	3,856.20	1,573.55	2,137.37	0.00	0.00	0.00
12,600.00	90.00	0.03	7,529.98	3,956.20	1,573.60	2,217.28	0.00	0.00	0.00
12,700.00	90.00	0.03	7,529.98	4,056.20	1,573.66	2,297.19	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well RINN VALLEY EAST N17-20-1C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<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)	
12,800.00	90.00	0.03	7,529.98	4,156.20	1,573.72	2,377.10	0.00	0.00	0.00	
12,900.00	90.00	0.03	7,529.98	4,256.20	1,573.77	2,457.01	0.00	0.00	0.00	
13,000.00	90.00	0.03	7,529.98	4,356.20	1,573.83	2,536.92	0.00	0.00	0.00	
13,100.00	90.00	0.03	7,529.98	4,456.20	1,573.88	2,616.83	0.00	0.00	0.00	
13,200.00	90.00	0.03	7,529.98	4,556.20	1,573.94	2,696.73	0.00	0.00	0.00	
13,300.00	90.00	0.03	7,529.98	4,656.20	1,573.99	2,776.64	0.00	0.00	0.00	
13,400.00	90.00	0.03	7,529.98	4,756.20	1,574.05	2,856.55	0.00	0.00	0.00	
13,500.00	90.00	0.03	7,529.98	4,856.20	1,574.11	2,936.46	0.00	0.00	0.00	
13,600.00	90.00	0.03	7,529.98	4,956.20	1,574.16	3,016.37	0.00	0.00	0.00	
13,700.00	90.00	0.03	7,529.98	5,056.20	1,574.22	3,096.28	0.00	0.00	0.00	
13,800.00	90.00	0.03	7,529.98	5,156.20	1,574.27	3,176.19	0.00	0.00	0.00	
13,900.00	90.00	0.03	7,529.98	5,256.20	1,574.33	3,256.09	0.00	0.00	0.00	
14,000.00	90.00	0.03	7,529.98	5,356.20	1,574.38	3,336.00	0.00	0.00	0.00	
14,100.00	90.00	0.03	7,529.98	5,456.20	1,574.44	3,415.91	0.00	0.00	0.00	
14,200.00	90.00	0.03	7,529.98	5,556.20	1,574.50	3,495.82	0.00	0.00	0.00	
14,300.00	90.00	0.03	7,529.98	5,656.20	1,574.55	3,575.73	0.00	0.00	0.00	
14,400.00	90.00	0.03	7,529.98	5,756.20	1,574.61	3,655.64	0.00	0.00	0.00	
14,500.00	90.00	0.03	7,529.97	5,856.20	1,574.66	3,735.54	0.00	0.00	0.00	
14,600.00	90.00	0.03	7,529.97	5,956.20	1,574.72	3,815.45	0.00	0.00	0.00	
14,700.00	90.00	0.03	7,529.97	6,056.20	1,574.77	3,895.36	0.00	0.00	0.00	
14,800.00	90.00	0.03	7,529.97	6,156.20	1,574.83	3,975.27	0.00	0.00	0.00	
14,900.00	90.00	0.03	7,529.97	6,256.20	1,574.89	4,055.18	0.00	0.00	0.00	
15,000.00	90.00	0.03	7,529.97	6,356.20	1,574.94	4,135.09	0.00	0.00	0.00	
15,100.00	90.00	0.03	7,529.97	6,456.20	1,575.00	4,215.00	0.00	0.00	0.00	
15,200.00	90.00	0.03	7,529.97	6,556.20	1,575.05	4,294.90	0.00	0.00	0.00	
15,300.00	90.00	0.03	7,529.97	6,656.20	1,575.11	4,374.81	0.00	0.00	0.00	
15,400.00	90.00	0.03	7,529.97	6,756.20	1,575.16	4,454.72	0.00	0.00	0.00	
15,500.00	90.00	0.03	7,529.97	6,856.20	1,575.22	4,534.63	0.00	0.00	0.00	
15,600.00	90.00	0.03	7,529.97	6,956.20	1,575.28	4,614.54	0.00	0.00	0.00	
15,700.00	90.00	0.03	7,529.97	7,056.20	1,575.33	4,694.45	0.00	0.00	0.00	
15,800.00	90.00	0.03	7,529.97	7,156.20	1,575.39	4,774.35	0.00	0.00	0.00	
15,900.00	90.00	0.03	7,529.97	7,256.20	1,575.44	4,854.26	0.00	0.00	0.00	
16,000.00	90.00	0.03	7,529.97	7,356.20	1,575.50	4,934.17	0.00	0.00	0.00	
16,100.00	90.00	0.03	7,529.97	7,456.20	1,575.55	5,014.08	0.00	0.00	0.00	
16,200.00	90.00	0.03	7,529.97	7,556.20	1,575.61	5,093.99	0.00	0.00	0.00	
16,300.00	90.00	0.03	7,529.97	7,656.20	1,575.67	5,173.90	0.00	0.00	0.00	
16,400.00	90.00	0.03	7,529.97	7,756.20	1,575.72	5,253.81	0.00	0.00	0.00	
16,500.00	90.00	0.03	7,529.97	7,856.20	1,575.78	5,333.71	0.00	0.00	0.00	
16,600.00	90.00	0.03	7,529.97	7,956.20	1,575.83	5,413.62	0.00	0.00	0.00	
16,700.00	90.00	0.03	7,529.97	8,056.20	1,575.89	5,493.53	0.00	0.00	0.00	
16,800.00	90.00	0.03	7,529.97	8,156.20	1,575.95	5,573.44	0.00	0.00	0.00	
16,900.00	90.00	0.03	7,529.97	8,256.20	1,576.00	5,653.35	0.00	0.00	0.00	
17,000.00	90.00	0.03	7,529.96	8,356.20	1,576.06	5,733.26	0.00	0.00	0.00	
17,100.00	90.00	0.03	7,529.96	8,456.20	1,576.11	5,813.16	0.00	0.00	0.00	
17,200.00	90.00	0.03	7,529.96	8,556.20	1,576.17	5,893.07	0.00	0.00	0.00	
17,300.00	90.00	0.03	7,529.96	8,656.20	1,576.22	5,972.98	0.00	0.00	0.00	
17,400.00	90.00	0.03	7,529.96	8,756.20	1,576.28	6,052.89	0.00	0.00	0.00	
17,500.00	90.00	0.03	7,529.96	8,856.20	1,576.34	6,132.80	0.00	0.00	0.00	
17,600.00	90.00	0.03	7,529.96	8,956.20	1,576.39	6,212.71	0.00	0.00	0.00	
17,700.00	90.00	0.03	7,529.96	9,056.20	1,576.45	6,292.62	0.00	0.00	0.00	
17,755.61	90.00	0.03	7,530.00	9,111.80	1,576.66	6,336.94	0.00	0.00	0.00	
TD at 17755.61										

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well RINN VALLEY EAST N17-20-1C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 4940.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4940.00usft
<b>Site:</b>	Sec 17-T2N-R68W	<b>North Reference:</b>	True
<b>Well:</b>	RINN VALLEY EAST N17-20-1C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
RVE N17-1C - LP - plan hits target center - Point	0.00	0.00	7,530.00	-503.01	1,571.12	1,291,561.53	3,134,669.91	40° 7' 57.814 N	105° 1' 6.096 W
RVE N17-1C - PBHL - plan hits target center - Point	0.00	0.00	7,530.00	9,111.80	1,576.66	1,301,176.24	3,134,623.83	40° 9' 32.832 N	105° 1' 6.017 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,617.03	3,477.00	PARKMAN				
4,215.69	4,047.00	SUSSEX				
4,641.06	4,452.00	SHANNON				
7,539.02	7,242.00	NIOBRARA				
7,571.85	7,270.00	NIO B TARGET				
7,988.95	7,510.00	FORT HAYS				
8,140.79	7,530.00	CODELL				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.00	0.00	Start Build 2.00
990.08	975.83	-77.52	113.16	Start 5330.57 hold at 990.08 MD
6,320.65	6,051.17	-998.49	1,457.64	Start Drop -2.00
7,210.73	6,927.00	-1,076.01	1,570.80	Start 30.00 hold at 7210.73 MD
7,240.73	6,957.00	-1,076.01	1,570.80	Start DLS 10.00 TFO 0.03
8,140.79	7,530.00	-503.01	1,571.12	Start 9614.81 hold at 8140.79 MD
17,755.61	7,530.00	9,111.80	1,576.66	TD at 17755.61