

EXTRACTION OIL & GAS

Adams County

Sec 12-T1S-R66W

DUCK CLUB 12W-20-1C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

26 March, 2018



Project: Adams County
Site: Sec 12-T1S-R66W
Well: DUCK CLUB 12W-20-1C
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1



Azimuths to True North
Magnetic North: 8.16°

Magnetic Field
Strength: 52179.7nT
Dip Angle: 66.52°
Date: 6/1/2017
Model: IGRF2015

WELL DETAILS: DUCK CLUB 12W-20-1C

+N/-S	+E/-W	Northing	Easting	5037.00	Latitude	Longitude	Slot
0.00	0.00	1236295.61	3215519.94	39° 58' 46.020 N	104° 43' 51.348 W		

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	1603.62	30.07	42.12	1535.53	286.03	258.64	2.00	42.12	-173.28	
4	6163.34	30.07	42.12	5481.47	1980.77	1791.08	0.00	0.00	-1199.99	
5	7666.96	0.00	0.00	6917.00	2266.80	2049.72	2.00	180.00	-1373.27	
6	7696.96	0.00	0.00	6947.00	2266.80	2049.72	0.00	0.00	-1373.27	
7	8597.03	90.00	269.90	7520.00	2265.83	1476.72	10.00	269.90	-821.15	DC 1C - LP
8	18227.95	90.00	269.90	7520.00	2248.91	-8154.19	0.00	-91.95	8458.63	DC 1C - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	Start Build 2.00
1603.62	30.07	42.12	1535.53	286.03	258.64	-173.28	385.62	Start 4559.71 hold at 1603.62 MD
6163.34	30.07	42.12	5481.47	1980.77	1791.08	-1199.99	2670.48	Start Drop -2.00
7666.96	0.00	0.00	6917.00	2266.80	2049.72	-1373.27	3056.10	Start 30.00 hold at 7666.96 MD
7696.96	0.00	0.00	6947.00	2266.80	2049.72	-1373.27	3056.10	Start DLS 10.00 TFO 269.90
8597.03	90.00	269.90	7520.00	2265.83	1476.72	-821.15	3629.10	Start DLS 0.00 TFO -91.95
18227.95	90.00	269.90	7520.00	2248.91	-8154.19	8458.63	13260.02	TD at 18227.95

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
DC 1C - LP	7520.00	2265.83	1476.72	1238574.16	3216976.96	39° 59' 8.412 N	104° 43' 32.376 W	Point
- plan hits target center								
DC 1C - PBHL	7520.00	2248.91	-8154.19	1238473.71	3207346.56	39° 59' 8.232 N	104° 45' 36.108 W	Point
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3900.00	4335.88	PARKMAN
4755.00	5323.87	SUSSEX
7080.00	7810.70	SHARON SPRINGS
7086.00	7837.36	NIOBRARA
7280.00	8052.30	NIO B
7490.00	8410.79	FORT HAYS
7520.00	8597.03	CODELL

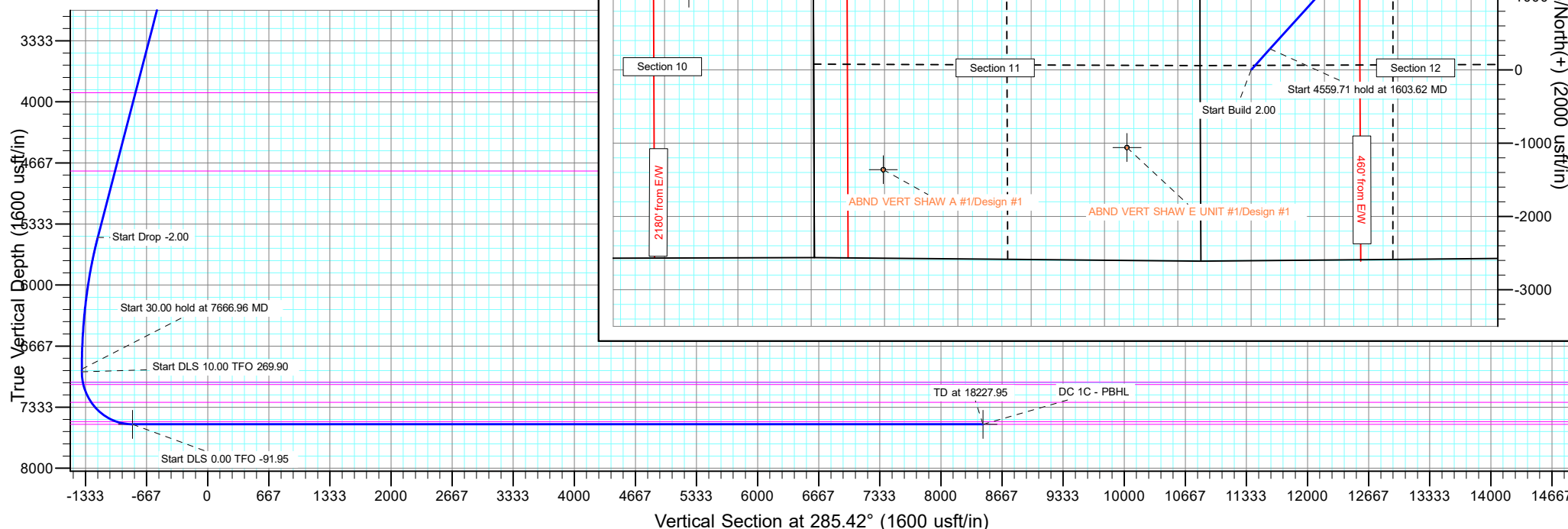
PROJECT DETAILS: Adams County

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

SHL:
2603' FSL, 695' FWL
Sec 12-T1S-R66W

LP:
460' FNL, 2176' FWL
Sec 12-T1S-R66W

BHL:
460' FNL, 2180' FEL
Sec 10-T1S-R66W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-1C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5062.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
Site:	Sec 12-T1S-R66W	North Reference:	True
Well:	DUCK CLUB 12W-20-1C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project	Adams 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 12-T1S-R66W			
Site Position:		Northing:	1,239,018.46 usft	Latitude:	39° 59' 12.990 N
From:	Lat/Long	Easting:	3,214,796.41 usft	Longitude:	104° 44' 0.340 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.50 °

Well	DUCK CLUB 12W-20-1C					
Well Position	+N/-S	-2,729.01 usft	Northing:	1,236,295.60 usft	Latitude:	39° 58' 46.020 N
	+E/-W	699.97 usft	Easting:	3,215,519.95 usft	Longitude:	104° 43' 51.348 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,037.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/1/2017	8.16	66.52	52,179.65066651

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	285.42

Plan Survey Tool Program	Date	3/14/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,227.95	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,603.62	30.07	42.12	1,535.53	286.03	258.64	2.00	2.00	0.00	42.12	
6,163.34	30.07	42.12	5,481.47	1,980.77	1,791.08	0.00	0.00	0.00	0.00	
7,666.96	0.00	0.00	6,917.00	2,266.80	2,049.72	2.00	-2.00	0.00	180.00	
7,696.96	0.00	0.00	6,947.00	2,266.80	2,049.72	0.00	0.00	0.00	0.00	
8,597.03	90.00	269.90	7,520.00	2,265.83	1,476.72	10.00	10.00	-10.01	269.90	DC 1C - LP
18,227.95	90.00	269.90	7,520.00	2,248.91	-8,154.19	0.00	0.00	0.00	-91.95	DC 1C - PBHL

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Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
Site:	Sec 12-T1S-R66W	North Reference:	True
Well:	DUCK CLUB 12W-20-1C	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
Start Build 2.00									
200.00	2.00	42.12	199.98	1.29	1.17	-0.78	2.00	2.00	0.00
300.00	4.00	42.12	299.84	5.18	4.68	-3.14	2.00	2.00	0.00
400.00	6.00	42.12	399.45	11.64	10.53	-7.05	2.00	2.00	0.00
500.00	8.00	42.12	498.70	20.68	18.70	-12.53	2.00	2.00	0.00
600.00	10.00	42.12	597.47	32.28	29.19	-19.56	2.00	2.00	0.00
700.00	12.00	42.12	695.62	46.43	41.99	-28.13	2.00	2.00	0.00
800.00	14.00	42.12	793.06	63.12	57.07	-38.24	2.00	2.00	0.00
900.00	16.00	42.12	889.64	82.32	74.43	-49.87	2.00	2.00	0.00
1,000.00	18.00	42.12	985.27	104.00	94.04	-63.01	2.00	2.00	0.00
1,100.00	20.00	42.12	1,079.82	128.15	115.88	-77.63	2.00	2.00	0.00
1,200.00	22.00	42.12	1,173.17	154.73	139.91	-93.74	2.00	2.00	0.00
1,300.00	24.00	42.12	1,265.21	183.71	166.11	-111.29	2.00	2.00	0.00
1,400.00	26.00	42.12	1,355.84	215.05	194.46	-130.28	2.00	2.00	0.00
1,500.00	28.00	42.12	1,444.94	248.73	224.91	-150.68	2.00	2.00	0.00
1,603.62	30.07	42.12	1,535.53	286.03	258.64	-173.28	2.00	2.00	0.00
Start 4559.71 hold at 1603.62 MD									
1,700.00	30.07	42.12	1,618.93	321.85	291.03	-194.98	0.00	0.00	0.00
1,800.00	30.07	42.12	1,705.47	359.02	324.64	-217.50	0.00	0.00	0.00
1,900.00	30.07	42.12	1,792.01	396.19	358.24	-240.02	0.00	0.00	0.00
2,000.00	30.07	42.12	1,878.55	433.35	391.85	-262.53	0.00	0.00	0.00
2,100.00	30.07	42.12	1,965.09	470.52	425.46	-285.05	0.00	0.00	0.00
2,200.00	30.07	42.12	2,051.63	507.69	459.07	-307.57	0.00	0.00	0.00
2,300.00	30.07	42.12	2,138.17	544.86	492.68	-330.08	0.00	0.00	0.00
2,400.00	30.07	42.12	2,224.71	582.02	526.29	-352.60	0.00	0.00	0.00
2,500.00	30.07	42.12	2,311.25	619.19	559.89	-375.12	0.00	0.00	0.00
2,600.00	30.07	42.12	2,397.79	656.36	593.50	-397.63	0.00	0.00	0.00
2,700.00	30.07	42.12	2,484.33	693.53	627.11	-420.15	0.00	0.00	0.00
2,800.00	30.07	42.12	2,570.87	730.69	660.72	-442.67	0.00	0.00	0.00
2,900.00	30.07	42.12	2,657.40	767.86	694.33	-465.19	0.00	0.00	0.00
3,000.00	30.07	42.12	2,743.94	805.03	727.94	-487.70	0.00	0.00	0.00
3,100.00	30.07	42.12	2,830.48	842.20	761.55	-510.22	0.00	0.00	0.00
3,200.00	30.07	42.12	2,917.02	879.37	795.15	-532.74	0.00	0.00	0.00
3,300.00	30.07	42.12	3,003.56	916.53	828.76	-555.25	0.00	0.00	0.00
3,400.00	30.07	42.12	3,090.10	953.70	862.37	-577.77	0.00	0.00	0.00
3,500.00	30.07	42.12	3,176.64	990.87	895.98	-600.29	0.00	0.00	0.00
3,600.00	30.07	42.12	3,263.18	1,028.04	929.59	-622.80	0.00	0.00	0.00
3,700.00	30.07	42.12	3,349.72	1,065.20	963.20	-645.32	0.00	0.00	0.00
3,800.00	30.07	42.12	3,436.26	1,102.37	996.80	-667.84	0.00	0.00	0.00
3,900.00	30.07	42.12	3,522.80	1,139.54	1,030.41	-690.35	0.00	0.00	0.00
4,000.00	30.07	42.12	3,609.34	1,176.71	1,064.02	-712.87	0.00	0.00	0.00
4,100.00	30.07	42.12	3,695.88	1,213.88	1,097.63	-735.39	0.00	0.00	0.00
4,200.00	30.07	42.12	3,782.41	1,251.04	1,131.24	-757.91	0.00	0.00	0.00
4,300.00	30.07	42.12	3,868.95	1,288.21	1,164.85	-780.42	0.00	0.00	0.00
4,335.88	30.07	42.12	3,900.00	1,301.55	1,176.90	-788.50	0.00	0.00	0.00
PARKMAN									
4,400.00	30.07	42.12	3,955.49	1,325.38	1,198.45	-802.94	0.00	0.00	0.00
4,500.00	30.07	42.12	4,042.03	1,362.55	1,232.06	-825.46	0.00	0.00	0.00
4,600.00	30.07	42.12	4,128.57	1,399.71	1,265.67	-847.97	0.00	0.00	0.00
4,700.00	30.07	42.12	4,215.11	1,436.88	1,299.28	-870.49	0.00	0.00	0.00
4,800.00	30.07	42.12	4,301.65	1,474.05	1,332.89	-893.01	0.00	0.00	0.00

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Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
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Well:	DUCK CLUB 12W-20-1C	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)
4,900.00	30.07	42.12	4,388.19	1,511.22	1,366.50	-915.52	0.00	0.00	0.00
5,000.00	30.07	42.12	4,474.73	1,548.39	1,400.10	-938.04	0.00	0.00	0.00
5,100.00	30.07	42.12	4,561.27	1,585.55	1,433.71	-960.56	0.00	0.00	0.00
5,200.00	30.07	42.12	4,647.81	1,622.72	1,467.32	-983.07	0.00	0.00	0.00
5,300.00	30.07	42.12	4,734.35	1,659.89	1,500.93	-1,005.59	0.00	0.00	0.00
5,323.87	30.07	42.12	4,755.00	1,668.76	1,508.95	-1,010.97	0.00	0.00	0.00
SUSSEX									
5,400.00	30.07	42.12	4,820.88	1,697.06	1,534.54	-1,028.11	0.00	0.00	0.00
5,500.00	30.07	42.12	4,907.42	1,734.22	1,568.15	-1,050.63	0.00	0.00	0.00
5,600.00	30.07	42.12	4,993.96	1,771.39	1,601.76	-1,073.14	0.00	0.00	0.00
5,700.00	30.07	42.12	5,080.50	1,808.56	1,635.36	-1,095.66	0.00	0.00	0.00
5,800.00	30.07	42.12	5,167.04	1,845.73	1,668.97	-1,118.18	0.00	0.00	0.00
5,900.00	30.07	42.12	5,253.58	1,882.90	1,702.58	-1,140.69	0.00	0.00	0.00
6,000.00	30.07	42.12	5,340.12	1,920.06	1,736.19	-1,163.21	0.00	0.00	0.00
6,100.00	30.07	42.12	5,426.66	1,957.23	1,769.80	-1,185.73	0.00	0.00	0.00
6,163.34	30.07	42.12	5,481.47	1,980.77	1,791.08	-1,199.99	0.00	0.00	0.00
Start Drop -2.00									
6,200.00	29.34	42.12	5,513.32	1,994.25	1,803.27	-1,208.15	2.00	-2.00	0.00
6,300.00	27.34	42.12	5,601.33	2,029.46	1,835.10	-1,229.48	2.00	-2.00	0.00
6,400.00	25.34	42.12	5,690.94	2,062.36	1,864.86	-1,249.42	2.00	-2.00	0.00
6,500.00	23.34	42.12	5,782.05	2,092.93	1,892.50	-1,267.94	2.00	-2.00	0.00
6,600.00	21.34	42.12	5,874.54	2,121.12	1,917.99	-1,285.02	2.00	-2.00	0.00
6,700.00	19.34	42.12	5,968.30	2,146.90	1,941.30	-1,300.63	2.00	-2.00	0.00
6,800.00	17.34	42.12	6,063.21	2,170.24	1,962.41	-1,314.77	2.00	-2.00	0.00
6,900.00	15.34	42.12	6,159.17	2,191.10	1,981.27	-1,327.41	2.00	-2.00	0.00
7,000.00	13.34	42.12	6,256.05	2,209.47	1,997.88	-1,338.54	2.00	-2.00	0.00
7,100.00	11.34	42.12	6,353.74	2,225.32	2,012.21	-1,348.14	2.00	-2.00	0.00
7,200.00	9.34	42.12	6,452.11	2,238.63	2,024.25	-1,356.21	2.00	-2.00	0.00
7,300.00	7.34	42.12	6,551.04	2,249.39	2,033.98	-1,362.72	2.00	-2.00	0.00
7,400.00	5.34	42.12	6,650.43	2,257.58	2,041.38	-1,367.68	2.00	-2.00	0.00
7,500.00	3.34	42.12	6,750.14	2,263.19	2,046.46	-1,371.08	2.00	-2.00	0.00
7,600.00	1.34	42.12	6,850.05	2,266.22	2,049.20	-1,372.92	2.00	-2.00	0.00
7,666.96	0.00	0.00	6,917.00	2,266.80	2,049.72	-1,373.27	2.00	-2.00	0.00
Start 30.00 hold at 7666.96 MD									
7,696.96	0.00	0.00	6,947.00	2,266.80	2,049.72	-1,373.27	0.00	0.00	0.00
Start DLS 10.00 TFO 269.90									
7,700.00	0.30	269.90	6,950.04	2,266.80	2,049.71	-1,373.26	10.00	10.00	0.00
7,750.00	5.30	269.90	6,999.97	2,266.80	2,047.27	-1,370.91	10.00	10.00	0.00
7,800.00	10.30	269.90	7,049.49	2,266.78	2,040.48	-1,364.37	10.00	10.00	0.00
7,810.70	11.37	269.90	7,060.00	2,266.78	2,038.47	-1,362.43	10.00	10.00	0.00
SHARON SPRINGS									
7,837.36	14.04	269.90	7,086.00	2,266.77	2,032.60	-1,356.78	10.00	10.00	0.00
NIOBRARA									
7,850.00	15.30	269.90	7,098.23	2,266.77	2,029.40	-1,353.69	10.00	10.00	0.00
7,900.00	20.30	269.90	7,145.82	2,266.74	2,014.12	-1,338.97	10.00	10.00	0.00
7,950.00	25.30	269.90	7,191.90	2,266.71	1,994.75	-1,320.30	10.00	10.00	0.00
8,000.00	30.30	269.90	7,236.11	2,266.67	1,971.44	-1,297.84	10.00	10.00	0.00
8,050.00	35.30	269.90	7,278.13	2,266.62	1,944.36	-1,271.75	10.00	10.00	0.00
8,052.30	35.53	269.90	7,280.00	2,266.62	1,943.02	-1,270.46	10.00	10.00	0.00
NIO B									
8,100.00	40.30	269.90	7,317.62	2,266.57	1,913.72	-1,242.23	10.00	10.00	0.00
8,150.00	45.30	269.90	7,354.29	2,266.51	1,879.76	-1,209.50	10.00	10.00	0.00
8,200.00	50.30	269.90	7,387.87	2,266.45	1,842.73	-1,173.82	10.00	10.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-1C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5062.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
Site:	Sec 12-T1S-R66W	North Reference:	True
Well:	DUCK CLUB 12W-20-1C	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)	
8,250.00	55.30	269.90	7,418.09	2,266.38	1,802.92	-1,135.46	10.00	10.00	0.00	
8,300.00	60.30	269.90	7,444.72	2,266.31	1,760.62	-1,094.71	10.00	10.00	0.00	
8,350.00	65.30	269.90	7,467.57	2,266.23	1,716.16	-1,051.87	10.00	10.00	0.00	
8,400.00	70.30	269.90	7,486.46	2,266.16	1,669.89	-1,007.28	10.00	10.00	0.00	
8,410.79	71.38	269.90	7,490.00	2,266.14	1,659.70	-997.46	10.00	10.00	0.00	
FORT HAYS										
8,450.00	75.30	269.90	7,501.24	2,266.07	1,622.14	-961.27	10.00	10.00	0.00	
8,500.00	80.30	269.90	7,511.81	2,265.99	1,573.28	-914.19	10.00	10.00	0.00	
8,550.00	85.30	269.90	7,518.07	2,265.91	1,523.69	-866.41	10.00	10.00	0.00	
8,597.03	90.00	269.90	7,520.00	2,265.83	1,476.72	-821.15	10.00	10.00	0.00	
Start DLS 0.00 TFO -91.95 - CODELL										
8,600.00	90.00	269.90	7,520.00	2,265.82	1,473.75	-818.29	0.00	0.00	0.00	
8,700.00	90.00	269.90	7,520.00	2,265.65	1,373.75	-721.93	0.00	0.00	0.00	
8,800.00	90.00	269.90	7,520.00	2,265.48	1,273.75	-625.57	0.00	0.00	0.00	
8,900.00	90.00	269.90	7,520.00	2,265.31	1,173.75	-529.22	0.00	0.00	0.00	
9,000.00	90.00	269.90	7,520.00	2,265.14	1,073.75	-432.86	0.00	0.00	0.00	
9,100.00	90.00	269.90	7,520.00	2,264.97	973.75	-336.51	0.00	0.00	0.00	
9,200.00	90.00	269.90	7,520.00	2,264.80	873.75	-240.15	0.00	0.00	0.00	
9,300.00	90.00	269.90	7,520.00	2,264.63	773.75	-143.80	0.00	0.00	0.00	
9,400.00	90.00	269.90	7,520.00	2,264.46	673.75	-47.44	0.00	0.00	0.00	
9,500.00	90.00	269.90	7,520.00	2,264.29	573.75	48.91	0.00	0.00	0.00	
9,600.00	90.00	269.90	7,520.00	2,264.12	473.75	145.27	0.00	0.00	0.00	
9,700.00	90.00	269.90	7,520.00	2,263.95	373.75	241.62	0.00	0.00	0.00	
9,800.00	90.00	269.90	7,520.00	2,263.78	273.75	337.98	0.00	0.00	0.00	
9,900.00	90.00	269.90	7,520.00	2,263.61	173.75	434.33	0.00	0.00	0.00	
10,000.00	90.00	269.90	7,520.00	2,263.44	73.75	530.69	0.00	0.00	0.00	
10,100.00	90.00	269.90	7,520.00	2,263.26	-26.25	627.04	0.00	0.00	0.00	
10,200.00	90.00	269.90	7,520.00	2,263.09	-126.25	723.40	0.00	0.00	0.00	
10,300.00	90.00	269.90	7,520.00	2,262.92	-226.25	819.75	0.00	0.00	0.00	
10,400.00	90.00	269.90	7,520.00	2,262.75	-326.25	916.11	0.00	0.00	0.00	
10,500.00	90.00	269.90	7,520.00	2,262.58	-426.25	1,012.46	0.00	0.00	0.00	
10,600.00	90.00	269.90	7,520.00	2,262.40	-526.25	1,108.82	0.00	0.00	0.00	
10,700.00	90.00	269.90	7,520.00	2,262.23	-626.25	1,205.17	0.00	0.00	0.00	
10,800.00	90.00	269.90	7,520.00	2,262.06	-726.25	1,301.53	0.00	0.00	0.00	
10,900.00	90.00	269.90	7,520.00	2,261.89	-826.25	1,397.88	0.00	0.00	0.00	
11,000.00	90.00	269.90	7,520.00	2,261.71	-926.25	1,494.24	0.00	0.00	0.00	
11,100.00	90.00	269.90	7,520.00	2,261.54	-1,026.25	1,590.59	0.00	0.00	0.00	
11,200.00	90.00	269.90	7,520.00	2,261.37	-1,126.25	1,686.95	0.00	0.00	0.00	
11,300.00	90.00	269.90	7,520.00	2,261.20	-1,226.25	1,783.30	0.00	0.00	0.00	
11,400.00	90.00	269.90	7,520.00	2,261.02	-1,326.25	1,879.66	0.00	0.00	0.00	
11,500.00	90.00	269.90	7,520.00	2,260.85	-1,426.25	1,976.01	0.00	0.00	0.00	
11,600.00	90.00	269.90	7,520.00	2,260.68	-1,526.25	2,072.37	0.00	0.00	0.00	
11,700.00	90.00	269.90	7,520.00	2,260.50	-1,626.25	2,168.72	0.00	0.00	0.00	
11,800.00	90.00	269.90	7,520.00	2,260.33	-1,726.25	2,265.08	0.00	0.00	0.00	
11,900.00	90.00	269.90	7,520.00	2,260.16	-1,826.25	2,361.43	0.00	0.00	0.00	
12,000.00	90.00	269.90	7,520.00	2,259.98	-1,926.25	2,457.79	0.00	0.00	0.00	
12,100.00	90.00	269.90	7,520.00	2,259.81	-2,026.25	2,554.14	0.00	0.00	0.00	
12,200.00	90.00	269.90	7,520.00	2,259.63	-2,126.25	2,650.49	0.00	0.00	0.00	
12,300.00	90.00	269.90	7,520.00	2,259.46	-2,226.25	2,746.85	0.00	0.00	0.00	
12,400.00	90.00	269.90	7,520.00	2,259.29	-2,326.25	2,843.20	0.00	0.00	0.00	
12,500.00	90.00	269.90	7,520.00	2,259.11	-2,426.25	2,939.56	0.00	0.00	0.00	
12,600.00	90.00	269.90	7,520.00	2,258.94	-2,526.25	3,035.91	0.00	0.00	0.00	
12,700.00	90.00	269.90	7,520.00	2,258.76	-2,626.25	3,132.27	0.00	0.00	0.00	
12,800.00	90.00	269.90	7,520.00	2,258.59	-2,726.25	3,228.62	0.00	0.00	0.00	

Planning Report

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5062.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
Site:	Sec 12-T1S-R66W	North Reference:	True
Well:	DUCK CLUB 12W-20-1C	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)
12,900.00	90.00	269.90	7,520.00	2,258.41	-2,826.25	3,324.97	0.00	0.00	0.00
13,000.00	90.00	269.90	7,520.00	2,258.24	-2,926.25	3,421.33	0.00	0.00	0.00
13,100.00	90.00	269.90	7,520.00	2,258.06	-3,026.25	3,517.68	0.00	0.00	0.00
13,200.00	90.00	269.90	7,520.00	2,257.89	-3,126.25	3,614.04	0.00	0.00	0.00
13,300.00	90.00	269.90	7,520.00	2,257.71	-3,226.25	3,710.39	0.00	0.00	0.00
13,400.00	90.00	269.90	7,520.00	2,257.54	-3,326.25	3,806.74	0.00	0.00	0.00
13,500.00	90.00	269.90	7,520.00	2,257.36	-3,426.25	3,903.10	0.00	0.00	0.00
13,600.00	90.00	269.90	7,520.00	2,257.18	-3,526.25	3,999.45	0.00	0.00	0.00
13,700.00	90.00	269.90	7,520.00	2,257.01	-3,626.25	4,095.81	0.00	0.00	0.00
13,800.00	90.00	269.90	7,520.00	2,256.83	-3,726.25	4,192.16	0.00	0.00	0.00
13,900.00	90.00	269.90	7,520.00	2,256.66	-3,826.25	4,288.51	0.00	0.00	0.00
14,000.00	90.00	269.90	7,520.00	2,256.48	-3,926.25	4,384.87	0.00	0.00	0.00
14,100.00	90.00	269.90	7,520.00	2,256.30	-4,026.25	4,481.22	0.00	0.00	0.00
14,200.00	90.00	269.90	7,520.00	2,256.13	-4,126.25	4,577.58	0.00	0.00	0.00
14,300.00	90.00	269.90	7,520.00	2,255.95	-4,226.25	4,673.93	0.00	0.00	0.00
14,400.00	90.00	269.90	7,520.00	2,255.77	-4,326.25	4,770.28	0.00	0.00	0.00
14,500.00	90.00	269.90	7,520.00	2,255.60	-4,426.25	4,866.64	0.00	0.00	0.00
14,600.00	90.00	269.90	7,520.00	2,255.42	-4,526.25	4,962.99	0.00	0.00	0.00
14,700.00	90.00	269.90	7,520.00	2,255.24	-4,626.25	5,059.34	0.00	0.00	0.00
14,800.00	90.00	269.90	7,520.00	2,255.06	-4,726.25	5,155.70	0.00	0.00	0.00
14,900.00	90.00	269.90	7,520.00	2,254.89	-4,826.24	5,252.05	0.00	0.00	0.00
15,000.00	90.00	269.90	7,520.00	2,254.71	-4,926.24	5,348.40	0.00	0.00	0.00
15,100.00	90.00	269.90	7,520.00	2,254.53	-5,026.24	5,444.76	0.00	0.00	0.00
15,200.00	90.00	269.90	7,520.00	2,254.35	-5,126.24	5,541.11	0.00	0.00	0.00
15,300.00	90.00	269.90	7,520.00	2,254.17	-5,226.24	5,637.46	0.00	0.00	0.00
15,400.00	90.00	269.90	7,520.00	2,254.00	-5,326.24	5,733.82	0.00	0.00	0.00
15,500.00	90.00	269.90	7,520.00	2,253.82	-5,426.24	5,830.17	0.00	0.00	0.00
15,600.00	90.00	269.90	7,520.00	2,253.64	-5,526.24	5,926.52	0.00	0.00	0.00
15,700.00	90.00	269.90	7,520.00	2,253.46	-5,626.24	6,022.88	0.00	0.00	0.00
15,800.00	90.00	269.90	7,520.00	2,253.28	-5,726.24	6,119.23	0.00	0.00	0.00
15,900.00	90.00	269.90	7,520.00	2,253.10	-5,826.24	6,215.58	0.00	0.00	0.00
16,000.00	90.00	269.90	7,520.00	2,252.93	-5,926.24	6,311.94	0.00	0.00	0.00
16,100.00	90.00	269.90	7,520.00	2,252.75	-6,026.24	6,408.29	0.00	0.00	0.00
16,200.00	90.00	269.90	7,520.00	2,252.57	-6,126.24	6,504.64	0.00	0.00	0.00
16,300.00	90.00	269.90	7,520.00	2,252.39	-6,226.24	6,601.00	0.00	0.00	0.00
16,400.00	90.00	269.90	7,520.00	2,252.21	-6,326.24	6,697.35	0.00	0.00	0.00
16,500.00	90.00	269.90	7,520.00	2,252.03	-6,426.24	6,793.70	0.00	0.00	0.00
16,600.00	90.00	269.90	7,520.00	2,251.85	-6,526.24	6,890.06	0.00	0.00	0.00
16,700.00	90.00	269.90	7,520.00	2,251.67	-6,626.24	6,986.41	0.00	0.00	0.00
16,800.00	90.00	269.90	7,520.00	2,251.49	-6,726.24	7,082.76	0.00	0.00	0.00
16,900.00	90.00	269.90	7,520.00	2,251.31	-6,826.24	7,179.11	0.00	0.00	0.00
17,000.00	90.00	269.90	7,520.00	2,251.13	-6,926.24	7,275.47	0.00	0.00	0.00
17,100.00	90.00	269.90	7,520.00	2,250.95	-7,026.24	7,371.82	0.00	0.00	0.00
17,200.00	90.00	269.90	7,520.00	2,250.77	-7,126.24	7,468.17	0.00	0.00	0.00
17,300.00	90.00	269.90	7,520.00	2,250.59	-7,226.24	7,564.53	0.00	0.00	0.00
17,400.00	90.00	269.90	7,520.00	2,250.41	-7,326.24	7,660.88	0.00	0.00	0.00
17,500.00	90.00	269.90	7,520.00	2,250.23	-7,426.24	7,757.23	0.00	0.00	0.00
17,600.00	90.00	269.90	7,520.00	2,250.05	-7,526.24	7,853.58	0.00	0.00	0.00
17,700.00	90.00	269.90	7,520.00	2,249.87	-7,626.24	7,949.94	0.00	0.00	0.00
17,800.00	90.00	269.90	7,520.00	2,249.68	-7,726.24	8,046.29	0.00	0.00	0.00
17,900.00	90.00	269.90	7,520.00	2,249.50	-7,826.24	8,142.64	0.00	0.00	0.00
18,000.00	90.00	269.90	7,520.00	2,249.32	-7,926.24	8,238.99	0.00	0.00	0.00
18,100.00	90.00	269.90	7,520.00	2,249.14	-8,026.24	8,335.35	0.00	0.00	0.00
18,200.00	90.00	269.90	7,520.00	2,248.96	-8,126.24	8,431.70	0.00	0.00	0.00

Planning Report

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Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5062.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5062.00usft
Site:	Sec 12-T1S-R66W	North Reference:	True
Well:	DUCK CLUB 12W-20-1C	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)
18,227.95	90.00	269.90	7,520.00	2,248.91	-8,154.19	8,458.63	0.00	0.00	0.00
TD at 18227.95									

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
DC 1C - LP - plan hits target center - Point	0.00	0.00	7,520.00	2,265.83	1,476.72	1,238,574.15	3,216,976.96	39° 59' 8.412 N	104° 43' 32.376 W
DC 1C - PBHL - plan hits target center - Point	0.00	0.00	7,520.00	2,248.91	-8,154.19	1,238,473.71	3,207,346.56	39° 59' 8.232 N	104° 45' 36.108 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,335.88	3,900.00	PARKMAN				
5,323.87	4,755.00	SUSSEX				
7,810.70	7,060.00	SHARON SPRINGS				
7,837.36	7,086.00	NIOBRARA				
8,052.30	7,280.00	NIO B				
8,410.79	7,490.00	FORT HAYS				
8,597.03	7,520.00	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
1,603.62	1,535.53	286.03	258.64	Start 4559.71 hold at 1603.62 MD
6,163.34	5,481.47	1,980.77	1,791.08	Start Drop -2.00
7,666.96	6,917.00	2,266.80	2,049.72	Start 30.00 hold at 7666.96 MD
7,696.96	6,947.00	2,266.80	2,049.72	Start DLS 10.00 TFO 269.90
8,597.03	7,520.00	2,265.83	1,476.72	Start DLS 0.00 TFO -91.95
18,227.95	7,520.00	2,248.91	-8,154.19	TD at 18227.95