

# **EXTRACTION OIL & GAS**

**Adams County**

**Sec 12-T1S-R66W**

**DUCK CLUB 12W-20-8C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**26 March, 2018**



Project: Adams County  
Site: Sec 12-T1S-R66W  
Well: DUCK CLUB 12W-20-8C  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL 1



Azimuths to True North  
Magnetic North: 8.12°  
Magnetic Field  
Strength: 52138.6nT  
Dip Angle: 66.51°  
Date: 10/10/2017  
Model: IGRF2015

#### WELL DETAILS: DUCK CLUB 12W-20-8C

				5037.00					
	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude			Slot
	0.00	0.00	1236098.83	3215513.24	39° 58' 44.076 N	104° 43' 51.456 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	800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	
3	1939.85	22.80	99.26	1910.01	-36.01	220.87	2.00	99.26	-219.25	
4	6167.04	22.80	99.26	5806.99	-299.59	1837.43	0.00	0.00	-1823.93	
5	7306.89	0.00	0.00	6917.00	-335.60	2058.30	2.00	180.00	-2043.18	
6	7336.89	0.00	0.00	6947.00	-335.60	2058.30	0.00	0.00	-2043.18	
7	8236.97	90.00	270.05	7520.00	-335.08	1485.29	10.00	270.05	-1470.66	DC 8C - LP
8	17854.94	90.00	270.05	7520.00	-326.51	-8132.68	0.00	0.00	8139.23	DC 8C - PBHL

#### ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	Start Build 2.00
1939.85	22.80	99.26	1910.01	-36.01	220.87	-219.25	223.79	Start 4227.19 hold at 1939.85 MD
6167.04	22.80	99.26	5806.99	-299.59	1837.43	-1823.93	1861.69	Start Drop -2.00
7306.89	0.00	0.00	6917.00	-335.60	2058.30	-2043.18	2085.48	Start 30.00 hold at 7306.89 MD
7336.89	0.00	0.00	6947.00	-335.60	2058.30	-2043.18	2085.48	Start DLS 10.00 TFO 270.05
8236.97	90.00	270.05	7520.00	-335.08	1485.29	-1470.66	2658.49	Start 9617.98 hold at 8236.97 MD
17854.94	90.00	270.05	7520.00	-326.51	-8132.68	8139.23	12276.46	TD at 17854.94

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	39° 58'	Latitude	Longitude	Shape
DC 8C - LP	7520.00	-335.08	1485.29	1235776.64	3217001.39	39° 58'	40.764 N	104° 43' 32.376 W	Point
- plan hits target center									
DC 8C - PBHL	7520.00	-326.51	-8132.68	1235701.80	3207383.70	39° 58'	40.836 N	104° 45' 35.928 W	Point
- plan hits target center									

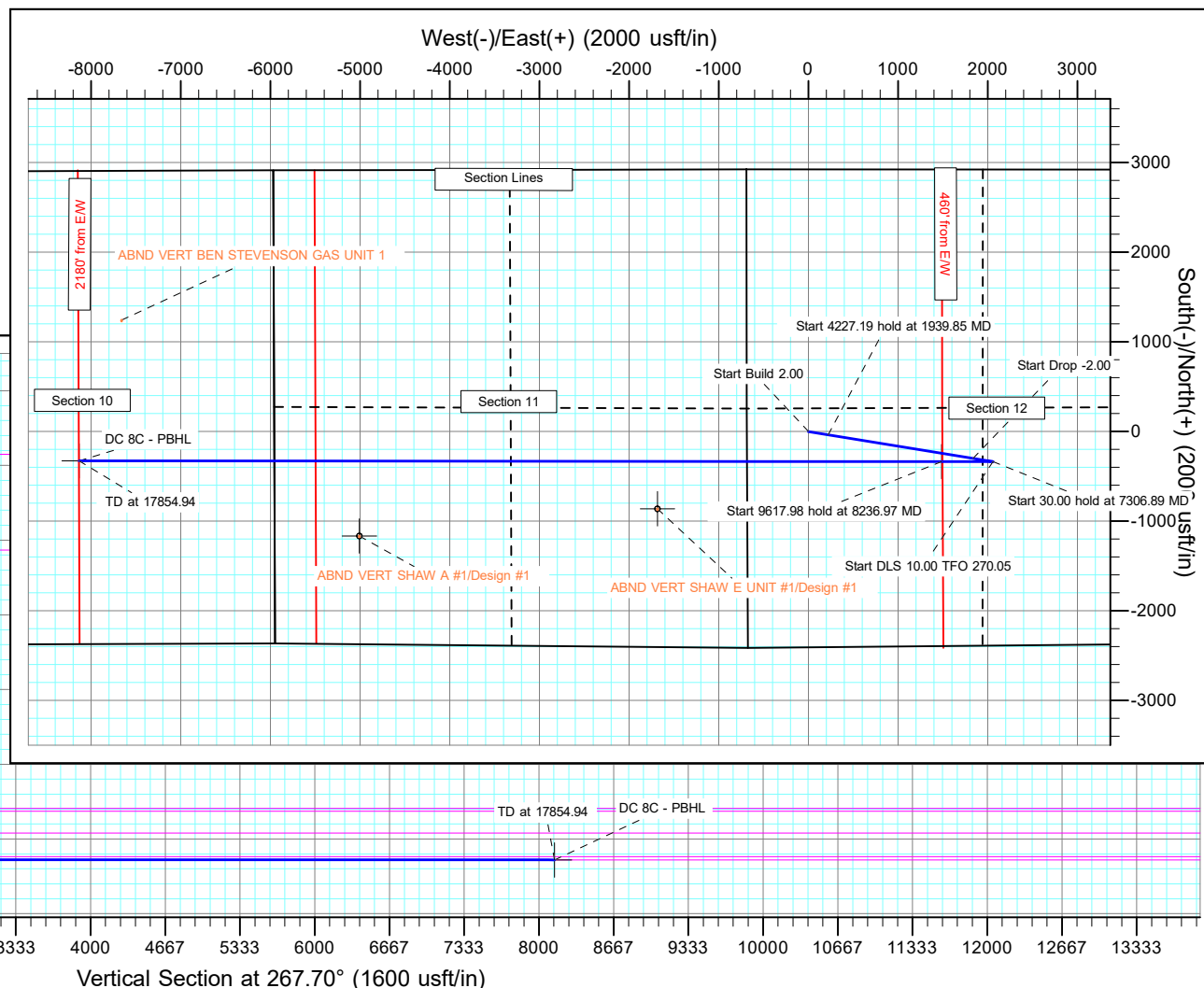
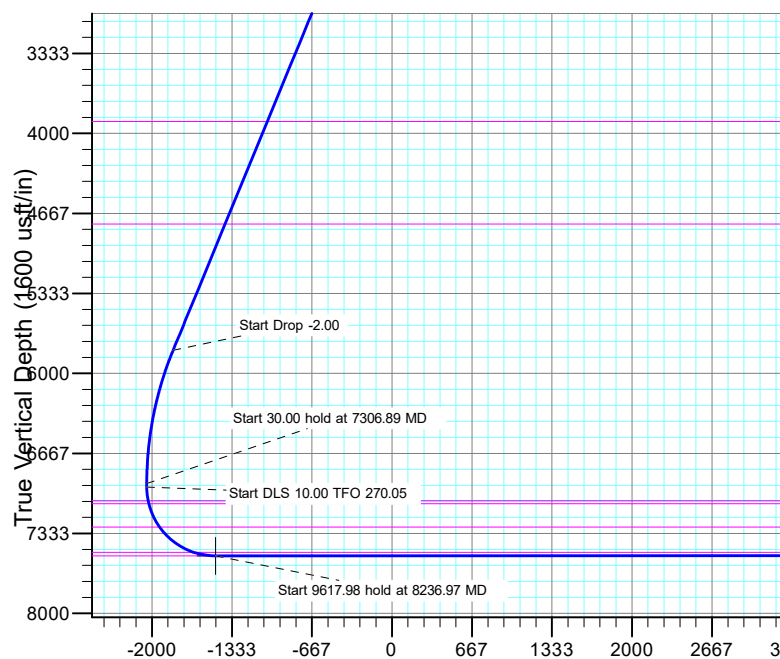
#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3900.00	4098.46	PARKMAN
4755.00	5025.91	SUSSEX
7080.00	7450.64	SHARON SPRINGS
7086.00	7477.29	NIOBRARA
7280.00	7692.23	NIO B
7490.00	8050.72	FORT HAYS
7520.00	8236.97	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:  
2408' FSL, 686' FWL  
Sec 12-T1S-R66W  
  
LP:  
2060' FSL, 2169' FWL  
Sec 12-T1S-R66W  
  
BHL:  
2044' FSL, 2178' FEL  
Sec 10-T1S-R66W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	Adams 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 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-20-8C					
Well Position	+N/-S	-2,925.72 usft	Northing:	1,236,098.83 usft	Latitude:	39° 58' 44.076 N
	+E/-W	691.57 usft	Easting:	3,215,513.25 usft	Longitude:	104° 43' 51.456 W
Position Uncertainty	0.00 usft		Wellhead Elevation:		Ground Level:	5,037.00 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	10/10/2017	8.12	66.51	52,138.57643280

<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	267.70

<b>Plan Survey Tool Program</b>	<b>Date</b>	3/26/2018		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	17,854.91	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	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,939.85	22.80	99.26	1,910.01	-36.01	220.87	2.00	2.00	0.00	99.26	
6,167.04	22.80	99.26	5,806.99	-299.59	1,837.43	0.00	0.00	0.00	0.00	
7,306.89	0.00	0.00	6,917.00	-335.60	2,058.30	2.00	-2.00	0.00	180.00	
7,336.89	0.00	0.00	6,947.00	-335.60	2,058.30	0.00	0.00	0.00	0.00	
8,236.97	90.00	270.05	7,520.00	-335.08	1,485.29	10.00	10.00	-9.99	270.05	DC 8C - LP
17,854.94	90.00	270.05	7,520.00	-326.51	-8,132.68	0.00	0.00	0.00	0.00	DC 8C - PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
900.00	2.00	99.26	899.98	-0.28	1.72	-1.71	2.00	2.00	0.00
1,000.00	4.00	99.26	999.84	-1.12	6.89	-6.84	2.00	2.00	0.00
1,100.00	6.00	99.26	1,099.45	-2.53	15.49	-15.38	2.00	2.00	0.00
1,200.00	8.00	99.26	1,198.70	-4.49	27.52	-27.31	2.00	2.00	0.00
1,300.00	10.00	99.26	1,297.47	-7.00	42.96	-42.64	2.00	2.00	0.00
1,400.00	12.00	99.26	1,395.62	-10.07	61.79	-61.33	2.00	2.00	0.00
1,500.00	14.00	99.26	1,493.06	-13.69	83.99	-83.37	2.00	2.00	0.00
1,600.00	16.00	99.26	1,589.64	-17.86	109.53	-108.73	2.00	2.00	0.00
1,700.00	18.00	99.26	1,685.27	-22.56	138.39	-137.37	2.00	2.00	0.00
1,800.00	20.00	99.26	1,779.82	-27.80	170.52	-169.26	2.00	2.00	0.00
1,900.00	22.00	99.26	1,873.17	-33.57	205.88	-204.37	2.00	2.00	0.00
1,939.85	22.80	99.26	1,910.01	-36.01	220.87	-219.25	2.00	2.00	0.00
Start 4227.19 hold at 1939.85 MD									
2,000.00	22.80	99.26	1,965.46	-39.76	243.87	-242.08	0.00	0.00	0.00
2,100.00	22.80	99.26	2,057.65	-46.00	282.12	-280.04	0.00	0.00	0.00
2,200.00	22.80	99.26	2,149.84	-52.23	320.36	-318.00	0.00	0.00	0.00
2,300.00	22.80	99.26	2,242.03	-58.47	358.60	-355.97	0.00	0.00	0.00
2,400.00	22.80	99.26	2,334.22	-64.70	396.84	-393.93	0.00	0.00	0.00
2,500.00	22.80	99.26	2,426.40	-70.94	435.08	-431.89	0.00	0.00	0.00
2,600.00	22.80	99.26	2,518.59	-77.17	473.33	-469.85	0.00	0.00	0.00
2,700.00	22.80	99.26	2,610.78	-83.41	511.57	-507.81	0.00	0.00	0.00
2,800.00	22.80	99.26	2,702.97	-89.64	549.81	-545.77	0.00	0.00	0.00
2,900.00	22.80	99.26	2,795.16	-95.88	588.05	-583.73	0.00	0.00	0.00
3,000.00	22.80	99.26	2,887.35	-102.12	626.29	-621.69	0.00	0.00	0.00
3,100.00	22.80	99.26	2,979.53	-108.35	664.53	-659.65	0.00	0.00	0.00
3,200.00	22.80	99.26	3,071.72	-114.59	702.78	-697.61	0.00	0.00	0.00
3,300.00	22.80	99.26	3,163.91	-120.82	741.02	-735.57	0.00	0.00	0.00
3,400.00	22.80	99.26	3,256.10	-127.06	779.26	-773.54	0.00	0.00	0.00
3,500.00	22.80	99.26	3,348.29	-133.29	817.50	-811.50	0.00	0.00	0.00
3,600.00	22.80	99.26	3,440.48	-139.53	855.74	-849.46	0.00	0.00	0.00
3,700.00	22.80	99.26	3,532.66	-145.76	893.99	-887.42	0.00	0.00	0.00
3,800.00	22.80	99.26	3,624.85	-152.00	932.23	-925.38	0.00	0.00	0.00
3,900.00	22.80	99.26	3,717.04	-158.23	970.47	-963.34	0.00	0.00	0.00
4,000.00	22.80	99.26	3,809.23	-164.47	1,008.71	-1,001.30	0.00	0.00	0.00
4,098.46	22.80	99.26	3,900.00	-170.61	1,046.37	-1,038.68	0.00	0.00	0.00
PARKMAN									
4,100.00	22.80	99.26	3,901.42	-170.70	1,046.95	-1,039.26	0.00	0.00	0.00
4,200.00	22.80	99.26	3,993.61	-176.94	1,085.20	-1,077.22	0.00	0.00	0.00
4,300.00	22.80	99.26	4,085.79	-183.17	1,123.44	-1,115.18	0.00	0.00	0.00
4,400.00	22.80	99.26	4,177.98	-189.41	1,161.68	-1,153.15	0.00	0.00	0.00
4,500.00	22.80	99.26	4,270.17	-195.64	1,199.92	-1,191.11	0.00	0.00	0.00
4,600.00	22.80	99.26	4,362.36	-201.88	1,238.16	-1,229.07	0.00	0.00	0.00
4,700.00	22.80	99.26	4,454.55	-208.11	1,276.40	-1,267.03	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,800.00	22.80	99.26	4,546.74	-214.35	1,314.65	-1,304.99	0.00	0.00	0.00	
4,900.00	22.80	99.26	4,638.92	-220.58	1,352.89	-1,342.95	0.00	0.00	0.00	
5,000.00	22.80	99.26	4,731.11	-226.82	1,391.13	-1,380.91	0.00	0.00	0.00	
5,025.91	22.80	99.26	4,755.00	-228.44	1,401.04	-1,390.75	0.00	0.00	0.00	
<b>SUSSEX</b>										
5,100.00	22.80	99.26	4,823.30	-233.06	1,429.37	-1,418.87	0.00	0.00	0.00	
5,200.00	22.80	99.26	4,915.49	-239.29	1,467.61	-1,456.83	0.00	0.00	0.00	
5,300.00	22.80	99.26	5,007.68	-245.53	1,505.86	-1,494.79	0.00	0.00	0.00	
5,400.00	22.80	99.26	5,099.87	-251.76	1,544.10	-1,532.76	0.00	0.00	0.00	
5,500.00	22.80	99.26	5,192.05	-258.00	1,582.34	-1,570.72	0.00	0.00	0.00	
5,600.00	22.80	99.26	5,284.24	-264.23	1,620.58	-1,608.68	0.00	0.00	0.00	
5,700.00	22.80	99.26	5,376.43	-270.47	1,658.82	-1,646.64	0.00	0.00	0.00	
5,800.00	22.80	99.26	5,468.62	-276.70	1,697.07	-1,684.60	0.00	0.00	0.00	
5,900.00	22.80	99.26	5,560.81	-282.94	1,735.31	-1,722.56	0.00	0.00	0.00	
6,000.00	22.80	99.26	5,653.00	-289.17	1,773.55	-1,760.52	0.00	0.00	0.00	
6,100.00	22.80	99.26	5,745.18	-295.41	1,811.79	-1,798.48	0.00	0.00	0.00	
6,167.04	22.80	99.26	5,806.99	-299.59	1,837.43	-1,823.93	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
6,200.00	22.14	99.26	5,837.44	-301.61	1,849.86	-1,836.27	2.00	-2.00	0.00	
6,300.00	20.14	99.26	5,930.71	-307.42	1,885.45	-1,871.60	2.00	-2.00	0.00	
6,400.00	18.14	99.26	6,025.18	-312.69	1,917.80	-1,903.72	2.00	-2.00	0.00	
6,500.00	16.14	99.26	6,120.73	-317.43	1,946.89	-1,932.59	2.00	-2.00	0.00	
6,600.00	14.14	99.26	6,217.26	-321.64	1,972.66	-1,958.17	2.00	-2.00	0.00	
6,700.00	12.14	99.26	6,314.64	-325.29	1,995.09	-1,980.44	2.00	-2.00	0.00	
6,800.00	10.14	99.26	6,412.75	-328.40	2,014.16	-1,999.36	2.00	-2.00	0.00	
6,900.00	8.14	99.26	6,511.47	-330.96	2,029.83	-2,014.92	2.00	-2.00	0.00	
7,000.00	6.14	99.26	6,610.69	-332.96	2,042.09	-2,027.09	2.00	-2.00	0.00	
7,100.00	4.14	99.26	6,710.29	-334.40	2,050.93	-2,035.86	2.00	-2.00	0.00	
7,200.00	2.14	99.26	6,810.13	-335.28	2,056.33	-2,041.23	2.00	-2.00	0.00	
7,306.89	0.00	0.00	6,917.00	-335.60	2,058.30	-2,043.18	2.00	-2.00	0.00	
<b>Start 30.00 hold at 7306.89 MD</b>										
7,336.89	0.00	0.00	6,947.00	-335.60	2,058.30	-2,043.18	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 270.05</b>										
7,350.00	1.31	270.05	6,960.11	-335.60	2,058.15	-2,043.03	10.00	10.00	0.00	
7,400.00	6.31	270.05	7,009.98	-335.60	2,054.83	-2,039.71	10.00	10.00	0.00	
7,450.00	11.31	270.05	7,059.38	-335.59	2,047.17	-2,032.06	10.00	10.00	0.00	
7,450.64	11.37	270.05	7,060.00	-335.59	2,047.05	-2,031.94	10.00	10.00	0.00	
<b>SHARON SPRINGS</b>										
7,477.29	14.04	270.05	7,086.00	-335.58	2,041.18	-2,026.08	10.00	10.00	0.00	
<b>NIOBRARA</b>										
7,500.00	16.31	270.05	7,107.91	-335.58	2,035.24	-2,020.14	10.00	10.00	0.00	
7,550.00	21.31	270.05	7,155.23	-335.56	2,019.13	-2,004.04	10.00	10.00	0.00	
7,600.00	26.31	270.05	7,200.96	-335.55	1,998.95	-1,983.88	10.00	10.00	0.00	
7,650.00	31.31	270.05	7,244.76	-335.52	1,974.86	-1,959.81	10.00	10.00	0.00	
7,692.23	35.53	270.05	7,280.00	-335.50	1,951.60	-1,936.58	10.00	10.00	0.00	
<b>NIO B</b>										
7,700.00	36.31	270.05	7,286.29	-335.50	1,947.05	-1,932.02	10.00	10.00	0.00	
7,750.00	41.31	270.05	7,325.24	-335.47	1,915.72	-1,900.72	10.00	10.00	0.00	
7,800.00	46.31	270.05	7,361.31	-335.44	1,881.12	-1,866.15	10.00	10.00	0.00	
7,850.00	51.31	270.05	7,394.23	-335.40	1,843.51	-1,828.57	10.00	10.00	0.00	
7,900.00	56.31	270.05	7,423.75	-335.37	1,803.17	-1,788.27	10.00	10.00	0.00	
7,950.00	61.31	270.05	7,449.64	-335.33	1,760.41	-1,745.54	10.00	10.00	0.00	
8,000.00	66.31	270.05	7,471.70	-335.29	1,715.56	-1,700.73	10.00	10.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,050.00	71.31	270.05	7,489.77	-335.25	1,668.96	-1,654.17	10.00	10.00	0.00
8,050.72	71.38	270.05	7,490.00	-335.25	1,668.28	-1,653.48	10.00	10.00	0.00
<b>FORT HAYS</b>									
8,100.00	76.31	270.05	7,503.71	-335.20	1,620.96	-1,606.21	10.00	10.00	0.00
8,150.00	81.30	270.05	7,513.41	-335.16	1,571.93	-1,557.21	10.00	10.00	0.00
8,200.00	86.30	270.05	7,518.81	-335.11	1,522.23	-1,507.56	10.00	10.00	0.00
8,236.97	90.00	270.05	7,520.00	-335.08	1,485.29	-1,470.66	10.00	10.00	0.00
<b>Start 9617.98 hold at 8236.97 MD - CODELL</b>									
8,300.00	90.00	270.05	7,520.00	-335.02	1,422.26	-1,407.67	0.00	0.00	0.00
8,400.00	90.00	270.05	7,520.00	-334.93	1,322.26	-1,307.76	0.00	0.00	0.00
8,500.00	90.00	270.05	7,520.00	-334.84	1,222.26	-1,207.84	0.00	0.00	0.00
8,600.00	90.00	270.05	7,520.00	-334.75	1,122.26	-1,107.93	0.00	0.00	0.00
8,700.00	90.00	270.05	7,519.99	-334.66	1,022.26	-1,008.01	0.00	0.00	0.00
8,800.00	90.00	270.05	7,519.99	-334.57	922.26	-908.10	0.00	0.00	0.00
8,900.00	90.00	270.05	7,519.99	-334.47	822.26	-808.18	0.00	0.00	0.00
9,000.00	90.00	270.05	7,519.99	-334.38	722.26	-708.26	0.00	0.00	0.00
9,100.00	90.00	270.05	7,519.99	-334.29	622.26	-608.35	0.00	0.00	0.00
9,200.00	90.00	270.05	7,519.99	-334.20	522.26	-508.43	0.00	0.00	0.00
9,300.00	90.00	270.05	7,519.99	-334.11	422.26	-408.52	0.00	0.00	0.00
9,400.00	90.00	270.05	7,519.99	-334.02	322.26	-308.60	0.00	0.00	0.00
9,500.00	90.00	270.05	7,519.98	-333.93	222.26	-208.68	0.00	0.00	0.00
9,600.00	90.00	270.05	7,519.98	-333.84	122.26	-108.77	0.00	0.00	0.00
9,700.00	90.00	270.05	7,519.98	-333.75	22.26	-8.85	0.00	0.00	0.00
9,800.00	90.00	270.05	7,519.98	-333.66	-77.74	91.06	0.00	0.00	0.00
9,900.00	90.00	270.05	7,519.98	-333.56	-177.74	190.98	0.00	0.00	0.00
10,000.00	90.00	270.05	7,519.98	-333.47	-277.74	290.89	0.00	0.00	0.00
10,100.00	90.00	270.05	7,519.98	-333.38	-377.74	390.81	0.00	0.00	0.00
10,200.00	90.00	270.05	7,519.98	-333.29	-477.74	490.73	0.00	0.00	0.00
10,300.00	90.00	270.05	7,519.97	-333.20	-577.74	590.64	0.00	0.00	0.00
10,400.00	90.00	270.05	7,519.97	-333.11	-677.74	690.56	0.00	0.00	0.00
10,500.00	90.00	270.05	7,519.97	-333.02	-777.74	790.47	0.00	0.00	0.00
10,600.00	90.00	270.05	7,519.97	-332.93	-877.74	890.39	0.00	0.00	0.00
10,700.00	90.00	270.05	7,519.97	-332.84	-977.74	990.31	0.00	0.00	0.00
10,800.00	90.00	270.05	7,519.97	-332.75	-1,077.74	1,090.22	0.00	0.00	0.00
10,900.00	90.00	270.05	7,519.97	-332.65	-1,177.74	1,190.14	0.00	0.00	0.00
11,000.00	90.00	270.05	7,519.97	-332.56	-1,277.74	1,290.05	0.00	0.00	0.00
11,100.00	90.00	270.05	7,519.97	-332.47	-1,377.74	1,389.97	0.00	0.00	0.00
11,200.00	90.00	270.05	7,519.96	-332.38	-1,477.74	1,489.88	0.00	0.00	0.00
11,300.00	90.00	270.05	7,519.96	-332.29	-1,577.74	1,589.80	0.00	0.00	0.00
11,400.00	90.00	270.05	7,519.96	-332.20	-1,677.74	1,689.72	0.00	0.00	0.00
11,500.00	90.00	270.05	7,519.96	-332.11	-1,777.74	1,789.63	0.00	0.00	0.00
11,600.00	90.00	270.05	7,519.96	-332.02	-1,877.74	1,889.55	0.00	0.00	0.00
11,700.00	90.00	270.05	7,519.96	-331.93	-1,977.74	1,989.46	0.00	0.00	0.00
11,800.00	90.00	270.05	7,519.96	-331.84	-2,077.74	2,089.38	0.00	0.00	0.00
11,900.00	90.00	270.05	7,519.96	-331.74	-2,177.74	2,189.30	0.00	0.00	0.00
12,000.00	90.00	270.05	7,519.95	-331.65	-2,277.74	2,289.21	0.00	0.00	0.00
12,100.00	90.00	270.05	7,519.95	-331.56	-2,377.74	2,389.13	0.00	0.00	0.00
12,200.00	90.00	270.05	7,519.95	-331.47	-2,477.74	2,489.04	0.00	0.00	0.00
12,300.00	90.00	270.05	7,519.95	-331.38	-2,577.74	2,588.96	0.00	0.00	0.00
12,400.00	90.00	270.05	7,519.95	-331.29	-2,677.74	2,688.87	0.00	0.00	0.00
12,500.00	90.00	270.05	7,519.95	-331.20	-2,777.74	2,788.79	0.00	0.00	0.00
12,600.00	90.00	270.05	7,519.95	-331.11	-2,877.74	2,888.71	0.00	0.00	0.00
12,700.00	90.00	270.05	7,519.95	-331.02	-2,977.74	2,988.62	0.00	0.00	0.00
12,800.00	90.00	270.05	7,519.94	-330.93	-3,077.74	3,088.54	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,900.00	90.00	270.05	7,519.94	-330.83	-3,177.74	3,188.45	0.00	0.00	0.00
13,000.00	90.00	270.05	7,519.94	-330.74	-3,277.74	3,288.37	0.00	0.00	0.00
13,100.00	90.00	270.05	7,519.94	-330.65	-3,377.74	3,388.28	0.00	0.00	0.00
13,200.00	90.00	270.05	7,519.94	-330.56	-3,477.74	3,488.20	0.00	0.00	0.00
13,300.00	90.00	270.05	7,519.94	-330.47	-3,577.74	3,588.12	0.00	0.00	0.00
13,400.00	90.00	270.05	7,519.94	-330.38	-3,677.74	3,688.03	0.00	0.00	0.00
13,500.00	90.00	270.05	7,519.94	-330.29	-3,777.74	3,787.95	0.00	0.00	0.00
13,600.00	90.00	270.05	7,519.93	-330.20	-3,877.74	3,887.86	0.00	0.00	0.00
13,700.00	90.00	270.05	7,519.93	-330.11	-3,977.74	3,987.78	0.00	0.00	0.00
13,800.00	90.00	270.05	7,519.93	-330.01	-4,077.74	4,087.70	0.00	0.00	0.00
13,900.00	90.00	270.05	7,519.93	-329.92	-4,177.74	4,187.61	0.00	0.00	0.00
14,000.00	90.00	270.05	7,519.93	-329.83	-4,277.74	4,287.53	0.00	0.00	0.00
14,100.00	90.00	270.05	7,519.93	-329.74	-4,377.74	4,387.44	0.00	0.00	0.00
14,200.00	90.00	270.05	7,519.93	-329.65	-4,477.74	4,487.36	0.00	0.00	0.00
14,300.00	90.00	270.05	7,519.93	-329.56	-4,577.74	4,587.27	0.00	0.00	0.00
14,400.00	90.00	270.05	7,519.92	-329.47	-4,677.74	4,687.19	0.00	0.00	0.00
14,500.00	90.00	270.05	7,519.92	-329.38	-4,777.74	4,787.11	0.00	0.00	0.00
14,600.00	90.00	270.05	7,519.92	-329.29	-4,877.74	4,887.02	0.00	0.00	0.00
14,700.00	90.00	270.05	7,519.92	-329.20	-4,977.74	4,986.94	0.00	0.00	0.00
14,800.00	90.00	270.05	7,519.92	-329.10	-5,077.74	5,086.85	0.00	0.00	0.00
14,900.00	90.00	270.05	7,519.92	-329.01	-5,177.74	5,186.77	0.00	0.00	0.00
15,000.00	90.00	270.05	7,519.92	-328.92	-5,277.74	5,286.69	0.00	0.00	0.00
15,100.00	90.00	270.05	7,519.92	-328.83	-5,377.74	5,386.60	0.00	0.00	0.00
15,200.00	90.00	270.05	7,519.92	-328.74	-5,477.74	5,486.52	0.00	0.00	0.00
15,300.00	90.00	270.05	7,519.91	-328.65	-5,577.74	5,586.43	0.00	0.00	0.00
15,400.00	90.00	270.05	7,519.91	-328.56	-5,677.74	5,686.35	0.00	0.00	0.00
15,500.00	90.00	270.05	7,519.91	-328.47	-5,777.74	5,786.26	0.00	0.00	0.00
15,600.00	90.00	270.05	7,519.91	-328.38	-5,877.74	5,886.18	0.00	0.00	0.00
15,700.00	90.00	270.05	7,519.91	-328.29	-5,977.74	5,986.10	0.00	0.00	0.00
15,800.00	90.00	270.05	7,519.91	-328.19	-6,077.74	6,086.01	0.00	0.00	0.00
15,900.00	90.00	270.05	7,519.91	-328.10	-6,177.74	6,185.93	0.00	0.00	0.00
16,000.00	90.00	270.05	7,519.91	-328.01	-6,277.74	6,285.84	0.00	0.00	0.00
16,100.00	90.00	270.05	7,519.90	-327.92	-6,377.74	6,385.76	0.00	0.00	0.00
16,200.00	90.00	270.05	7,519.90	-327.83	-6,477.74	6,485.68	0.00	0.00	0.00
16,300.00	90.00	270.05	7,519.90	-327.74	-6,577.74	6,585.59	0.00	0.00	0.00
16,400.00	90.00	270.05	7,519.90	-327.65	-6,677.74	6,685.51	0.00	0.00	0.00
16,500.00	90.00	270.05	7,519.90	-327.56	-6,777.74	6,785.42	0.00	0.00	0.00
16,600.00	90.00	270.05	7,519.90	-327.47	-6,877.74	6,885.34	0.00	0.00	0.00
16,700.00	90.00	270.05	7,519.90	-327.38	-6,977.74	6,985.25	0.00	0.00	0.00
16,800.00	90.00	270.05	7,519.90	-327.28	-7,077.74	7,085.17	0.00	0.00	0.00
16,900.00	90.00	270.05	7,519.89	-327.19	-7,177.74	7,185.09	0.00	0.00	0.00
17,000.00	90.00	270.05	7,519.89	-327.10	-7,277.74	7,285.00	0.00	0.00	0.00
17,100.00	90.00	270.05	7,519.89	-327.01	-7,377.74	7,384.92	0.00	0.00	0.00
17,200.00	90.00	270.05	7,519.89	-326.92	-7,477.74	7,484.83	0.00	0.00	0.00
17,300.00	90.00	270.05	7,519.89	-326.83	-7,577.74	7,584.75	0.00	0.00	0.00
17,400.00	90.00	270.05	7,519.89	-326.74	-7,677.74	7,684.66	0.00	0.00	0.00
17,500.00	90.00	270.05	7,519.89	-326.65	-7,777.74	7,784.58	0.00	0.00	0.00
17,600.00	90.00	270.05	7,519.89	-326.56	-7,877.74	7,884.50	0.00	0.00	0.00
17,700.00	90.00	270.05	7,519.88	-326.47	-7,977.74	7,984.41	0.00	0.00	0.00
17,800.00	90.00	270.05	7,519.88	-326.37	-8,077.74	8,084.33	0.00	0.00	0.00
17,854.94	90.00	270.05	7,520.00	-326.51	-8,132.68	8,139.23	0.00	0.00	0.00
TD at 17854.94									

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-8C
<b>Company:</b>	EXTRACTION OIL & GAS	<b>TVD Reference:</b>	KB 25' @ 5062.00usft
<b>Project:</b>	Adams County	<b>MD Reference:</b>	KB 25' @ 5062.00usft
<b>Site:</b>	Sec 12-T1S-R66W	<b>North Reference:</b>	True
<b>Well:</b>	DUCK CLUB 12W-20-8C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
DC 8C - LP	0.00	0.00	7,520.00	-335.08	1,485.29	1,235,776.64	3,217,001.39	39° 58' 40.764 N	104° 43' 32.376 W
- plan hits target center									
- Point									
DC 8C - PBHL	0.00	0.00	7,520.00	-326.51	-8,132.68	1,235,701.80	3,207,383.70	39° 58' 40.836 N	104° 45' 35.928 W
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
4,098.46	3,900.00	PARKMAN				
5,025.91	4,755.00	SUSSEX				
7,450.64	7,060.00	SHARON SPRINGS				
7,477.29	7,086.00	NIOBRARA				
7,692.23	7,280.00	NIO B				
8,050.72	7,490.00	FORT HAYS				
8,236.97	7,520.00	CODELL				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment
800.00	800.00	0.00	0.00	Start Build 2.00
1,939.85	1,910.01	-36.01	220.87	Start 4227.19 hold at 1939.85 MD
6,167.04	5,806.99	-299.59	1,837.43	Start Drop -2.00
7,306.89	6,917.00	-335.60	2,058.30	Start 30.00 hold at 7306.89 MD
7,336.89	6,947.00	-335.60	2,058.30	Start DLS 10.00 TFO 270.05
8,236.97	7,520.00	-335.08	1,485.29	Start 9617.98 hold at 8236.97 MD
17,854.94	7,520.00	-326.51	-8,132.68	TD at 17854.94