

# **EXTRACTION OIL & GAS**

**Adams County**

**Sec 12-T1S-R66W**

**DUCK CLUB 12W-20-5C**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**26 March, 2018**



WELL DETAILS: DUCK CLUB 12W-20-5C

+N/-S	+E/-W	Northing	Easting	5037.00	Latitude	Longitude	Slot
0.00	0.00	1236182.64	3215515.32	39° 58' 44.904 N	104° 43' 51.420 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	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	2140.11	24.80	69.23	2101.74	93.72	247.06	2.00	69.23	-237.04	
4	6120.80	24.80	69.23	5715.26	686.01	1808.35	0.00	0.00	-1734.96	
5	7360.91	0.00	0.00	6917.00	779.73	2055.41	2.00	180.00	-1972.00	
6	7390.91	0.00	0.00	6947.00	779.73	2055.41	0.00	0.00	-1972.00	
7	8290.97	90.00	269.99	7520.00	779.59	1482.42	10.00	269.99	-1401.61	DC 5C - LP
8	17914.08	90.00	269.99	7520.00	777.24	-8140.70	0.00	0.00	8177.72	DC 5C - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	Start Build 2.00
2140.11	24.80	69.23	2101.74	93.72	247.06	-237.04	264.24	Start 3980.70 hold at 2140.11 MD
6120.80	24.80	69.23	5715.26	686.01	1808.35	-1734.96	1934.09	Start Drop -2.00
7360.91	0.00	0.00	6917.00	779.73	2055.41	-1972.00	2198.34	Start 30.00 hold at 7360.91 MD
7390.91	0.00	0.00	6947.00	779.73	2055.41	-1972.00	2198.34	Start DLS 10.00 TFO 269.99
8290.97	90.00	269.99	7520.00	779.59	1482.42	-1401.61	2771.33	Start 9623.12 hold at 8290.97 MD
17914.08	90.00	269.99	7520.00	777.24	-8140.70	8177.72	12394.44	TD at 17914.08

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	39° 58'	Latitude	Longitude	Shape
DC 5C - LP	7520.00	779.59	1482.42	1236975.06	3216990.92	39° 58'	52.608 N	104° 43' 32.376 W	Point
- plan hits target center									
DC 5C - PBHL	7520.00	777.24	-8140.70	1236889.25	3207368.19	39° 58'	52.572 N	104° 45' 36.000 W	Point
- plan hits target center									

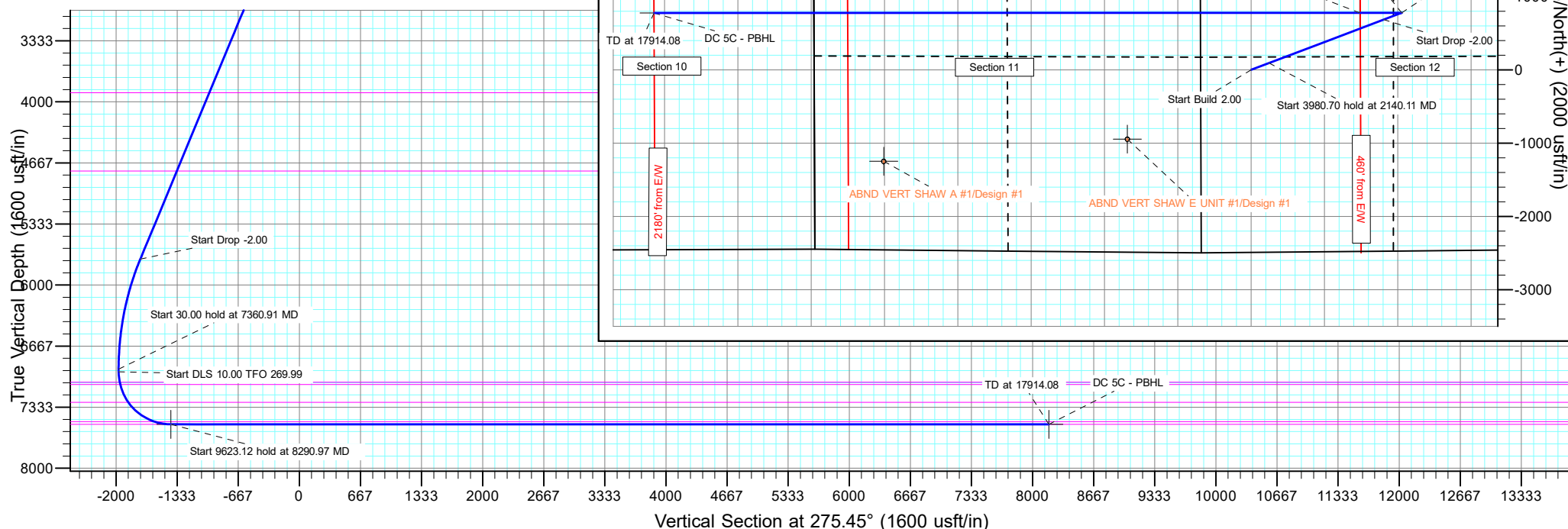
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3900.00	4121.09	PARKMAN
4755.00	5062.97	SUSSEX
7080.00	7504.66	SHARON SPRINGS
7086.00	7531.31	NIOBRARA
7280.00	7746.25	NIO B
7490.00	8104.74	FORT HAYS
7520.00	8290.97	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:  
2491' FSL, 690' FWL  
Sec 12-T1S-R66W  
LP:  
2060' FNL, 2173' FWL  
Sec 12-T1S-R66W  
BHL:  
2044' FNL, 2179' FEL  
Sec 10-T1S-R66W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<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-20-5C					
Well Position	+N/-S	-2,841.93 usft	Northing:	1,236,182.63 usft	Latitude:	39° 58' 44.904 N
	+E/-W	694.37 usft	Easting:	3,215,515.32 usft	Longitude:	104° 43' 51.420 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	52,138.69804594

<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	275.45

<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	17,914.06	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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,140.11	24.80	69.23	2,101.74	93.72	247.06	2.00	2.00	0.00	69.23	
6,120.80	24.80	69.23	5,715.26	686.01	1,808.35	0.00	0.00	0.00	0.00	
7,360.91	0.00	0.00	6,917.00	779.73	2,055.41	2.00	-2.00	0.00	180.00	
7,390.91	0.00	0.00	6,947.00	779.73	2,055.41	0.00	0.00	0.00	0.00	
8,290.97	90.00	269.99	7,520.00	779.59	1,482.42	10.00	10.00	-10.00	269.99	DC 5C - LP
17,914.08	90.00	269.99	7,520.00	777.24	-8,140.70	0.00	0.00	0.00	0.00	DC 5C - PBHL

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<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
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,000.00	2.00	69.23	999.98	0.62	1.63	-1.57	2.00	2.00	0.00
1,100.00	4.00	69.23	1,099.84	2.48	6.52	-6.26	2.00	2.00	0.00
1,200.00	6.00	69.23	1,199.45	5.57	14.67	-14.08	2.00	2.00	0.00
1,300.00	8.00	69.23	1,298.70	9.89	26.07	-25.01	2.00	2.00	0.00
1,400.00	10.00	69.23	1,397.47	15.44	40.69	-39.04	2.00	2.00	0.00
1,500.00	12.00	69.23	1,495.62	22.20	58.53	-56.16	2.00	2.00	0.00
1,600.00	14.00	69.23	1,593.06	30.18	79.56	-76.34	2.00	2.00	0.00
1,700.00	16.00	69.23	1,689.64	39.36	103.76	-99.55	2.00	2.00	0.00
1,800.00	18.00	69.23	1,785.27	49.73	131.10	-125.78	2.00	2.00	0.00
1,900.00	20.00	69.23	1,879.82	61.28	161.54	-154.98	2.00	2.00	0.00
2,000.00	22.00	69.23	1,973.17	73.99	195.04	-187.13	2.00	2.00	0.00
2,100.00	24.00	69.23	2,065.21	87.85	231.57	-222.17	2.00	2.00	0.00
2,140.11	24.80	69.23	2,101.74	93.72	247.06	-237.04	2.00	2.00	0.00
Start 3980.70 hold at 2140.11 MD									
2,200.00	24.80	69.23	2,156.11	102.64	270.55	-259.57	0.00	0.00	0.00
2,300.00	24.80	69.23	2,246.88	117.51	309.78	-297.20	0.00	0.00	0.00
2,400.00	24.80	69.23	2,337.66	132.39	349.00	-334.83	0.00	0.00	0.00
2,500.00	24.80	69.23	2,428.44	147.27	388.22	-372.46	0.00	0.00	0.00
2,600.00	24.80	69.23	2,519.21	162.15	427.44	-410.09	0.00	0.00	0.00
2,700.00	24.80	69.23	2,609.99	177.03	466.66	-447.72	0.00	0.00	0.00
2,800.00	24.80	69.23	2,700.76	191.91	505.88	-485.35	0.00	0.00	0.00
2,900.00	24.80	69.23	2,791.54	206.79	545.10	-522.98	0.00	0.00	0.00
3,000.00	24.80	69.23	2,882.32	221.67	584.33	-560.61	0.00	0.00	0.00
3,100.00	24.80	69.23	2,973.09	236.55	623.55	-598.24	0.00	0.00	0.00
3,200.00	24.80	69.23	3,063.87	251.42	662.77	-635.87	0.00	0.00	0.00
3,300.00	24.80	69.23	3,154.64	266.30	701.99	-673.50	0.00	0.00	0.00
3,400.00	24.80	69.23	3,245.42	281.18	741.21	-711.13	0.00	0.00	0.00
3,500.00	24.80	69.23	3,336.20	296.06	780.43	-748.76	0.00	0.00	0.00
3,600.00	24.80	69.23	3,426.97	310.94	819.65	-786.39	0.00	0.00	0.00
3,700.00	24.80	69.23	3,517.75	325.82	858.87	-824.02	0.00	0.00	0.00
3,800.00	24.80	69.23	3,608.53	340.70	898.10	-861.65	0.00	0.00	0.00
3,900.00	24.80	69.23	3,699.30	355.58	937.32	-899.28	0.00	0.00	0.00
4,000.00	24.80	69.23	3,790.08	370.45	976.54	-936.91	0.00	0.00	0.00
4,100.00	24.80	69.23	3,880.85	385.33	1,015.76	-974.54	0.00	0.00	0.00
4,121.09	24.80	69.23	3,900.00	388.47	1,024.03	-982.48	0.00	0.00	0.00
PARKMAN									
4,200.00	24.80	69.23	3,971.63	400.21	1,054.98	-1,012.17	0.00	0.00	0.00
4,300.00	24.80	69.23	4,062.41	415.09	1,094.20	-1,049.80	0.00	0.00	0.00
4,400.00	24.80	69.23	4,153.18	429.97	1,133.42	-1,087.43	0.00	0.00	0.00
4,500.00	24.80	69.23	4,243.96	444.85	1,172.65	-1,125.06	0.00	0.00	0.00
4,600.00	24.80	69.23	4,334.73	459.73	1,211.87	-1,162.69	0.00	0.00	0.00
4,700.00	24.80	69.23	4,425.51	474.61	1,251.09	-1,200.32	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<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	24.80	69.23	4,516.29	489.49	1,290.31	-1,237.95	0.00	0.00	0.00	
4,900.00	24.80	69.23	4,607.06	504.36	1,329.53	-1,275.58	0.00	0.00	0.00	
5,000.00	24.80	69.23	4,697.84	519.24	1,368.75	-1,313.21	0.00	0.00	0.00	
5,062.97	24.80	69.23	4,755.00	528.61	1,393.45	-1,336.90	0.00	0.00	0.00	
<b>SUSSEX</b>										
5,100.00	24.80	69.23	4,788.62	534.12	1,407.97	-1,350.83	0.00	0.00	0.00	
5,200.00	24.80	69.23	4,879.39	549.00	1,447.19	-1,388.46	0.00	0.00	0.00	
5,300.00	24.80	69.23	4,970.17	563.88	1,486.42	-1,426.09	0.00	0.00	0.00	
5,400.00	24.80	69.23	5,060.94	578.76	1,525.64	-1,463.72	0.00	0.00	0.00	
5,500.00	24.80	69.23	5,151.72	593.64	1,564.86	-1,501.35	0.00	0.00	0.00	
5,600.00	24.80	69.23	5,242.50	608.52	1,604.08	-1,538.98	0.00	0.00	0.00	
5,700.00	24.80	69.23	5,333.27	623.39	1,643.30	-1,576.61	0.00	0.00	0.00	
5,800.00	24.80	69.23	5,424.05	638.27	1,682.52	-1,614.24	0.00	0.00	0.00	
5,900.00	24.80	69.23	5,514.82	653.15	1,721.74	-1,651.87	0.00	0.00	0.00	
6,000.00	24.80	69.23	5,605.60	668.03	1,760.97	-1,689.50	0.00	0.00	0.00	
6,100.00	24.80	69.23	5,696.38	682.91	1,800.19	-1,727.13	0.00	0.00	0.00	
6,120.80	24.80	69.23	5,715.26	686.01	1,808.35	-1,734.96	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
6,200.00	23.22	69.23	5,787.60	697.43	1,838.48	-1,763.87	2.00	-2.00	0.00	
6,300.00	21.22	69.23	5,880.17	710.85	1,873.83	-1,797.78	2.00	-2.00	0.00	
6,400.00	19.22	69.23	5,974.01	723.10	1,906.14	-1,828.78	2.00	-2.00	0.00	
6,500.00	17.22	69.23	6,068.99	734.19	1,935.37	-1,856.83	2.00	-2.00	0.00	
6,600.00	15.22	69.23	6,165.00	744.10	1,961.48	-1,881.88	2.00	-2.00	0.00	
6,700.00	13.22	69.23	6,261.94	752.81	1,984.45	-1,903.91	2.00	-2.00	0.00	
6,800.00	11.22	69.23	6,359.67	760.32	2,004.23	-1,922.90	2.00	-2.00	0.00	
6,900.00	9.22	69.23	6,458.08	766.61	2,020.82	-1,938.81	2.00	-2.00	0.00	
7,000.00	7.22	69.23	6,557.04	771.68	2,034.18	-1,951.63	2.00	-2.00	0.00	
7,100.00	5.22	69.23	6,656.45	775.52	2,044.31	-1,961.35	2.00	-2.00	0.00	
7,200.00	3.22	69.23	6,756.17	778.13	2,051.19	-1,967.94	2.00	-2.00	0.00	
7,300.00	1.22	69.23	6,856.09	779.50	2,054.80	-1,971.42	2.00	-2.00	0.00	
7,360.91	0.00	0.00	6,917.00	779.73	2,055.41	-1,972.00	2.00	-2.00	0.00	
<b>Start 30.00 hold at 7360.91 MD</b>										
7,390.91	0.00	0.00	6,947.00	779.73	2,055.41	-1,972.00	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 269.99</b>										
7,400.00	0.91	269.99	6,956.09	779.73	2,055.34	-1,971.93	10.00	10.00	0.00	
7,450.00	5.91	269.99	7,005.98	779.73	2,052.37	-1,968.97	10.00	10.00	0.00	
7,500.00	10.91	269.99	7,055.43	779.73	2,045.06	-1,961.69	10.00	10.00	0.00	
7,504.66	11.37	269.99	7,060.00	779.73	2,044.16	-1,960.80	10.00	10.00	0.00	
<b>SHARON SPRINGS</b>										
7,531.31	14.04	269.99	7,086.00	779.73	2,038.29	-1,954.96	10.00	10.00	0.00	
<b>NIOBRARA</b>										
7,550.00	15.91	269.99	7,104.05	779.72	2,033.47	-1,950.15	10.00	10.00	0.00	
7,600.00	20.91	269.99	7,151.48	779.72	2,017.68	-1,934.44	10.00	10.00	0.00	
7,650.00	25.91	269.99	7,197.35	779.72	1,997.83	-1,914.68	10.00	10.00	0.00	
7,700.00	30.91	269.99	7,241.32	779.71	1,974.05	-1,891.00	10.00	10.00	0.00	
7,746.25	35.53	269.99	7,280.00	779.70	1,948.71	-1,865.79	10.00	10.00	0.00	
<b>NIO B</b>										
7,750.00	35.91	269.99	7,283.04	779.70	1,946.53	-1,863.61	10.00	10.00	0.00	
7,800.00	40.91	269.99	7,322.21	779.70	1,915.48	-1,832.70	10.00	10.00	0.00	
7,850.00	45.91	269.99	7,358.53	779.69	1,881.13	-1,798.51	10.00	10.00	0.00	
7,900.00	50.91	269.99	7,391.71	779.68	1,843.75	-1,761.30	10.00	10.00	0.00	
7,950.00	55.90	269.99	7,421.51	779.67	1,803.62	-1,721.35	10.00	10.00	0.00	
8,000.00	60.90	269.99	7,447.69	779.66	1,761.04	-1,678.97	10.00	10.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<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	65.90	269.99	7,470.07	779.65	1,716.35	-1,634.48	10.00	10.00	0.00
8,100.00	70.90	269.99	7,488.47	779.64	1,669.87	-1,588.21	10.00	10.00	0.00
8,104.74	71.38	269.99	7,490.00	779.64	1,665.39	-1,583.75	10.00	10.00	0.00
<b>FORT HAYS</b>									
8,150.00	75.90	269.99	7,502.74	779.63	1,621.97	-1,540.53	10.00	10.00	0.00
8,200.00	80.90	269.99	7,512.79	779.61	1,573.01	-1,491.79	10.00	10.00	0.00
8,250.00	85.90	269.99	7,518.54	779.60	1,523.35	-1,442.36	10.00	10.00	0.00
8,290.97	90.00	269.99	7,520.00	779.59	1,482.42	-1,401.61	10.00	10.00	0.00
<b>Start 9623.12 hold at 8290.97 MD - CODELL</b>									
8,300.00	90.00	269.99	7,520.00	779.59	1,473.39	-1,392.62	0.00	0.00	0.00
8,400.00	90.00	269.99	7,520.00	779.57	1,373.39	-1,293.08	0.00	0.00	0.00
8,500.00	90.00	269.99	7,520.00	779.54	1,273.39	-1,193.53	0.00	0.00	0.00
8,600.00	90.00	269.99	7,520.01	779.52	1,173.39	-1,093.99	0.00	0.00	0.00
8,700.00	90.00	269.99	7,520.01	779.50	1,073.39	-994.44	0.00	0.00	0.00
8,800.00	90.00	269.99	7,520.01	779.47	973.39	-894.90	0.00	0.00	0.00
8,900.00	90.00	269.99	7,520.01	779.45	873.39	-795.35	0.00	0.00	0.00
9,000.00	90.00	269.99	7,520.01	779.42	773.39	-695.81	0.00	0.00	0.00
9,100.00	90.00	269.99	7,520.01	779.40	673.39	-596.26	0.00	0.00	0.00
9,200.00	90.00	269.99	7,520.01	779.38	573.39	-496.72	0.00	0.00	0.00
9,300.00	90.00	269.99	7,520.02	779.35	473.39	-397.17	0.00	0.00	0.00
9,400.00	90.00	269.99	7,520.02	779.33	373.39	-297.63	0.00	0.00	0.00
9,500.00	90.00	269.99	7,520.02	779.30	273.39	-198.08	0.00	0.00	0.00
9,600.00	90.00	269.99	7,520.02	779.28	173.39	-98.54	0.00	0.00	0.00
9,700.00	90.00	269.99	7,520.02	779.26	73.39	1.01	0.00	0.00	0.00
9,800.00	90.00	269.99	7,520.02	779.23	-26.61	100.55	0.00	0.00	0.00
9,900.00	90.00	269.99	7,520.03	779.21	-126.61	200.10	0.00	0.00	0.00
10,000.00	90.00	269.99	7,520.03	779.18	-226.61	299.64	0.00	0.00	0.00
10,100.00	90.00	269.99	7,520.03	779.16	-326.61	399.19	0.00	0.00	0.00
10,200.00	90.00	269.99	7,520.03	779.14	-426.61	498.73	0.00	0.00	0.00
10,300.00	90.00	269.99	7,520.03	779.11	-526.61	598.28	0.00	0.00	0.00
10,400.00	90.00	269.99	7,520.03	779.09	-626.61	697.82	0.00	0.00	0.00
10,500.00	90.00	269.99	7,520.04	779.07	-726.61	797.37	0.00	0.00	0.00
10,600.00	90.00	269.99	7,520.04	779.04	-826.61	896.91	0.00	0.00	0.00
10,700.00	90.00	269.99	7,520.04	779.02	-926.61	996.46	0.00	0.00	0.00
10,800.00	90.00	269.99	7,520.04	778.99	-1,026.61	1,096.00	0.00	0.00	0.00
10,900.00	90.00	269.99	7,520.04	778.97	-1,126.61	1,195.55	0.00	0.00	0.00
11,000.00	90.00	269.99	7,520.04	778.95	-1,226.61	1,295.09	0.00	0.00	0.00
11,100.00	90.00	269.99	7,520.05	778.92	-1,326.61	1,394.64	0.00	0.00	0.00
11,200.00	90.00	269.99	7,520.05	778.90	-1,426.61	1,494.18	0.00	0.00	0.00
11,300.00	90.00	269.99	7,520.05	778.87	-1,526.61	1,593.73	0.00	0.00	0.00
11,400.00	90.00	269.99	7,520.05	778.85	-1,626.61	1,693.27	0.00	0.00	0.00
11,500.00	90.00	269.99	7,520.05	778.83	-1,726.61	1,792.82	0.00	0.00	0.00
11,600.00	90.00	269.99	7,520.05	778.80	-1,826.61	1,892.36	0.00	0.00	0.00
11,700.00	90.00	269.99	7,520.06	778.78	-1,926.61	1,991.91	0.00	0.00	0.00
11,800.00	90.00	269.99	7,520.06	778.75	-2,026.61	2,091.45	0.00	0.00	0.00
11,900.00	90.00	269.99	7,520.06	778.73	-2,126.61	2,191.00	0.00	0.00	0.00
12,000.00	90.00	269.99	7,520.06	778.71	-2,226.61	2,290.54	0.00	0.00	0.00
12,100.00	90.00	269.99	7,520.06	778.68	-2,326.61	2,390.09	0.00	0.00	0.00
12,200.00	90.00	269.99	7,520.06	778.66	-2,426.61	2,489.63	0.00	0.00	0.00
12,300.00	90.00	269.99	7,520.07	778.64	-2,526.61	2,589.18	0.00	0.00	0.00
12,400.00	90.00	269.99	7,520.07	778.61	-2,626.61	2,688.72	0.00	0.00	0.00
12,500.00	90.00	269.99	7,520.07	778.59	-2,726.61	2,788.27	0.00	0.00	0.00
12,600.00	90.00	269.99	7,520.07	778.56	-2,826.61	2,887.81	0.00	0.00	0.00
12,700.00	90.00	269.99	7,520.07	778.54	-2,926.61	2,987.36	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,800.00	90.00	269.99	7,520.07	778.52	-3,026.61	3,086.90	0.00	0.00	0.00
12,900.00	90.00	269.99	7,520.07	778.49	-3,126.61	3,186.45	0.00	0.00	0.00
13,000.00	90.00	269.99	7,520.08	778.47	-3,226.61	3,285.99	0.00	0.00	0.00
13,100.00	90.00	269.99	7,520.08	778.44	-3,326.61	3,385.54	0.00	0.00	0.00
13,200.00	90.00	269.99	7,520.08	778.42	-3,426.61	3,485.08	0.00	0.00	0.00
13,300.00	90.00	269.99	7,520.08	778.40	-3,526.61	3,584.63	0.00	0.00	0.00
13,400.00	90.00	269.99	7,520.08	778.37	-3,626.61	3,684.17	0.00	0.00	0.00
13,500.00	90.00	269.99	7,520.08	778.35	-3,726.61	3,783.72	0.00	0.00	0.00
13,600.00	90.00	269.99	7,520.09	778.32	-3,826.61	3,883.26	0.00	0.00	0.00
13,700.00	90.00	269.99	7,520.09	778.30	-3,926.61	3,982.81	0.00	0.00	0.00
13,800.00	90.00	269.99	7,520.09	778.28	-4,026.61	4,082.35	0.00	0.00	0.00
13,900.00	90.00	269.99	7,520.09	778.25	-4,126.61	4,181.90	0.00	0.00	0.00
14,000.00	90.00	269.99	7,520.09	778.23	-4,226.61	4,281.44	0.00	0.00	0.00
14,100.00	90.00	269.99	7,520.09	778.21	-4,326.61	4,380.99	0.00	0.00	0.00
14,200.00	90.00	269.99	7,520.10	778.18	-4,426.61	4,480.54	0.00	0.00	0.00
14,300.00	90.00	269.99	7,520.10	778.16	-4,526.61	4,580.08	0.00	0.00	0.00
14,400.00	90.00	269.99	7,520.10	778.13	-4,626.61	4,679.63	0.00	0.00	0.00
14,500.00	90.00	269.99	7,520.10	778.11	-4,726.61	4,779.17	0.00	0.00	0.00
14,600.00	90.00	269.99	7,520.10	778.09	-4,826.61	4,878.72	0.00	0.00	0.00
14,700.00	90.00	269.99	7,520.10	778.06	-4,926.61	4,978.26	0.00	0.00	0.00
14,800.00	90.00	269.99	7,520.11	778.04	-5,026.61	5,077.81	0.00	0.00	0.00
14,900.00	90.00	269.99	7,520.11	778.01	-5,126.61	5,177.35	0.00	0.00	0.00
15,000.00	90.00	269.99	7,520.11	777.99	-5,226.61	5,276.90	0.00	0.00	0.00
15,100.00	90.00	269.99	7,520.11	777.97	-5,326.61	5,376.44	0.00	0.00	0.00
15,200.00	90.00	269.99	7,520.11	777.94	-5,426.61	5,475.99	0.00	0.00	0.00
15,300.00	90.00	269.99	7,520.11	777.92	-5,526.61	5,575.53	0.00	0.00	0.00
15,400.00	90.00	269.99	7,520.12	777.89	-5,626.61	5,675.08	0.00	0.00	0.00
15,500.00	90.00	269.99	7,520.12	777.87	-5,726.61	5,774.62	0.00	0.00	0.00
15,600.00	90.00	269.99	7,520.12	777.85	-5,826.61	5,874.17	0.00	0.00	0.00
15,700.00	90.00	269.99	7,520.12	777.82	-5,926.61	5,973.71	0.00	0.00	0.00
15,800.00	90.00	269.99	7,520.12	777.80	-6,026.61	6,073.26	0.00	0.00	0.00
15,900.00	90.00	269.99	7,520.12	777.77	-6,126.61	6,172.80	0.00	0.00	0.00
16,000.00	90.00	269.99	7,520.13	777.75	-6,226.61	6,272.35	0.00	0.00	0.00
16,100.00	90.00	269.99	7,520.13	777.73	-6,326.61	6,371.89	0.00	0.00	0.00
16,200.00	90.00	269.99	7,520.13	777.70	-6,426.61	6,471.44	0.00	0.00	0.00
16,300.00	90.00	269.99	7,520.13	777.68	-6,526.61	6,570.98	0.00	0.00	0.00
16,400.00	90.00	269.99	7,520.13	777.66	-6,626.61	6,670.53	0.00	0.00	0.00
16,500.00	90.00	269.99	7,520.13	777.63	-6,726.61	6,770.07	0.00	0.00	0.00
16,600.00	90.00	269.99	7,520.13	777.61	-6,826.61	6,869.62	0.00	0.00	0.00
16,700.00	90.00	269.99	7,520.14	777.58	-6,926.61	6,969.16	0.00	0.00	0.00
16,800.00	90.00	269.99	7,520.14	777.56	-7,026.61	7,068.71	0.00	0.00	0.00
16,900.00	90.00	269.99	7,520.14	777.54	-7,126.61	7,168.25	0.00	0.00	0.00
17,000.00	90.00	269.99	7,520.14	777.51	-7,226.61	7,267.80	0.00	0.00	0.00
17,100.00	90.00	269.99	7,520.14	777.49	-7,326.61	7,367.34	0.00	0.00	0.00
17,200.00	90.00	269.99	7,520.14	777.46	-7,426.61	7,466.89	0.00	0.00	0.00
17,300.00	90.00	269.99	7,520.15	777.44	-7,526.61	7,566.43	0.00	0.00	0.00
17,400.00	90.00	269.99	7,520.15	777.42	-7,626.61	7,665.98	0.00	0.00	0.00
17,500.00	90.00	269.99	7,520.15	777.39	-7,726.61	7,765.52	0.00	0.00	0.00
17,600.00	90.00	269.99	7,520.15	777.37	-7,826.61	7,865.07	0.00	0.00	0.00
17,700.00	90.00	269.99	7,520.15	777.34	-7,926.61	7,964.61	0.00	0.00	0.00
17,800.00	90.00	269.99	7,520.15	777.32	-8,026.61	8,064.16	0.00	0.00	0.00
17,900.00	90.00	269.99	7,520.16	777.30	-8,126.61	8,163.70	0.00	0.00	0.00
17,914.08	90.00	269.99	7,520.00	777.24	-8,140.70	8,177.72	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well DUCK CLUB 12W-20-5C
<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-20-5C	<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)
TD at 17914.08									

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									
DC 5C - PBHL	0.00	0.00	7,520.00	777.24	-8,140.70	1,236,889.24	3,207,368.19	39° 58' 52.572 N	104° 45' 36.000 W
- plan hits target center									
- Point									
DC 5C - LP	0.00	0.00	7,520.00	779.59	1,482.42	1,236,975.05	3,216,990.92	39° 58' 52.608 N	104° 43' 32.376 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,121.09	3,900.00	PARKMAN				
5,062.97	4,755.00	SUSSEX				
7,504.66	7,060.00	SHARON SPRINGS				
7,531.31	7,086.00	NIOBRARA				
7,746.25	7,280.00	NIO B				
8,104.74	7,490.00	FORT HAYS				
8,290.97	7,520.00	CODELL				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
900.00	900.00	0.00	0.00	Start Build 2.00
2,140.11	2,101.74	93.72	247.06	Start 3980.70 hold at 2140.11 MD
6,120.80	5,715.26	686.01	1,808.35	Start Drop -2.00
7,360.91	6,917.00	779.73	2,055.41	Start 30.00 hold at 7360.91 MD
7,390.91	6,947.00	779.73	2,055.41	Start DLS 10.00 TFO 269.99
8,290.97	7,520.00	779.59	1,482.42	Start 9623.12 hold at 8290.97 MD
17,914.08	7,520.00	777.24	-8,140.70	TD at 17914.08