

EXTRACTION OIL & GAS

ADAMS COUNTY

Sec 12-T1S-R66W

DUCK CLUB 12W-20-8C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

12 June, 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

	+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	1939.10	22.78	99.05	1909.32	-35.17	220.71	2.00	99.05	-218.41	
4	6167.30	22.78	99.05	5807.66	-292.85	1837.59	0.00	0.00	-1818.41	
5	7306.41	0.00	0.00	6916.98	-328.02	2058.30	2.00	180.00	-2036.82	
6	7336.41	0.00	0.00	6946.98	-328.02	2058.30	0.00	0.00	-2036.82	
7	8236.53	90.00	269.29	7520.00	-335.08	1485.29	10.00	269.29	-1464.31	DC 8C - LP
8	17855.28	90.00	269.29	7520.00	-454.00	-8132.72	0.00		8145.38	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
1939.10	22.78	99.05	1909.32	-35.17	220.71	-218.41	223.50	Start 4228.20 hold at 1939.10 MD
6167.30	22.78	99.05	5807.66	-292.85	1837.59	-1818.41	1860.77	Start Drop -2.00
7306.41	0.00	0.00	6916.98	-328.02	2058.30	-2036.82	2084.27	Start 30.00 hold at 7306.41 MD
7336.41	0.00	0.00	6946.98	-328.02	2058.30	-2036.82	2084.27	Start DLS 10.00 TFO 269.29
8236.53	90.00	269.29	7520.00	-335.08	1485.29	-1464.31	2657.32	Start DLS 0.00 TFO -138.65
17855.28	90.00	269.29	7520.00	-454.00	-8132.72	8145.38	12276.07	TD at 17855.28

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'	Point
- plan hits target center									
DC 8C - PBHL	7520.00	-454.00	-8132.72	1235574.31	3207384.77	39° 58'	39.576 N	104° 45'	Point
- plan hits target center									

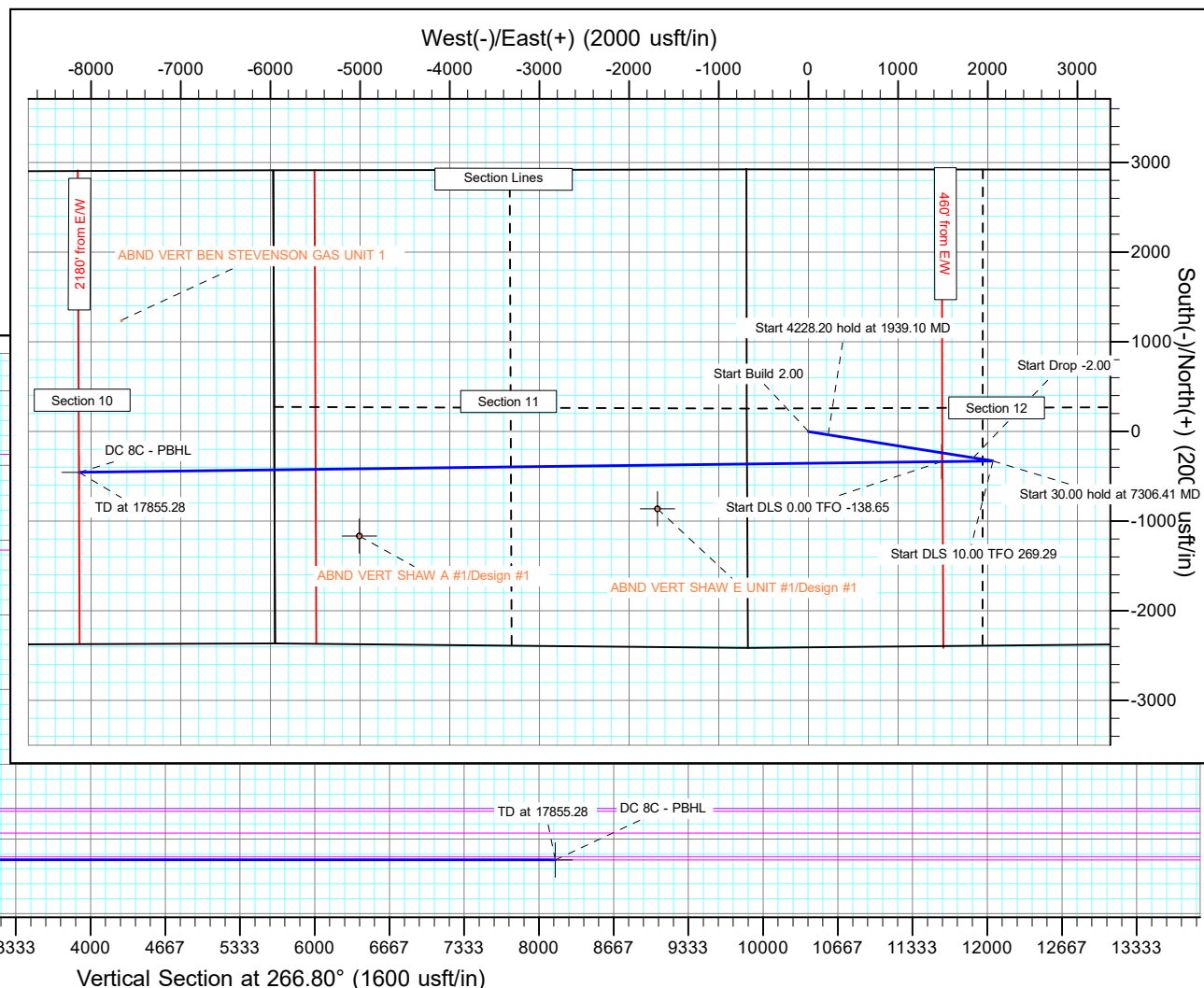
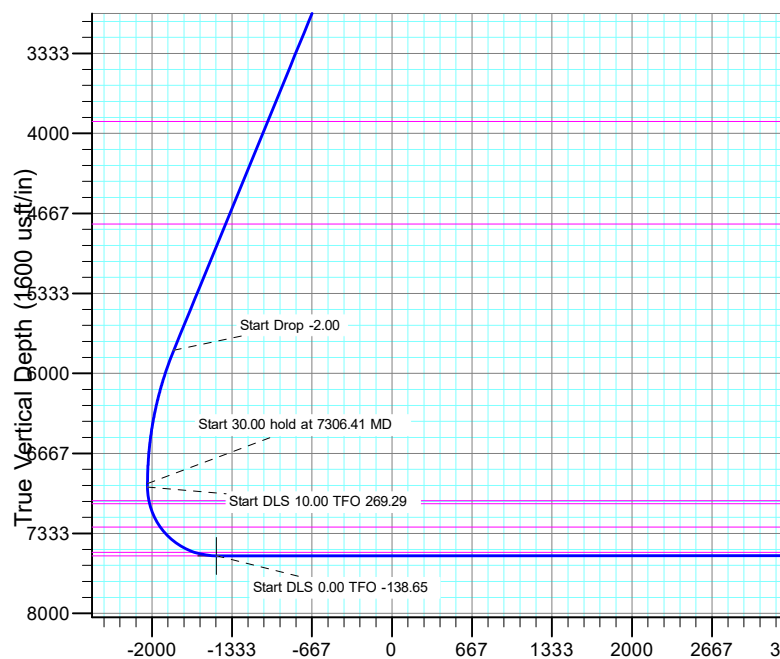
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3900.00	4098.23	PARKMAN
4755.00	5025.57	SUSSEX
7080.00	7450.17	SHARON SPRINGS
7086.00	7476.83	NIOBRARA
7280.00	7691.77	NIO B
7490.00	8050.26	FORT HAYS
7520.00	8236.53	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:
1917' FSL, 2178' FEL
Sec 10-T1S-R66W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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-20-8C					
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

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/10/2017	8.12	66.51	52,138.57643280

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	266.80

Plan Survey Tool Program	Date	6/12/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,855.28	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	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,939.10	22.78	99.05	1,909.32	-35.17	220.71	2.00	2.00	0.00	99.05	
6,167.30	22.78	99.05	5,807.66	-292.85	1,837.59	0.00	0.00	0.00	0.00	
7,306.41	0.00	0.00	6,916.98	-328.02	2,058.30	2.00	-2.00	0.00	180.00	
7,336.41	0.00	0.00	6,946.98	-328.02	2,058.30	0.00	0.00	0.00	0.00	
8,236.53	90.00	269.29	7,520.00	-335.08	1,485.29	10.00	10.00	-10.08	269.29	DC 8C - LP
17,855.28	90.00	269.29	7,520.00	-454.00	-8,132.72	0.00	0.00	0.00	-138.65	DC 8C - PBHL

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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
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	99.05	899.98	-0.27	1.72	-1.71	2.00	2.00	0.00
1,000.00	4.00	99.05	999.84	-1.10	6.89	-6.82	2.00	2.00	0.00
1,100.00	6.00	99.05	1,099.45	-2.47	15.50	-15.34	2.00	2.00	0.00
1,200.00	8.00	99.05	1,198.70	-4.39	27.53	-27.25	2.00	2.00	0.00
1,300.00	10.00	99.05	1,297.47	-6.85	42.98	-42.53	2.00	2.00	0.00
1,400.00	12.00	99.05	1,395.62	-9.85	61.82	-61.18	2.00	2.00	0.00
1,500.00	14.00	99.05	1,493.06	-13.39	84.04	-83.16	2.00	2.00	0.00
1,600.00	16.00	99.05	1,589.64	-17.47	109.59	-108.45	2.00	2.00	0.00
1,700.00	18.00	99.05	1,685.27	-22.07	138.47	-137.02	2.00	2.00	0.00
1,800.00	20.00	99.05	1,779.82	-27.19	170.62	-168.83	2.00	2.00	0.00
1,900.00	22.00	99.05	1,873.17	-32.83	206.00	-203.85	2.00	2.00	0.00
1,939.10	22.78	99.05	1,909.32	-35.17	220.71	-218.41	2.00	2.00	0.00
Start 4228.20 hold at 1939.10 MD									
2,000.00	22.78	99.05	1,965.47	-38.89	244.00	-241.45	0.00	0.00	0.00
2,100.00	22.78	99.05	2,057.67	-44.98	282.24	-279.29	0.00	0.00	0.00
2,200.00	22.78	99.05	2,149.87	-51.07	320.48	-317.14	0.00	0.00	0.00
2,300.00	22.78	99.05	2,242.06	-57.17	358.72	-354.98	0.00	0.00	0.00
2,400.00	22.78	99.05	2,334.26	-63.26	396.96	-392.82	0.00	0.00	0.00
2,500.00	22.78	99.05	2,426.46	-69.36	435.20	-430.66	0.00	0.00	0.00
2,600.00	22.78	99.05	2,518.66	-75.45	473.44	-468.50	0.00	0.00	0.00
2,700.00	22.78	99.05	2,610.86	-81.54	511.68	-506.34	0.00	0.00	0.00
2,800.00	22.78	99.05	2,703.06	-87.64	549.92	-544.18	0.00	0.00	0.00
2,900.00	22.78	99.05	2,795.26	-93.73	588.16	-582.02	0.00	0.00	0.00
3,000.00	22.78	99.05	2,887.45	-99.83	626.40	-619.86	0.00	0.00	0.00
3,100.00	22.78	99.05	2,979.65	-105.92	664.64	-657.71	0.00	0.00	0.00
3,200.00	22.78	99.05	3,071.85	-112.01	702.88	-695.55	0.00	0.00	0.00
3,300.00	22.78	99.05	3,164.05	-118.11	741.12	-733.39	0.00	0.00	0.00
3,400.00	22.78	99.05	3,256.25	-124.20	779.36	-771.23	0.00	0.00	0.00
3,500.00	22.78	99.05	3,348.45	-130.30	817.60	-809.07	0.00	0.00	0.00
3,600.00	22.78	99.05	3,440.64	-136.39	855.84	-846.91	0.00	0.00	0.00
3,700.00	22.78	99.05	3,532.84	-142.49	894.08	-884.75	0.00	0.00	0.00
3,800.00	22.78	99.05	3,625.04	-148.58	932.32	-922.59	0.00	0.00	0.00
3,900.00	22.78	99.05	3,717.24	-154.67	970.56	-960.43	0.00	0.00	0.00
4,000.00	22.78	99.05	3,809.44	-160.77	1,008.81	-998.28	0.00	0.00	0.00
4,098.23	22.78	99.05	3,900.00	-166.75	1,046.37	-1,035.45	0.00	0.00	0.00
PARKMAN									
4,100.00	22.78	99.05	3,901.64	-166.86	1,047.05	-1,036.12	0.00	0.00	0.00
4,200.00	22.78	99.05	3,993.83	-172.96	1,085.29	-1,073.96	0.00	0.00	0.00
4,300.00	22.78	99.05	4,086.03	-179.05	1,123.53	-1,111.80	0.00	0.00	0.00
4,400.00	22.78	99.05	4,178.23	-185.14	1,161.77	-1,149.64	0.00	0.00	0.00
4,500.00	22.78	99.05	4,270.43	-191.24	1,200.01	-1,187.48	0.00	0.00	0.00
4,600.00	22.78	99.05	4,362.63	-197.33	1,238.25	-1,225.32	0.00	0.00	0.00
4,700.00	22.78	99.05	4,454.83	-203.43	1,276.49	-1,263.16	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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)	
4,800.00	22.78	99.05	4,547.02	-209.52	1,314.73	-1,301.00	0.00	0.00	0.00	
4,900.00	22.78	99.05	4,639.22	-215.61	1,352.97	-1,338.85	0.00	0.00	0.00	
5,000.00	22.78	99.05	4,731.42	-221.71	1,391.21	-1,376.69	0.00	0.00	0.00	
5,025.57	22.78	99.05	4,755.00	-223.27	1,400.99	-1,386.36	0.00	0.00	0.00	
SUSSEX										
5,100.00	22.78	99.05	4,823.62	-227.80	1,429.45	-1,414.53	0.00	0.00	0.00	
5,200.00	22.78	99.05	4,915.82	-233.90	1,467.69	-1,452.37	0.00	0.00	0.00	
5,300.00	22.78	99.05	5,008.02	-239.99	1,505.93	-1,490.21	0.00	0.00	0.00	
5,400.00	22.78	99.05	5,100.22	-246.09	1,544.17	-1,528.05	0.00	0.00	0.00	
5,500.00	22.78	99.05	5,192.41	-252.18	1,582.41	-1,565.89	0.00	0.00	0.00	
5,600.00	22.78	99.05	5,284.61	-258.27	1,620.65	-1,603.73	0.00	0.00	0.00	
5,700.00	22.78	99.05	5,376.81	-264.37	1,658.89	-1,641.57	0.00	0.00	0.00	
5,800.00	22.78	99.05	5,469.01	-270.46	1,697.13	-1,679.42	0.00	0.00	0.00	
5,900.00	22.78	99.05	5,561.21	-276.56	1,735.37	-1,717.26	0.00	0.00	0.00	
6,000.00	22.78	99.05	5,653.41	-282.65	1,773.61	-1,755.10	0.00	0.00	0.00	
6,100.00	22.78	99.05	5,745.60	-288.74	1,811.85	-1,792.94	0.00	0.00	0.00	
6,167.30	22.78	99.05	5,807.66	-292.85	1,837.59	-1,818.41	0.00	0.00	0.00	
Start Drop -2.00										
6,200.00	22.13	99.05	5,837.87	-294.81	1,849.92	-1,830.61	2.00	-2.00	0.00	
6,300.00	20.13	99.05	5,931.15	-300.48	1,885.51	-1,865.84	2.00	-2.00	0.00	
6,400.00	18.13	99.05	6,025.62	-305.64	1,917.87	-1,897.86	2.00	-2.00	0.00	
6,500.00	16.13	99.05	6,121.18	-310.28	1,946.96	-1,926.63	2.00	-2.00	0.00	
6,600.00	14.13	99.05	6,217.71	-314.38	1,972.73	-1,952.14	2.00	-2.00	0.00	
6,700.00	12.13	99.05	6,315.09	-317.96	1,995.16	-1,974.33	2.00	-2.00	0.00	
6,800.00	10.13	99.05	6,413.21	-320.99	2,014.21	-1,993.19	2.00	-2.00	0.00	
6,900.00	8.13	99.05	6,511.94	-323.49	2,029.88	-2,008.69	2.00	-2.00	0.00	
7,000.00	6.13	99.05	6,611.16	-325.44	2,042.13	-2,020.82	2.00	-2.00	0.00	
7,100.00	4.13	99.05	6,710.75	-326.85	2,050.96	-2,029.55	2.00	-2.00	0.00	
7,200.00	2.13	99.05	6,810.60	-327.71	2,056.35	-2,034.89	2.00	-2.00	0.00	
7,306.41	0.00	0.00	6,916.98	-328.02	2,058.30	-2,036.82	2.00	-2.00	0.00	
Start 30.00 hold at 7306.41 MD										
7,336.41	0.00	0.00	6,946.98	-328.02	2,058.30	-2,036.82	0.00	0.00	0.00	
Start DLS 10.00 TFO 269.29										
7,350.00	1.36	269.29	6,960.57	-328.02	2,058.14	-2,036.66	10.00	10.00	0.00	
7,400.00	6.36	269.29	7,010.44	-328.06	2,054.78	-2,033.30	10.00	10.00	0.00	
7,450.00	11.36	269.29	7,059.83	-328.16	2,047.08	-2,025.61	10.00	10.00	0.00	
7,450.17	11.36	269.29	7,060.00	-328.16	2,047.04	-2,025.57	0.00	0.00	0.00	
SHARON SPRINGS										
7,476.83	14.04	269.29	7,086.00	-328.23	2,041.18	-2,019.71	10.06	10.06	0.00	
NIOBRARA										
7,500.00	16.36	269.29	7,108.36	-328.31	2,035.11	-2,013.64	10.00	10.00	0.00	
7,550.00	21.36	269.29	7,155.66	-328.50	2,018.95	-1,997.50	10.00	10.00	0.00	
7,600.00	26.36	269.29	7,201.38	-328.75	1,998.74	-1,977.31	10.00	10.00	0.00	
7,650.00	31.36	269.29	7,245.15	-329.05	1,974.62	-1,953.21	10.00	10.00	0.00	
7,691.77	35.53	269.29	7,280.00	-329.33	1,951.60	-1,930.21	10.00	10.00	0.00	
NIO B										
7,700.00	36.36	269.29	7,286.66	-329.39	1,946.77	-1,925.39	10.00	10.00	0.00	
7,750.00	41.35	269.29	7,325.59	-329.78	1,915.42	-1,894.06	10.00	10.00	0.00	
7,800.00	46.35	269.29	7,361.63	-330.21	1,880.79	-1,859.46	10.00	10.00	0.00	
7,850.00	51.35	269.29	7,394.52	-330.67	1,843.15	-1,821.86	10.00	10.00	0.00	
7,900.00	56.35	269.29	7,424.00	-331.17	1,802.79	-1,781.53	10.00	10.00	0.00	
7,950.00	61.35	269.29	7,449.86	-331.69	1,760.02	-1,738.79	10.00	10.00	0.00	
8,000.00	66.35	269.29	7,471.88	-332.25	1,715.15	-1,693.97	10.00	10.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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)
8,050.00	71.35	269.29	7,489.92	-332.82	1,668.54	-1,647.39	10.00	10.00	0.00
8,050.26	71.38	269.29	7,490.00	-332.82	1,668.29	-1,647.14	10.00	10.00	0.00
FORT HAYS									
8,100.00	76.35	269.29	7,503.82	-333.41	1,620.53	-1,599.43	10.00	10.00	0.00
8,150.00	81.35	269.29	7,513.48	-334.02	1,571.49	-1,550.43	10.00	10.00	0.00
8,200.00	86.35	269.29	7,518.84	-334.63	1,521.80	-1,500.78	10.00	10.00	0.00
8,236.47	90.00	269.29	7,520.00	-335.08	1,485.35	-1,464.37	10.00	10.00	0.00
CODELL									
8,236.53	90.00	269.29	7,520.00	-335.08	1,485.29	-1,464.31	10.00	10.00	0.00
Start DLS 0.00 TFO -138.65									
8,300.00	90.00	269.29	7,520.00	-335.86	1,421.83	-1,400.90	0.00	0.00	0.00
8,400.00	90.00	269.29	7,519.99	-337.09	1,321.84	-1,301.00	0.00	0.00	0.00
8,500.00	90.00	269.29	7,519.99	-338.32	1,221.85	-1,201.09	0.00	0.00	0.00
8,600.00	90.00	269.29	7,519.98	-339.56	1,121.86	-1,101.19	0.00	0.00	0.00
8,700.00	90.00	269.29	7,519.98	-340.79	1,021.86	-1,001.28	0.00	0.00	0.00
8,800.00	90.00	269.29	7,519.97	-342.02	921.87	-901.37	0.00	0.00	0.00
8,900.00	90.00	269.29	7,519.97	-343.25	821.88	-801.47	0.00	0.00	0.00
9,000.00	90.00	269.29	7,519.96	-344.49	721.89	-701.56	0.00	0.00	0.00
9,100.00	90.00	269.29	7,519.96	-345.72	621.89	-601.66	0.00	0.00	0.00
9,200.00	90.00	269.29	7,519.95	-346.95	521.90	-501.75	0.00	0.00	0.00
9,300.00	90.00	269.29	7,519.95	-348.18	421.91	-401.85	0.00	0.00	0.00
9,400.00	90.00	269.29	7,519.95	-349.42	321.92	-301.94	0.00	0.00	0.00
9,500.00	90.00	269.29	7,519.94	-350.65	221.92	-202.03	0.00	0.00	0.00
9,600.00	90.00	269.29	7,519.94	-351.88	121.93	-102.13	0.00	0.00	0.00
9,700.00	90.00	269.29	7,519.93	-353.11	21.94	-2.22	0.00	0.00	0.00
9,800.00	90.00	269.29	7,519.93	-354.35	-78.05	97.68	0.00	0.00	0.00
9,900.00	90.00	269.29	7,519.93	-355.58	-178.05	197.59	0.00	0.00	0.00
10,000.00	90.00	269.29	7,519.92	-356.81	-278.04	297.49	0.00	0.00	0.00
10,100.00	90.00	269.29	7,519.92	-358.05	-378.03	397.40	0.00	0.00	0.00
10,200.00	90.00	269.29	7,519.92	-359.28	-478.02	497.31	0.00	0.00	0.00
10,300.00	90.00	269.29	7,519.91	-360.52	-578.02	597.21	0.00	0.00	0.00
10,400.00	90.00	269.29	7,519.91	-361.75	-678.01	697.12	0.00	0.00	0.00
10,500.00	90.00	269.29	7,519.91	-362.98	-778.00	797.02	0.00	0.00	0.00
10,600.00	90.00	269.29	7,519.91	-364.22	-877.99	896.93	0.00	0.00	0.00
10,700.00	90.00	269.29	7,519.90	-365.45	-977.99	996.83	0.00	0.00	0.00
10,800.00	90.00	269.29	7,519.90	-366.69	-1,077.98	1,096.74	0.00	0.00	0.00
10,900.00	90.00	269.29	7,519.90	-367.92	-1,177.97	1,196.65	0.00	0.00	0.00
11,000.00	90.00	269.29	7,519.90	-369.15	-1,277.96	1,296.55	0.00	0.00	0.00
11,100.00	90.00	269.29	7,519.89	-370.39	-1,377.95	1,396.46	0.00	0.00	0.00
11,200.00	90.00	269.29	7,519.89	-371.62	-1,477.95	1,496.36	0.00	0.00	0.00
11,300.00	90.00	269.29	7,519.89	-372.86	-1,577.94	1,596.27	0.00	0.00	0.00
11,400.00	90.00	269.29	7,519.89	-374.09	-1,677.93	1,696.17	0.00	0.00	0.00
11,500.00	90.00	269.29	7,519.89	-375.33	-1,777.92	1,796.08	0.00	0.00	0.00
11,600.00	90.00	269.29	7,519.88	-376.56	-1,877.92	1,895.99	0.00	0.00	0.00
11,700.00	90.00	269.29	7,519.88	-377.80	-1,977.91	1,995.89	0.00	0.00	0.00
11,800.00	90.00	269.29	7,519.88	-379.03	-2,077.90	2,095.80	0.00	0.00	0.00
11,900.00	90.00	269.29	7,519.88	-380.27	-2,177.89	2,195.70	0.00	0.00	0.00
12,000.00	90.00	269.29	7,519.88	-381.50	-2,277.89	2,295.61	0.00	0.00	0.00
12,100.00	90.00	269.29	7,519.88	-382.74	-2,377.88	2,395.51	0.00	0.00	0.00
12,200.00	90.00	269.29	7,519.88	-383.97	-2,477.87	2,495.42	0.00	0.00	0.00
12,300.00	90.00	269.29	7,519.88	-385.21	-2,577.86	2,595.33	0.00	0.00	0.00
12,400.00	90.00	269.29	7,519.88	-386.44	-2,677.86	2,695.23	0.00	0.00	0.00
12,500.00	90.00	269.29	7,519.87	-387.68	-2,777.85	2,795.14	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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)
12,600.00	90.00	269.29	7,519.87	-388.92	-2,877.84	2,895.04	0.00	0.00	0.00
12,700.00	90.00	269.29	7,519.87	-390.15	-2,977.83	2,994.95	0.00	0.00	0.00
12,800.00	90.00	269.29	7,519.87	-391.39	-3,077.83	3,094.86	0.00	0.00	0.00
12,900.00	90.00	269.29	7,519.87	-392.62	-3,177.82	3,194.76	0.00	0.00	0.00
13,000.00	90.00	269.29	7,519.87	-393.86	-3,277.81	3,294.67	0.00	0.00	0.00
13,100.00	90.00	269.29	7,519.87	-395.10	-3,377.80	3,394.57	0.00	0.00	0.00
13,200.00	90.00	269.29	7,519.87	-396.33	-3,477.79	3,494.48	0.00	0.00	0.00
13,300.00	90.00	269.29	7,519.87	-397.57	-3,577.79	3,594.38	0.00	0.00	0.00
13,400.00	90.00	269.29	7,519.87	-398.81	-3,677.78	3,694.29	0.00	0.00	0.00
13,500.00	90.00	269.29	7,519.87	-400.04	-3,777.77	3,794.20	0.00	0.00	0.00
13,600.00	90.00	269.29	7,519.87	-401.28	-3,877.76	3,894.10	0.00	0.00	0.00
13,700.00	90.00	269.29	7,519.88	-402.52	-3,977.76	3,994.01	0.00	0.00	0.00
13,800.00	90.00	269.29	7,519.88	-403.75	-4,077.75	4,093.91	0.00	0.00	0.00
13,900.00	90.00	269.29	7,519.88	-404.99	-4,177.74	4,193.82	0.00	0.00	0.00
14,000.00	90.00	269.29	7,519.88	-406.23	-4,277.73	4,293.73	0.00	0.00	0.00
14,100.00	90.00	269.29	7,519.88	-407.47	-4,377.73	4,393.63	0.00	0.00	0.00
14,200.00	90.00	269.29	7,519.88	-408.70	-4,477.72	4,493.54	0.00	0.00	0.00
14,300.00	90.00	269.29	7,519.88	-409.94	-4,577.71	4,593.44	0.00	0.00	0.00
14,400.00	90.00	269.29	7,519.88	-411.18	-4,677.70	4,693.35	0.00	0.00	0.00
14,500.00	90.00	269.29	7,519.88	-412.42	-4,777.70	4,793.26	0.00	0.00	0.00
14,600.00	90.00	269.29	7,519.89	-413.65	-4,877.69	4,893.16	0.00	0.00	0.00
14,700.00	90.00	269.29	7,519.89	-414.89	-4,977.68	4,993.07	0.00	0.00	0.00
14,800.00	90.00	269.29	7,519.89	-416.13	-5,077.67	5,092.97	0.00	0.00	0.00
14,900.00	90.00	269.29	7,519.89	-417.37	-5,177.66	5,192.88	0.00	0.00	0.00
15,000.00	90.00	269.29	7,519.89	-418.61	-5,277.66	5,292.78	0.00	0.00	0.00
15,100.00	90.00	269.29	7,519.90	-419.85	-5,377.65	5,392.69	0.00	0.00	0.00
15,200.00	90.00	269.29	7,519.90	-421.08	-5,477.64	5,492.60	0.00	0.00	0.00
15,300.00	90.00	269.29	7,519.90	-422.32	-5,577.63	5,592.50	0.00	0.00	0.00
15,400.00	90.00	269.29	7,519.90	-423.56	-5,677.63	5,692.41	0.00	0.00	0.00
15,500.00	90.00	269.29	7,519.91	-424.80	-5,777.62	5,792.31	0.00	0.00	0.00
15,600.00	90.00	269.29	7,519.91	-426.04	-5,877.61	5,892.22	0.00	0.00	0.00
15,700.00	90.00	269.29	7,519.91	-427.28	-5,977.60	5,992.13	0.00	0.00	0.00
15,800.00	90.00	269.29	7,519.91	-428.52	-6,077.60	6,092.03	0.00	0.00	0.00
15,900.00	90.00	269.29	7,519.92	-429.76	-6,177.59	6,191.94	0.00	0.00	0.00
16,000.00	90.00	269.29	7,519.92	-430.99	-6,277.58	6,291.84	0.00	0.00	0.00
16,100.00	90.00	269.29	7,519.92	-432.23	-6,377.57	6,391.75	0.00	0.00	0.00
16,200.00	90.00	269.29	7,519.93	-433.47	-6,477.56	6,491.66	0.00	0.00	0.00
16,300.00	90.00	269.29	7,519.93	-434.71	-6,577.56	6,591.56	0.00	0.00	0.00
16,400.00	90.00	269.29	7,519.93	-435.95	-6,677.55	6,691.47	0.00	0.00	0.00
16,500.00	90.00	269.29	7,519.94	-437.19	-6,777.54	6,791.37	0.00	0.00	0.00
16,600.00	90.00	269.29	7,519.94	-438.43	-6,877.53	6,891.28	0.00	0.00	0.00
16,700.00	90.00	269.29	7,519.95	-439.67	-6,977.53	6,991.19	0.00	0.00	0.00
16,800.00	90.00	269.29	7,519.95	-440.91	-7,077.52	7,091.09	0.00	0.00	0.00
16,900.00	90.00	269.29	7,519.95	-442.15	-7,177.51	7,191.00	0.00	0.00	0.00
17,000.00	90.00	269.29	7,519.96	-443.39	-7,277.50	7,290.90	0.00	0.00	0.00
17,100.00	90.00	269.29	7,519.96	-444.63	-7,377.50	7,390.81	0.00	0.00	0.00
17,200.00	90.00	269.29	7,519.97	-445.87	-7,477.49	7,490.72	0.00	0.00	0.00
17,300.00	90.00	269.29	7,519.97	-447.11	-7,577.48	7,590.62	0.00	0.00	0.00
17,400.00	90.00	269.29	7,519.98	-448.35	-7,677.47	7,690.53	0.00	0.00	0.00
17,500.00	90.00	269.29	7,519.98	-449.59	-7,777.46	7,790.43	0.00	0.00	0.00
17,600.00	90.00	269.29	7,519.99	-450.83	-7,877.46	7,890.34	0.00	0.00	0.00
17,700.00	90.00	269.29	7,519.99	-452.08	-7,977.45	7,990.25	0.00	0.00	0.00
17,800.00	90.00	269.29	7,520.00	-453.32	-8,077.44	8,090.15	0.00	0.00	0.00
17,855.28	90.00	269.29	7,520.00	-454.00	-8,132.72	8,145.38	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well DUCK CLUB 12W-20-8C
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-20-8C	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)
TD at 17855.28									

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 8C - LP - plan hits target center - Point	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
DC 8C - PBHL - plan hits target center - Point	0.00	0.00	7,520.00	-454.00	-8,132.72	1,235,574.31	3,207,384.77	39° 58' 39.576 N	104° 45' 35.928 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,098.23	3,900.00	PARKMAN				
5,025.57	4,755.00	SUSSEX				
7,450.17	7,060.00	SHARON SPRINGS				
7,476.83	7,086.00	NIOBRARA				
7,691.77	7,280.00	NIO B				
8,050.26	7,490.00	FORT HAYS				
8,236.47	7,520.00	CODELL				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
800.00	800.00	0.00	0.00	Start Build 2.00
1,939.10	1,909.32	-35.17	220.71	Start 4228.20 hold at 1939.10 MD
6,167.30	5,807.66	-292.85	1,837.59	Start Drop -2.00
7,306.41	6,916.98	-328.02	2,058.30	Start 30.00 hold at 7306.41 MD
7,336.41	6,946.98	-328.02	2,058.30	Start DLS 10.00 TFO 269.29
8,236.53	7,520.00	-335.08	1,485.29	Start DLS 0.00 TFO -138.65
17,855.28	7,520.00	-454.00	-8,132.72	TD at 17855.28