

# **EXTRACTION OIL & GAS**

**WELD COUNTY**

**Sec 20-T5N-R65W**

**GP-CODY FED 20E-15-4N**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**13 July, 2018**

WELL DETAILS: GP-CODY FED 20E-15-4N

+N/-S	+E/-W	Northing	Easting	4673.00	Latitude	Longitude	Slot
0.00	0.00	1385937.91	3227710.06	40° 23' 23.712 N	104° 40' 57.036 W		

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dieg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	664.71	9.29	257.84	662.67	-7.92	-36.76	2.00	257.84	-36.54	
4	5910.23	9.29	257.84	5839.33	-186.38	-864.93	0.00	0.00	-859.75	
5	6374.93	0.00	0.00	6302.00	-194.30	-901.69	2.00	180.00	-896.30	
6	6404.93	0.00	0.00	6332.00	-194.30	-901.69	0.00	0.00	-896.30	
7	7305.00	90.00	89.88	6905.00	-193.07	-328.69	10.00	89.88	-323.53	
8	14419.28	90.00	89.88	6905.00	-177.57	6785.57	0.00	0.00	6787.89	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	Start Build 2.00
664.71	9.29	257.84	662.67	-7.92	-36.76	-36.54	37.61	Start 5245.52 hold at 664.71 MD
5910.23	9.29	257.84	5839.33	-186.38	-864.93	-859.75	884.78	Start Drop -2.00
6374.93	0.00	0.00	6302.00	-194.30	-901.69	-896.30	922.39	Start 30.00 hold at 6374.93 MD
6404.93	0.00	0.00	6332.00	-194.30	-901.69	-896.30	922.39	Start DLS 10.00 TFO 89.88
7305.00	90.00	89.88	6905.00	-193.07	-328.69	-323.53	1495.38	Start 7114.28 hold at 7305.00 MD
14419.28	90.00	89.88	6905.00	-177.57	6785.57	6787.89	8609.66	TD at 14419.28

DESIGN TARGET DETAILS

FED 20E									
FED 20E:	Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
	GP-CODY FED 20E-15-4N - LP 6905.00		-193.07	-328.69	1385741.82	3227383.16	40° 23' 21.804 N	104° 41' 1.284 W	Point
	- plan hits target center								
	GP-CODY FED 20E-15-4N - PBL 6905.00		-177.57	6785.57	1385822.91	3234496.98	40° 23' 21.948 N	104° 39' 29.340 W	Point
	- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3686.00	3728.25	PARKMAN
4425.00	4477.08	SUSSEX
4935.00	4993.87	SHANNON
6740.00	6858.88	SHARON SPRINGS
6775.00	6911.32	NIOBRARA
6895.00	7197.79	NIO B TARGET

PROJECT DETAILS: WELD COUNTY

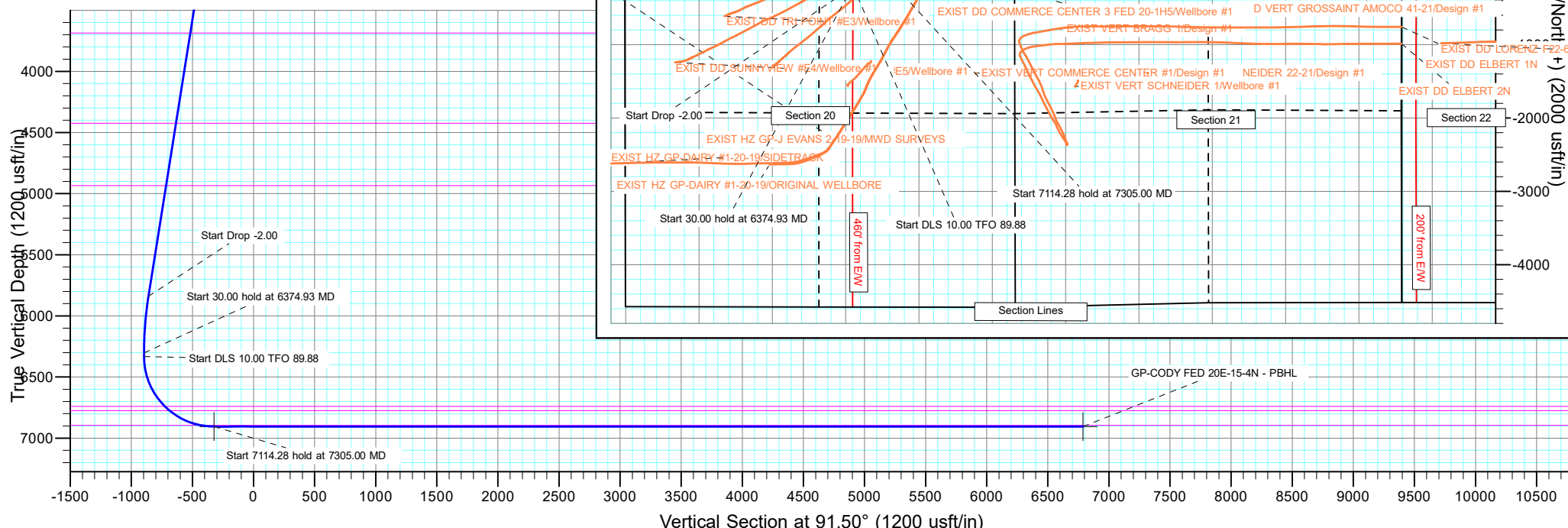
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

SHL:  
706' FNL, 1305' FEL  
Sec 20-T5N-R65W

LP:  
903' FNL, 1635' FEL  
Sec 20-T5N-R65W

BHL:  
897' FNL, 200' FWL  
Sec 22-T5N-R65W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<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 20-T5N-R65W			
Site Position:		Northing:	1,386,203.84 usft	Latitude:	40° 23' 26.340 N
From:	Lat/Long	Easting:	3,227,707.61 usft	Longitude:	104° 40' 57.036 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.53 °

Well	GP-CODY FED 20E-15-4N					
Well Position	+N/-S	-265.94 usft	Northing:	1,385,937.91 usft	Latitude:	40° 23' 23.712 N
	+E/-W	0.00 usft	Easting:	3,227,710.06 usft	Longitude:	104° 40' 57.036 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,673.00 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	3/12/2018	8.09	66.84	52,313.02431427

<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	91.50

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/13/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	14,418.73	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
664.71	9.29	257.84	662.67	-7.92	-36.76	2.00	2.00	0.00	257.84	
5,910.23	9.29	257.84	5,839.33	-186.38	-864.93	0.00	0.00	0.00	0.00	
6,374.93	0.00	0.00	6,302.00	-194.30	-901.69	2.00	-2.00	0.00	180.00	
6,404.93	0.00	0.00	6,332.00	-194.30	-901.69	0.00	0.00	0.00	0.00	
7,305.00	90.00	89.88	6,905.00	-193.07	-328.69	10.00	10.00	9.99	89.88	GP-CODY FED 20E-1
14,419.28	90.00	89.88	6,905.00	-177.57	6,785.57	0.00	0.00	0.00	0.00	GP-CODY FED 20E-1

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<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
Start Build 2.00									
300.00	2.00	257.84	299.98	-0.37	-1.71	-1.70	2.00	2.00	0.00
400.00	4.00	257.84	399.84	-1.47	-6.82	-6.78	2.00	2.00	0.00
500.00	6.00	257.84	499.45	-3.31	-15.34	-15.25	2.00	2.00	0.00
600.00	8.00	257.84	598.70	-5.87	-27.25	-27.09	2.00	2.00	0.00
664.71	9.29	257.84	662.67	-7.92	-36.76	-36.54	2.00	2.00	0.00
Start 5245.52 hold at 664.71 MD									
700.00	9.29	257.84	697.50	-9.12	-42.34	-42.08	0.00	0.00	0.00
800.00	9.29	257.84	796.19	-12.52	-58.12	-57.78	0.00	0.00	0.00
900.00	9.29	257.84	894.88	-15.93	-73.91	-73.47	0.00	0.00	0.00
1,000.00	9.29	257.84	993.56	-19.33	-89.70	-89.16	0.00	0.00	0.00
1,100.00	9.29	257.84	1,092.25	-22.73	-105.49	-104.86	0.00	0.00	0.00
1,200.00	9.29	257.84	1,190.94	-26.13	-121.28	-120.55	0.00	0.00	0.00
1,300.00	9.29	257.84	1,289.62	-29.54	-137.06	-136.24	0.00	0.00	0.00
1,400.00	9.29	257.84	1,388.31	-32.94	-152.85	-151.94	0.00	0.00	0.00
1,500.00	9.29	257.84	1,487.00	-36.34	-168.64	-167.63	0.00	0.00	0.00
1,600.00	9.29	257.84	1,585.69	-39.74	-184.43	-183.33	0.00	0.00	0.00
1,700.00	9.29	257.84	1,684.37	-43.14	-200.22	-199.02	0.00	0.00	0.00
1,800.00	9.29	257.84	1,783.06	-46.55	-216.00	-214.71	0.00	0.00	0.00
1,900.00	9.29	257.84	1,881.75	-49.95	-231.79	-230.41	0.00	0.00	0.00
2,000.00	9.29	257.84	1,980.44	-53.35	-247.58	-246.10	0.00	0.00	0.00
2,100.00	9.29	257.84	2,079.12	-56.75	-263.37	-261.79	0.00	0.00	0.00
2,200.00	9.29	257.84	2,177.81	-60.15	-279.16	-277.49	0.00	0.00	0.00
2,300.00	9.29	257.84	2,276.50	-63.56	-294.94	-293.18	0.00	0.00	0.00
2,400.00	9.29	257.84	2,375.18	-66.96	-310.73	-308.87	0.00	0.00	0.00
2,500.00	9.29	257.84	2,473.87	-70.36	-326.52	-324.57	0.00	0.00	0.00
2,600.00	9.29	257.84	2,572.56	-73.76	-342.31	-340.26	0.00	0.00	0.00
2,700.00	9.29	257.84	2,671.25	-77.16	-358.10	-355.95	0.00	0.00	0.00
2,800.00	9.29	257.84	2,769.93	-80.57	-373.88	-371.65	0.00	0.00	0.00
2,900.00	9.29	257.84	2,868.62	-83.97	-389.67	-387.34	0.00	0.00	0.00
3,000.00	9.29	257.84	2,967.31	-87.37	-405.46	-403.04	0.00	0.00	0.00
3,100.00	9.29	257.84	3,065.99	-90.77	-421.25	-418.73	0.00	0.00	0.00
3,200.00	9.29	257.84	3,164.68	-94.17	-437.04	-434.42	0.00	0.00	0.00
3,300.00	9.29	257.84	3,263.37	-97.58	-452.82	-450.12	0.00	0.00	0.00
3,400.00	9.29	257.84	3,362.06	-100.98	-468.61	-465.81	0.00	0.00	0.00
3,500.00	9.29	257.84	3,460.74	-104.38	-484.40	-481.50	0.00	0.00	0.00
3,600.00	9.29	257.84	3,559.43	-107.78	-500.19	-497.20	0.00	0.00	0.00
3,700.00	9.29	257.84	3,658.12	-111.18	-515.98	-512.89	0.00	0.00	0.00
3,728.25	9.29	257.84	3,686.00	-112.15	-520.44	-517.32	0.00	0.00	0.00
PARKMAN									
3,800.00	9.29	257.84	3,756.81	-114.59	-531.76	-528.58	0.00	0.00	0.00
3,900.00	9.29	257.84	3,855.49	-117.99	-547.55	-544.28	0.00	0.00	0.00
4,000.00	9.29	257.84	3,954.18	-121.39	-563.34	-559.97	0.00	0.00	0.00
4,100.00	9.29	257.84	4,052.87	-124.79	-579.13	-575.66	0.00	0.00	0.00
4,200.00	9.29	257.84	4,151.55	-128.19	-594.92	-591.36	0.00	0.00	0.00
4,300.00	9.29	257.84	4,250.24	-131.60	-610.70	-607.05	0.00	0.00	0.00
4,400.00	9.29	257.84	4,348.93	-135.00	-626.49	-622.75	0.00	0.00	0.00
4,477.08	9.29	257.84	4,425.00	-137.62	-638.66	-634.84	0.00	0.00	0.00
SUSSEX									
4,500.00	9.29	257.84	4,447.62	-138.40	-642.28	-638.44	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<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	9.29	257.84	4,546.30	-141.80	-658.07	-654.13	0.00	0.00	0.00
4,700.00	9.29	257.84	4,644.99	-145.21	-673.86	-669.83	0.00	0.00	0.00
4,800.00	9.29	257.84	4,743.68	-148.61	-689.64	-685.52	0.00	0.00	0.00
4,900.00	9.29	257.84	4,842.36	-152.01	-705.43	-701.21	0.00	0.00	0.00
4,993.87	9.29	257.84	4,935.00	-155.20	-720.25	-715.94	0.00	0.00	0.00
<b>SHANNON</b>									
5,000.00	9.29	257.84	4,941.05	-155.41	-721.22	-716.91	0.00	0.00	0.00
5,100.00	9.29	257.84	5,039.74	-158.81	-737.01	-732.60	0.00	0.00	0.00
5,200.00	9.29	257.84	5,138.43	-162.22	-752.80	-748.29	0.00	0.00	0.00
5,300.00	9.29	257.84	5,237.11	-165.62	-768.58	-763.99	0.00	0.00	0.00
5,400.00	9.29	257.84	5,335.80	-169.02	-784.37	-779.68	0.00	0.00	0.00
5,500.00	9.29	257.84	5,434.49	-172.42	-800.16	-795.37	0.00	0.00	0.00
5,600.00	9.29	257.84	5,533.17	-175.82	-815.95	-811.07	0.00	0.00	0.00
5,700.00	9.29	257.84	5,631.86	-179.23	-831.74	-826.76	0.00	0.00	0.00
5,800.00	9.29	257.84	5,730.55	-182.63	-847.52	-842.46	0.00	0.00	0.00
5,900.00	9.29	257.84	5,829.24	-186.03	-863.31	-858.15	0.00	0.00	0.00
5,910.23	9.29	257.84	5,839.33	-186.38	-864.93	-859.75	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
6,000.00	7.50	257.84	5,928.14	-189.14	-877.74	-872.49	2.00	-2.00	0.00
6,100.00	5.50	257.84	6,027.49	-191.52	-888.80	-883.49	2.00	-2.00	0.00
6,200.00	3.50	257.84	6,127.18	-193.18	-896.47	-891.11	2.00	-2.00	0.00
6,300.00	1.50	257.84	6,227.08	-194.09	-900.73	-895.35	2.00	-2.00	0.00
6,374.93	0.00	0.00	6,302.00	-194.30	-901.69	-896.30	2.00	-2.00	0.00
<b>Start 30.00 hold at 6374.93 MD</b>									
6,404.93	0.00	0.00	6,332.00	-194.30	-901.69	-896.30	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 89.88</b>									
6,450.00	4.51	89.88	6,377.02	-194.30	-899.92	-894.53	10.00	10.00	0.00
6,500.00	9.51	89.88	6,426.63	-194.28	-893.82	-888.43	10.00	10.00	0.00
6,550.00	14.51	89.88	6,475.52	-194.26	-883.42	-878.04	10.00	10.00	0.00
6,600.00	19.51	89.88	6,523.32	-194.23	-868.81	-863.43	10.00	10.00	0.00
6,650.00	24.50	89.88	6,569.66	-194.19	-850.08	-844.71	10.00	10.00	0.00
6,700.00	29.50	89.88	6,614.20	-194.14	-827.38	-822.02	10.00	10.00	0.00
6,750.00	34.50	89.88	6,656.59	-194.08	-800.89	-795.54	10.00	10.00	0.00
6,800.00	39.50	89.88	6,696.50	-194.02	-770.81	-765.47	10.00	10.00	0.00
6,850.00	44.50	89.88	6,733.65	-193.95	-737.36	-732.03	10.00	10.00	0.00
6,858.98	45.40	89.88	6,740.00	-193.93	-731.01	-725.69	10.00	10.00	0.00
<b>SHARON SPRINGS</b>									
6,900.00	49.50	89.88	6,767.73	-193.87	-700.80	-695.49	10.00	10.00	0.00
6,911.32	50.64	89.88	6,775.00	-193.85	-692.12	-686.81	10.00	10.00	0.00
<b>NIOBRARA</b>									
6,950.00	54.50	89.88	6,798.50	-193.78	-661.41	-656.12	10.00	10.00	0.00
7,000.00	59.50	89.88	6,825.73	-193.69	-619.49	-614.21	10.00	10.00	0.00
7,050.00	64.50	89.88	6,849.19	-193.60	-575.36	-570.09	10.00	10.00	0.00
7,100.00	69.50	89.88	6,868.72	-193.50	-529.35	-524.10	10.00	10.00	0.00
7,150.00	74.50	89.88	6,884.16	-193.40	-481.81	-476.58	10.00	10.00	0.00
7,197.79	79.28	89.88	6,895.00	-193.30	-435.27	-430.07	10.00	10.00	0.00
<b>NIO B TARGET</b>									
7,200.00	79.50	89.88	6,895.41	-193.29	-433.10	-427.90	10.00	10.00	0.00
7,250.00	84.50	89.88	6,902.36	-193.19	-383.61	-378.42	10.00	10.00	0.00
7,305.00	90.00	89.88	6,905.00	-193.07	-328.69	-323.53	10.00	10.00	0.00
<b>Start 7114.28 hold at 7305.00 MD</b>									
7,400.00	90.00	89.88	6,905.00	-192.87	-233.69	-228.57	0.00	0.00	0.00
7,500.00	90.00	89.88	6,905.00	-192.65	-133.69	-128.61	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<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)
7,600.00	90.00	89.88	6,905.00	-192.44	-33.69	-28.65	0.00	0.00	0.00
7,700.00	90.00	89.88	6,905.00	-192.22	66.31	71.31	0.00	0.00	0.00
7,800.00	90.00	89.88	6,905.00	-192.01	166.31	171.27	0.00	0.00	0.00
7,900.00	90.00	89.88	6,905.00	-191.79	266.31	271.23	0.00	0.00	0.00
8,000.00	90.00	89.88	6,905.00	-191.58	366.31	371.19	0.00	0.00	0.00
8,100.00	90.00	89.88	6,905.00	-191.36	466.31	471.15	0.00	0.00	0.00
8,200.00	90.00	89.88	6,905.00	-191.15	566.31	571.11	0.00	0.00	0.00
8,300.00	90.00	89.88	6,905.00	-190.94	666.31	671.07	0.00	0.00	0.00
8,400.00	90.00	89.88	6,905.00	-190.72	766.31	771.03	0.00	0.00	0.00
8,500.00	90.00	89.88	6,905.01	-190.51	866.31	870.99	0.00	0.00	0.00
8,600.00	90.00	89.88	6,905.01	-190.29	966.31	970.95	0.00	0.00	0.00
8,700.00	90.00	89.88	6,905.01	-190.08	1,066.31	1,070.91	0.00	0.00	0.00
8,800.00	90.00	89.88	6,905.01	-189.86	1,166.31	1,170.87	0.00	0.00	0.00
8,900.00	90.00	89.88	6,905.01	-189.65	1,266.31	1,270.83	0.00	0.00	0.00
9,000.00	90.00	89.88	6,905.01	-189.43	1,366.31	1,370.79	0.00	0.00	0.00
9,100.00	90.00	89.88	6,905.01	-189.22	1,466.31	1,470.75	0.00	0.00	0.00
9,200.00	90.00	89.88	6,905.01	-189.00	1,566.30	1,570.71	0.00	0.00	0.00
9,300.00	90.00	89.88	6,905.01	-188.79	1,666.30	1,670.67	0.00	0.00	0.00
9,400.00	90.00	89.88	6,905.01	-188.58	1,766.30	1,770.63	0.00	0.00	0.00
9,500.00	90.00	89.88	6,905.01	-188.36	1,866.30	1,870.59	0.00	0.00	0.00
9,600.00	90.00	89.88	6,905.01	-188.15	1,966.30	1,970.55	0.00	0.00	0.00
9,700.00	90.00	89.88	6,905.01	-187.93	2,066.30	2,070.51	0.00	0.00	0.00
9,800.00	90.00	89.88	6,905.01	-187.72	2,166.30	2,170.47	0.00	0.00	0.00
9,900.00	90.00	89.88	6,905.01	-187.50	2,266.30	2,270.43	0.00	0.00	0.00
10,000.00	90.00	89.88	6,905.01	-187.29	2,366.30	2,370.39	0.00	0.00	0.00
10,100.00	90.00	89.88	6,905.01	-187.07	2,466.30	2,470.35	0.00	0.00	0.00
10,200.00	90.00	89.88	6,905.01	-186.86	2,566.30	2,570.31	0.00	0.00	0.00
10,300.00	90.00	89.88	6,905.01	-186.64	2,666.30	2,670.27	0.00	0.00	0.00
10,400.00	90.00	89.88	6,905.01	-186.43	2,766.30	2,770.23	0.00	0.00	0.00
10,500.00	90.00	89.88	6,905.01	-186.22	2,866.30	2,870.19	0.00	0.00	0.00
10,600.00	90.00	89.88	6,905.01	-186.00	2,966.30	2,970.15	0.00	0.00	0.00
10,700.00	90.00	89.88	6,905.01	-185.79	3,066.30	3,070.11	0.00	0.00	0.00
10,800.00	90.00	89.88	6,905.01	-185.57	3,166.30	3,170.07	0.00	0.00	0.00
10,900.00	90.00	89.88	6,905.01	-185.36	3,266.30	3,270.03	0.00	0.00	0.00
11,000.00	90.00	89.88	6,905.02	-185.14	3,366.30	3,369.99	0.00	0.00	0.00
11,100.00	90.00	89.88	6,905.02	-184.93	3,466.30	3,469.95	0.00	0.00	0.00
11,200.00	90.00	89.88	6,905.02	-184.71	3,566.30	3,569.91	0.00	0.00	0.00
11,300.00	90.00	89.88	6,905.02	-184.50	3,666.30	3,669.87	0.00	0.00	0.00
11,400.00	90.00	89.88	6,905.02	-184.28	3,766.30	3,769.83	0.00	0.00	0.00
11,500.00	90.00	89.88	6,905.02	-184.07	3,866.30	3,869.79	0.00	0.00	0.00
11,600.00	90.00	89.88	6,905.02	-183.86	3,966.30	3,969.75	0.00	0.00	0.00
11,700.00	90.00	89.88	6,905.02	-183.64	4,066.30	4,069.71	0.00	0.00	0.00
11,800.00	90.00	89.88	6,905.02	-183.43	4,166.30	4,169.67	0.00	0.00	0.00
11,900.00	90.00	89.88	6,905.02	-183.21	4,266.30	4,269.63	0.00	0.00	0.00
12,000.00	90.00	89.88	6,905.02	-183.00	4,366.30	4,369.59	0.00	0.00	0.00
12,100.00	90.00	89.88	6,905.02	-182.78	4,466.30	4,469.55	0.00	0.00	0.00
12,200.00	90.00	89.88	6,905.02	-182.57	4,566.30	4,569.51	0.00	0.00	0.00
12,300.00	90.00	89.88	6,905.02	-182.35	4,666.30	4,669.47	0.00	0.00	0.00
12,400.00	90.00	89.88	6,905.02	-182.14	4,766.30	4,769.43	0.00	0.00	0.00
12,500.00	90.00	89.88	6,905.02	-181.92	4,866.30	4,869.39	0.00	0.00	0.00
12,600.00	90.00	89.88	6,905.02	-181.71	4,966.30	4,969.35	0.00	0.00	0.00
12,700.00	90.00	89.88	6,905.02	-181.50	5,066.30	5,069.31	0.00	0.00	0.00
12,800.00	90.00	89.88	6,905.02	-181.28	5,166.30	5,169.27	0.00	0.00	0.00
12,900.00	90.00	89.88	6,905.02	-181.07	5,266.30	5,269.23	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<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)	
13,000.00	90.00	89.88	6,905.02	-180.85	5,366.30	5,369.19	0.00	0.00	0.00	
13,100.00	90.00	89.88	6,905.02	-180.64	5,466.30	5,469.15	0.00	0.00	0.00	
13,200.00	90.00	89.88	6,905.02	-180.42	5,566.30	5,569.11	0.00	0.00	0.00	
13,300.00	90.00	89.88	6,905.02	-180.21	5,666.30	5,669.07	0.00	0.00	0.00	
13,400.00	90.00	89.88	6,905.02	-179.99	5,766.30	5,769.03	0.00	0.00	0.00	
13,500.00	90.00	89.88	6,905.03	-179.78	5,866.30	5,868.99	0.00	0.00	0.00	
13,600.00	90.00	89.88	6,905.03	-179.56	5,966.29	5,968.95	0.00	0.00	0.00	
13,700.00	90.00	89.88	6,905.03	-179.35	6,066.29	6,068.91	0.00	0.00	0.00	
13,800.00	90.00	89.88	6,905.03	-179.14	6,166.29	6,168.87	0.00	0.00	0.00	
13,900.00	90.00	89.88	6,905.03	-178.92	6,266.29	6,268.83	0.00	0.00	0.00	
14,000.00	90.00	89.88	6,905.03	-178.71	6,366.29	6,368.79	0.00	0.00	0.00	
14,100.00	90.00	89.88	6,905.03	-178.49	6,466.29	6,468.75	0.00	0.00	0.00	
14,200.00	90.00	89.88	6,905.03	-178.28	6,566.29	6,568.71	0.00	0.00	0.00	
14,300.00	90.00	89.88	6,905.03	-178.06	6,666.29	6,668.67	0.00	0.00	0.00	
14,400.00	90.00	89.88	6,905.03	-177.85	6,766.29	6,768.63	0.00	0.00	0.00	
14,419.28	90.00	89.88	6,905.00	-177.57	6,785.57	6,787.89	0.00	0.00	0.00	
TD at 14419.28										

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										
GP-CODY FED 20E-15-	0.00	0.00	6,905.00	-193.07	-328.69	1,385,741.82	3,227,383.16	40° 23' 21.804 N	104° 41' 1.284 W	
- plan hits target center										
- Point										
GP-CODY FED 20E-15-	0.00	0.00	6,905.00	-177.57	6,785.57	1,385,822.91	3,234,496.98	40° 23' 21.948 N	104° 39' 29.340 W	
- plan hits target center										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,728.25	3,686.00	PARKMAN				
4,477.08	4,425.00	SUSSEX				
4,993.87	4,935.00	SHANNON				
6,858.98	6,740.00	SHARON SPRINGS				
6,911.32	6,775.00	NIOBRARA				
7,197.79	6,895.00	NIO B TARGET				

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well GP-CODY FED 20E-15-4N
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 29' @ 4702.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 29' @ 4702.00usft
<b>Site:</b>	Sec 20-T5N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	GP-CODY FED 20E-15-4N	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
200.00	200.00	0.00	0.00	Start Build 2.00
664.71	662.67	-7.92	-36.76	Start 5245.52 hold at 664.71 MD
5,910.23	5,839.33	-186.38	-864.93	Start Drop -2.00
6,374.93	6,302.00	-194.30	-901.69	Start 30.00 hold at 6374.93 MD
6,404.93	6,332.00	-194.30	-901.69	Start DLS 10.00 TFO 89.88
7,305.00	6,905.00	-193.07	-328.69	Start 7114.28 hold at 7305.00 MD
14,419.28	6,905.00	-177.57	6,785.57	TD at 14419.28