

EXTRACTION OIL & GAS

WELD COUNTY

Sec 20-T5N-R65W

GP-CODY FED 20E-15-3N

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

13 July, 2018

WELL DETAILS: GP-CODY FED 20E-15-3N

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1385952.48	3227709.92	40° 23' 23.856 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	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	
3	1018.72	8.37	273.31	1017.23	1.77	-30.49	2.00	273.31	-30.48	
4	5938.72	8.37	273.31	5884.77	43.18	-745.85	0.00	0.00	-745.39	
5	6357.44	0.00	0.00	6302.00	44.95	-776.34	2.00	180.00	-775.87	
6	6387.44	0.00	0.00	6332.00	44.95	-776.34	0.00	0.00	-775.87	
7	7287.50	90.00	89.84	6905.00	46.51	-203.34	10.00	89.84	-202.88	
8	9087.50	90.00	89.84	6905.00	51.41	-1596.65	0.00	0.00	1597.07	
9	9345.30	90.00	95.00	6905.00	40.52	1854.13	2.00	90.00	1854.44	
10	9845.30	90.00	95.00	6905.00	-3.06	2352.23	0.00	0.00	2352.09	
11	10150.17	90.00	88.90	6905.00	-13.43	2656.78	2.00	-90.00	2656.52	
12	14279.64	90.00	88.90	6905.00	65.65	6785.49	0.00	0.00	6785.81	

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3686.00	3716.25	PARKMAN
4425.00	4463.22	SUSSEX
4935.00	4978.71	SHANNON
6740.00	6841.48	SHARON SPRINGS
6775.00	6893.83	NIOBRARA
6895.00	7180.30	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

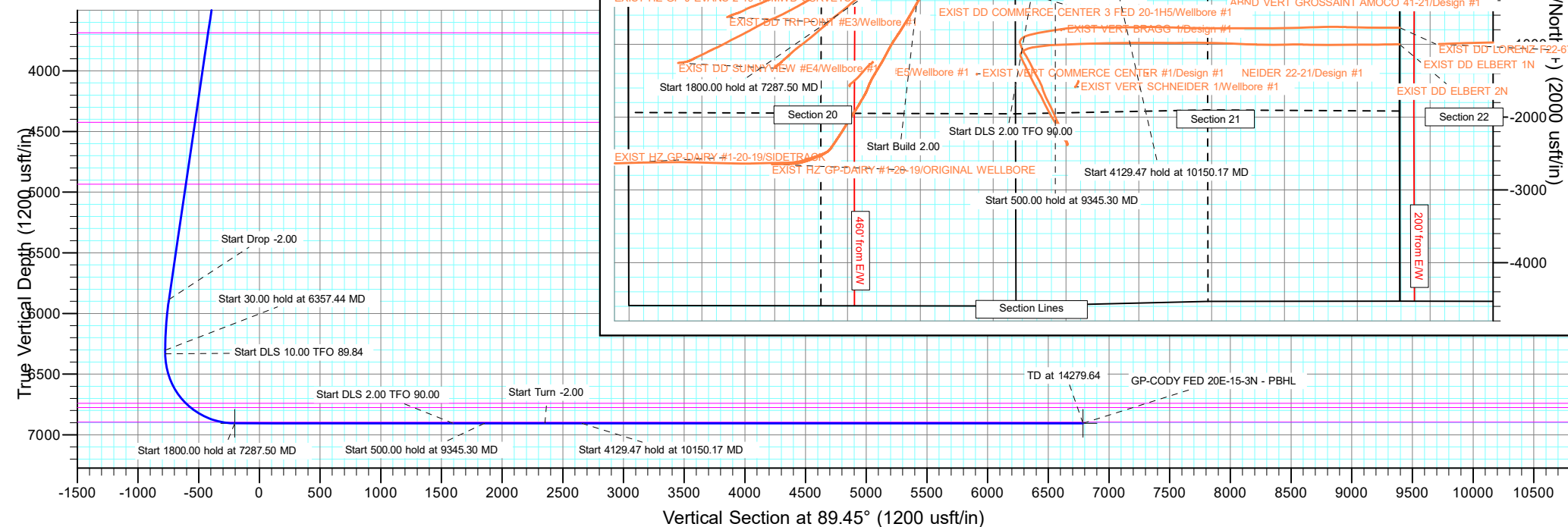
SHL:
694' FNL, 1305' FEL
Sec 20-T5N-R65W
LP:
647' FNL, 1510' FEL
Sec 20-T5N-R65W
BHL:
642' FNL, 201' FWL
Sec 22-T5N-R65W

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	Start Build 2.00
1018.72	8.37	273.31	1017.23	1.77	-30.49	-30.48	30.55	Start 4920.00 hold at 1018.72 MD
5938.72	8.37	273.31	5884.77	43.18	-745.85	-745.39	747.09	Start Drop -2.00
6357.44	0.00	0.00	6302.00	44.95	-776.34	-775.87	777.64	Start 30.00 hold at 6357.44 MD
6387.44	0.00	0.00	6332.00	44.95	-776.34	-775.87	777.64	Start DLS 10.00 TFO 89.84
7287.50	90.00	89.84	6905.00	46.51	-203.34	-202.88	1350.64	Start 1800.00 hold at 7287.50 MD
9087.50	90.00	89.84	6905.00	51.41	-1596.65	1597.07	3150.64	Start DLS 2.00 TFO 90.00
9345.30	90.00	95.00	6905.00	40.52	1854.13	1854.44	3408.44	Start 500.00 hold at 9345.30 MD
9845.30	90.00	95.00	6905.00	-3.06	2352.23	2352.09	3908.44	Start Turn -2.00
10150.17	90.00	88.90	6905.00	-13.43	2656.78	2656.52	4213.31	Start 4129.47 hold at 10150.17 MD
14279.64	90.00	88.90	6905.00	65.65	6785.49	6785.81	8342.78	TD at 14279.64

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
GP-CODY FED 20E-15-3N - LP 6905.00	6905.00	46.51	-203.34	1385997.12	3227506.16	40° 23' 24.316 N	104° 40' 59.664 W	Point
GP-CODY FED 20E-15-3N - PBHL 6905.00	6905.00	65.65	6785.49	1386080.68	3234494.52	40° 23' 24.495 N	104° 39' 29.340 W	Point



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well GP-CODY FED 20E-15-3N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project	WELD COUNTY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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-15-3N					
Well Position	+N/-S	-251.37 usft	Northing:	1,385,952.48 usft	Latitude:	40° 23' 23.856 N
	+E/-W	0.00 usft	Easting:	3,227,709.93 usft	Longitude:	104° 40' 57.036 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,673.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	3/12/2018	8.09	66.84	52,313.04504004

Design	PROPOSAL 1				
Audit Notes:					
Version:		Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	89.45	

Plan Survey Tool Program		Date	7/13/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	14,279.64	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG	
			OWSG MWD - Standard		

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well GP-CODY FED 20E-15-3N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,018.72	8.37	273.31	1,017.23	1.77	-30.49	2.00	2.00	0.00	273.31	
5,938.72	8.37	273.31	5,884.77	43.18	-745.85	0.00	0.00	0.00	0.00	
6,357.44	0.00	0.00	6,302.00	44.95	-776.34	2.00	-2.00	0.00	180.00	
6,387.44	0.00	0.00	6,332.00	44.95	-776.34	0.00	0.00	0.00	0.00	
7,287.50	90.00	89.84	6,905.00	46.51	-203.34	10.00	10.00	9.98	89.84	GP-CODY FED 20E-1
9,087.50	90.00	89.84	6,905.00	51.41	1,596.65	0.00	0.00	0.00	0.00	
9,345.30	90.00	95.00	6,905.00	40.52	1,854.13	2.00	0.00	2.00	90.00	
9,845.30	90.00	95.00	6,905.00	-3.06	2,352.23	0.00	0.00	0.00	0.00	
10,150.17	90.00	88.90	6,905.00	-13.43	2,656.78	2.00	0.00	-2.00	-90.00	GP-CODY FED 20E-1
14,279.64	90.00	88.90	6,905.00	65.65	6,785.49	0.00	0.00	0.00	0.00	GP-CODY FED 20E-1

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Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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
Start Build 2.00									
700.00	2.00	273.31	699.98	0.10	-1.74	-1.74	2.00	2.00	0.00
800.00	4.00	273.31	799.84	0.40	-6.97	-6.96	2.00	2.00	0.00
900.00	6.00	273.31	899.45	0.91	-15.67	-15.66	2.00	2.00	0.00
1,000.00	8.00	273.31	998.70	1.61	-27.83	-27.82	2.00	2.00	0.00
1,018.72	8.37	273.31	1,017.23	1.77	-30.49	-30.48	2.00	2.00	0.00
Start 4920.00 hold at 1018.72 MD									
1,100.00	8.37	273.31	1,097.64	2.45	-42.31	-42.29	0.00	0.00	0.00
1,200.00	8.37	273.31	1,196.58	3.29	-56.85	-56.82	0.00	0.00	0.00
1,300.00	8.37	273.31	1,295.51	4.13	-71.39	-71.35	0.00	0.00	0.00
1,400.00	8.37	273.31	1,394.45	4.98	-85.93	-85.88	0.00	0.00	0.00
1,500.00	8.37	273.31	1,493.38	5.82	-100.47	-100.41	0.00	0.00	0.00
1,600.00	8.37	273.31	1,592.31	6.66	-115.01	-114.94	0.00	0.00	0.00
1,700.00	8.37	273.31	1,691.25	7.50	-129.55	-129.47	0.00	0.00	0.00
1,800.00	8.37	273.31	1,790.18	8.34	-144.09	-144.00	0.00	0.00	0.00
1,900.00	8.37	273.31	1,889.11	9.18	-158.63	-158.53	0.00	0.00	0.00
2,000.00	8.37	273.31	1,988.05	10.03	-173.17	-173.06	0.00	0.00	0.00
2,100.00	8.37	273.31	2,086.98	10.87	-187.71	-187.60	0.00	0.00	0.00
2,200.00	8.37	273.31	2,185.92	11.71	-202.25	-202.13	0.00	0.00	0.00
2,300.00	8.37	273.31	2,284.85	12.55	-216.79	-216.66	0.00	0.00	0.00
2,400.00	8.37	273.31	2,383.78	13.39	-231.33	-231.19	0.00	0.00	0.00
2,500.00	8.37	273.31	2,482.72	14.24	-245.87	-245.72	0.00	0.00	0.00
2,600.00	8.37	273.31	2,581.65	15.08	-260.41	-260.25	0.00	0.00	0.00
2,700.00	8.37	273.31	2,680.58	15.92	-274.95	-274.78	0.00	0.00	0.00
2,800.00	8.37	273.31	2,779.52	16.76	-289.49	-289.31	0.00	0.00	0.00
2,900.00	8.37	273.31	2,878.45	17.60	-304.03	-303.84	0.00	0.00	0.00
3,000.00	8.37	273.31	2,977.39	18.44	-318.57	-318.37	0.00	0.00	0.00
3,100.00	8.37	273.31	3,076.32	19.29	-333.11	-332.90	0.00	0.00	0.00
3,200.00	8.37	273.31	3,175.25	20.13	-347.65	-347.43	0.00	0.00	0.00
3,300.00	8.37	273.31	3,274.19	20.97	-362.18	-361.97	0.00	0.00	0.00
3,400.00	8.37	273.31	3,373.12	21.81	-376.72	-376.50	0.00	0.00	0.00
3,500.00	8.37	273.31	3,472.05	22.65	-391.26	-391.03	0.00	0.00	0.00
3,600.00	8.37	273.31	3,570.99	23.50	-405.80	-405.56	0.00	0.00	0.00
3,700.00	8.37	273.31	3,669.92	24.34	-420.34	-420.09	0.00	0.00	0.00
3,716.25	8.37	273.31	3,686.00	24.47	-422.71	-422.45	0.00	0.00	0.00
PARKMAN									
3,800.00	8.37	273.31	3,768.86	25.18	-434.88	-434.62	0.00	0.00	0.00
3,900.00	8.37	273.31	3,867.79	26.02	-449.42	-449.15	0.00	0.00	0.00
4,000.00	8.37	273.31	3,966.72	26.86	-463.96	-463.68	0.00	0.00	0.00
4,100.00	8.37	273.31	4,065.66	27.71	-478.50	-478.21	0.00	0.00	0.00
4,200.00	8.37	273.31	4,164.59	28.55	-493.04	-492.74	0.00	0.00	0.00
4,300.00	8.37	273.31	4,263.52	29.39	-507.58	-507.27	0.00	0.00	0.00
4,400.00	8.37	273.31	4,362.46	30.23	-522.12	-521.80	0.00	0.00	0.00
4,463.22	8.37	273.31	4,425.00	30.76	-531.31	-530.99	0.00	0.00	0.00
SUSSEX									
4,500.00	8.37	273.31	4,461.39	31.07	-536.66	-536.34	0.00	0.00	0.00
4,600.00	8.37	273.31	4,560.33	31.91	-551.20	-550.87	0.00	0.00	0.00

Planning Report

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
4,700.00	8.37	273.31	4,659.26	32.76	-565.74	-565.40	0.00	0.00	0.00
4,800.00	8.37	273.31	4,758.19	33.60	-580.28	-579.93	0.00	0.00	0.00
4,900.00	8.37	273.31	4,857.13	34.44	-594.82	-594.46	0.00	0.00	0.00
4,978.71	8.37	273.31	4,935.00	35.10	-606.26	-605.90	0.00	0.00	0.00
SHANNON									
5,000.00	8.37	273.31	4,956.06	35.28	-609.36	-608.99	0.00	0.00	0.00
5,100.00	8.37	273.31	5,054.99	36.12	-623.90	-623.52	0.00	0.00	0.00
5,200.00	8.37	273.31	5,153.93	36.97	-638.44	-638.05	0.00	0.00	0.00
5,300.00	8.37	273.31	5,252.86	37.81	-652.98	-652.58	0.00	0.00	0.00
5,400.00	8.37	273.31	5,351.80	38.65	-667.52	-667.11	0.00	0.00	0.00
5,500.00	8.37	273.31	5,450.73	39.49	-682.06	-681.64	0.00	0.00	0.00
5,600.00	8.37	273.31	5,549.66	40.33	-696.60	-696.17	0.00	0.00	0.00
5,700.00	8.37	273.31	5,648.60	41.17	-711.14	-710.70	0.00	0.00	0.00
5,800.00	8.37	273.31	5,747.53	42.02	-725.68	-725.24	0.00	0.00	0.00
5,900.00	8.37	273.31	5,846.46	42.86	-740.22	-739.77	0.00	0.00	0.00
5,938.72	8.37	273.31	5,884.77	43.18	-745.85	-745.39	0.00	0.00	0.00
Start Drop -2.00									
6,000.00	7.15	273.31	5,945.49	43.66	-754.11	-753.65	2.00	-2.00	0.00
6,100.00	5.15	273.31	6,044.91	44.28	-764.80	-764.34	2.00	-2.00	0.00
6,200.00	3.15	273.31	6,144.64	44.70	-772.02	-771.55	2.00	-2.00	0.00
6,300.00	1.15	273.31	6,244.57	44.92	-775.77	-775.29	2.00	-2.00	0.00
6,357.44	0.00	0.00	6,302.00	44.95	-776.34	-775.87	2.00	-2.00	0.00
Start 30.00 hold at 6357.44 MD									
6,387.44	0.00	0.00	6,332.00	44.95	-776.34	-775.87	0.00	0.00	0.00
Start DLS 10.00 TFO 89.84									
6,400.00	1.26	89.84	6,344.56	44.95	-776.20	-775.73	10.00	10.00	0.00
6,450.00	6.26	89.84	6,394.44	44.96	-772.93	-772.46	10.00	10.00	0.00
6,500.00	11.26	89.84	6,443.84	44.98	-765.32	-764.85	10.00	10.00	0.00
6,550.00	16.26	89.84	6,492.39	45.01	-753.43	-752.96	10.00	10.00	0.00
6,600.00	21.25	89.84	6,539.72	45.06	-737.36	-736.89	10.00	10.00	0.00
6,650.00	26.25	89.84	6,585.47	45.11	-717.23	-716.76	10.00	10.00	0.00
6,700.00	31.25	89.84	6,629.29	45.18	-693.18	-692.71	10.00	10.00	0.00
6,750.00	36.25	89.84	6,670.85	45.25	-665.41	-664.94	10.00	10.00	0.00
6,800.00	41.25	89.84	6,709.83	45.34	-634.12	-633.66	10.00	10.00	0.00
6,841.48	45.40	89.84	6,740.00	45.41	-605.67	-605.20	10.00	10.00	0.00
SHARON SPRINGS									
6,850.00	46.25	89.84	6,745.93	45.43	-599.56	-599.09	10.00	10.00	0.00
6,893.83	50.64	89.84	6,775.00	45.52	-566.77	-566.30	10.00	10.00	0.00
NIOBRARA									
6,900.00	51.25	89.84	6,778.89	45.53	-561.98	-561.51	10.00	10.00	0.00
6,950.00	56.25	89.84	6,808.44	45.64	-521.66	-521.20	10.00	10.00	0.00
7,000.00	61.25	89.84	6,834.37	45.76	-478.93	-478.47	10.00	10.00	0.00
7,050.00	66.25	89.84	6,856.48	45.88	-434.10	-433.64	10.00	10.00	0.00
7,100.00	71.25	89.84	6,874.59	46.01	-387.52	-387.05	10.00	10.00	0.00
7,150.00	76.25	89.84	6,888.58	46.14	-339.53	-339.07	10.00	10.00	0.00
7,180.30	79.28	89.84	6,895.00	46.22	-309.93	-309.46	10.00	10.00	0.00
NIO B TARGET									
7,200.00	81.25	89.84	6,898.33	46.27	-290.51	-290.04	10.00	10.00	0.00
7,250.00	86.25	89.84	6,903.77	46.41	-240.82	-240.36	10.00	10.00	0.00
7,287.50	90.00	89.84	6,905.00	46.51	-203.34	-202.88	10.00	10.00	0.00
Start 1800.00 hold at 7287.50 MD									
7,300.00	90.00	89.84	6,905.00	46.54	-190.85	-190.39	0.00	0.00	0.00
7,400.00	90.00	89.84	6,905.00	46.82	-90.85	-90.39	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well GP-CODY FED 20E-15-3N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
7,500.00	90.00	89.84	6,905.00	47.09	9.15	9.61	0.00	0.00	0.00
7,600.00	90.00	89.84	6,905.00	47.36	109.15	109.61	0.00	0.00	0.00
7,700.00	90.00	89.84	6,905.00	47.63	209.15	209.60	0.00	0.00	0.00
7,800.00	90.00	89.84	6,905.00	47.91	309.15	309.60	0.00	0.00	0.00
7,900.00	90.00	89.84	6,905.00	48.18	409.15	409.60	0.00	0.00	0.00
8,000.00	90.00	89.84	6,905.00	48.45	509.15	509.60	0.00	0.00	0.00
8,100.00	90.00	89.84	6,905.00	48.72	609.15	609.59	0.00	0.00	0.00
8,200.00	90.00	89.84	6,905.00	48.99	709.15	709.59	0.00	0.00	0.00
8,300.00	90.00	89.84	6,905.00	49.27	809.15	809.59	0.00	0.00	0.00
8,400.00	90.00	89.84	6,905.00	49.54	909.15	909.59	0.00	0.00	0.00
8,500.00	90.00	89.84	6,905.00	49.81	1,009.15	1,009.58	0.00	0.00	0.00
8,600.00	90.00	89.84	6,905.00	50.08	1,109.15	1,109.58	0.00	0.00	0.00
8,700.00	90.00	89.84	6,905.00	50.36	1,209.15	1,209.58	0.00	0.00	0.00
8,800.00	90.00	89.84	6,905.00	50.63	1,309.15	1,309.58	0.00	0.00	0.00
8,900.00	90.00	89.84	6,905.00	50.90	1,409.15	1,409.57	0.00	0.00	0.00
9,000.00	90.00	89.84	6,905.00	51.17	1,509.15	1,509.57	0.00	0.00	0.00
9,087.50	90.00	89.84	6,905.00	51.41	1,596.65	1,597.07	0.00	0.00	0.00
Start DLS 2.00 TFO 90.00									
9,100.00	90.00	90.09	6,905.00	51.42	1,609.15	1,609.57	2.00	0.00	2.00
9,200.00	90.00	92.09	6,905.00	49.51	1,709.12	1,709.52	2.00	0.00	2.00
9,300.00	90.00	94.09	6,905.00	44.11	1,808.97	1,809.32	2.00	0.00	2.00
9,345.30	90.00	95.00	6,905.00	40.52	1,854.13	1,854.44	2.00	0.00	2.00
Start 500.00 hold at 9345.30 MD									
9,400.00	90.00	95.00	6,905.00	35.75	1,908.62	1,908.88	0.00	0.00	0.00
9,500.00	90.00	95.00	6,905.00	27.04	2,008.24	2,008.41	0.00	0.00	0.00
9,600.00	90.00	95.00	6,905.00	18.32	2,107.86	2,107.94	0.00	0.00	0.00
9,700.00	90.00	95.00	6,905.00	9.61	2,207.48	2,207.47	0.00	0.00	0.00
9,800.00	90.00	95.00	6,905.00	0.89	2,307.10	2,307.00	0.00	0.00	0.00
9,845.30	90.00	95.00	6,905.00	-3.06	2,352.23	2,352.09	0.00	0.00	0.00
Start Turn -2.00									
9,900.00	90.00	93.91	6,905.00	-7.30	2,406.76	2,406.58	2.00	0.00	-2.00
10,000.00	90.00	91.91	6,905.00	-12.37	2,506.63	2,506.39	2.00	0.00	-2.00
10,100.00	90.00	89.91	6,905.00	-13.96	2,606.61	2,606.35	2.00	0.00	-2.00
10,150.17	90.00	88.90	6,905.00	-13.43	2,656.78	2,656.52	2.00	0.00	-2.00
Start 4129.47 hold at 10150.17 MD									
10,200.00	90.00	88.90	6,905.00	-12.48	2,706.60	2,706.35	0.00	0.00	0.00
10,300.00	90.00	88.90	6,905.00	-10.56	2,806.58	2,806.35	0.00	0.00	0.00
10,400.00	90.00	88.90	6,905.00	-8.65	2,906.56	2,906.34	0.00	0.00	0.00
10,500.00	90.00	88.90	6,905.00	-6.73	3,006.54	3,006.34	0.00	0.00	0.00
10,600.00	90.00	88.90	6,905.00	-4.82	3,106.52	3,106.33	0.00	0.00	0.00
10,700.00	90.00	88.90	6,905.00	-2.90	3,206.51	3,206.33	0.00	0.00	0.00
10,800.00	90.00	88.90	6,905.00	-0.99	3,306.49	3,306.32	0.00	0.00	0.00
10,900.00	90.00	88.90	6,905.00	0.93	3,406.47	3,406.32	0.00	0.00	0.00
11,000.00	90.00	88.90	6,905.00	2.84	3,506.45	3,506.31	0.00	0.00	0.00
11,100.00	90.00	88.90	6,905.00	4.76	3,606.43	3,606.31	0.00	0.00	0.00
11,200.00	90.00	88.90	6,905.00	6.67	3,706.41	3,706.31	0.00	0.00	0.00
11,300.00	90.00	88.90	6,905.00	8.59	3,806.40	3,806.30	0.00	0.00	0.00
11,400.00	90.00	88.90	6,905.00	10.50	3,906.38	3,906.30	0.00	0.00	0.00
11,500.00	90.00	88.90	6,905.00	12.42	4,006.36	4,006.29	0.00	0.00	0.00
11,600.00	90.00	88.90	6,905.00	14.33	4,106.34	4,106.29	0.00	0.00	0.00
11,700.00	90.00	88.90	6,905.00	16.25	4,206.32	4,206.28	0.00	0.00	0.00
11,800.00	90.00	88.90	6,905.00	18.16	4,306.30	4,306.28	0.00	0.00	0.00
11,900.00	90.00	88.90	6,905.00	20.08	4,406.29	4,406.27	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well GP-CODY FED 20E-15-3N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)	
12,000.00	90.00	88.90	6,905.00	21.99	4,506.27	4,506.27	0.00	0.00	0.00	
12,100.00	90.00	88.90	6,905.00	23.91	4,606.25	4,606.27	0.00	0.00	0.00	
12,200.00	90.00	88.90	6,905.00	25.82	4,706.23	4,706.26	0.00	0.00	0.00	
12,300.00	90.00	88.90	6,905.00	27.74	4,806.21	4,806.26	0.00	0.00	0.00	
12,400.00	90.00	88.90	6,905.00	29.65	4,906.19	4,906.25	0.00	0.00	0.00	
12,500.00	90.00	88.90	6,905.00	31.57	5,006.18	5,006.25	0.00	0.00	0.00	
12,600.00	90.00	88.90	6,905.00	33.48	5,106.16	5,106.24	0.00	0.00	0.00	
12,700.00	90.00	88.90	6,905.00	35.40	5,206.14	5,206.24	0.00	0.00	0.00	
12,800.00	90.00	88.90	6,905.00	37.31	5,306.12	5,306.23	0.00	0.00	0.00	
12,900.00	90.00	88.90	6,905.00	39.23	5,406.10	5,406.23	0.00	0.00	0.00	
13,000.00	90.00	88.90	6,905.00	41.14	5,506.08	5,506.23	0.00	0.00	0.00	
13,100.00	90.00	88.90	6,905.00	43.06	5,606.07	5,606.22	0.00	0.00	0.00	
13,200.00	90.00	88.90	6,905.00	44.97	5,706.05	5,706.22	0.00	0.00	0.00	
13,300.00	90.00	88.90	6,905.00	46.89	5,806.03	5,806.21	0.00	0.00	0.00	
13,400.00	90.00	88.90	6,905.00	48.80	5,906.01	5,906.21	0.00	0.00	0.00	
13,500.00	90.00	88.90	6,905.00	50.72	6,005.99	6,006.20	0.00	0.00	0.00	
13,600.00	90.00	88.90	6,905.00	52.63	6,105.97	6,106.20	0.00	0.00	0.00	
13,700.00	90.00	88.90	6,905.00	54.55	6,205.96	6,206.19	0.00	0.00	0.00	
13,800.00	90.00	88.90	6,905.00	56.46	6,305.94	6,306.19	0.00	0.00	0.00	
13,900.00	90.00	88.90	6,905.00	58.38	6,405.92	6,406.18	0.00	0.00	0.00	
14,000.00	90.00	88.90	6,905.00	60.29	6,505.90	6,506.18	0.00	0.00	0.00	
14,100.00	90.00	88.90	6,905.00	62.21	6,605.88	6,606.18	0.00	0.00	0.00	
14,200.00	90.00	88.90	6,905.00	64.12	6,705.86	6,706.17	0.00	0.00	0.00	
14,279.64	90.00	88.90	6,905.00	65.65	6,785.49	6,785.81	0.00	0.00	0.00	
TD at 14279.64										

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	65.65	6,785.49	1,386,080.69	3,234,494.52	40° 23' 24.495 N	104° 39' 29.340 W	
- plan hits target center										
- Point										
GP-CODY FED 20E-15-	0.00	0.00	6,905.00	46.51	-203.34	1,385,997.12	3,227,506.16	40° 23' 24.316 N	104° 40' 59.664 W	
- plan hits target center										
- Point										

Formations							
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)		
3,716.25	3,686.00	PARKMAN					
4,463.22	4,425.00	SUSSEX					
4,978.71	4,935.00	SHANNON					
6,841.48	6,740.00	SHARON SPRINGS					
6,893.83	6,775.00	NIOBRARA					
7,180.30	6,895.00	NIO B TARGET					

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well GP-CODY FED 20E-15-3N
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 29' @ 4702.00usft
Project:	WELD COUNTY	MD Reference:	KB 29' @ 4702.00usft
Site:	Sec 20-T5N-R65W	North Reference:	True
Well:	GP-CODY FED 20E-15-3N	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.00	600.00	0.00	0.00	Start Build 2.00
1,018.72	1,017.23	1.77	-30.49	Start 4920.00 hold at 1018.72 MD
5,938.72	5,884.77	43.18	-745.85	Start Drop -2.00
6,357.44	6,302.00	44.95	-776.34	Start 30.00 hold at 6357.44 MD
6,387.44	6,332.00	44.95	-776.34	Start DLS 10.00 TFO 89.84
7,287.50	6,905.00	46.51	-203.34	Start 1800.00 hold at 7287.50 MD
9,087.50	6,905.00	51.41	1,596.65	Start DLS 2.00 TFO 90.00
9,345.30	6,905.00	40.52	1,854.13	Start 500.00 hold at 9345.30 MD
9,845.30	6,905.00	-3.06	2,352.23	Start Turn -2.00
10,150.17	6,905.00	-13.43	2,656.78	Start 4129.47 hold at 10150.17 MD
14,279.64	6,905.00	65.65	6,785.49	TD at 14279.64