

EXTRACTION OIL & GAS

Adams County

Sec 29-T1-R66W

PC 1S-66-2928-20CDH

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

12 September, 2017



Project: Adams County
Site: Sec 29-T1-R66W
Well: PC 1S-66-2928-20CDH
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1



Azimuths to True North
Magnetic North: 8.17°
Magnetic Field
Strength: 52115.7nT
Dip Angle: 66.47°
Date: 9/11/2017
Model: IGRF2015

WELL DETAILS: PC 1S-66-2928-20CDH

+N/-S	+E/-W	Northing	Easting	5066.00	Latitude	Longitude	Slot
0.00	0.00	1219308.07	3195119.57	39° 55' 59.808 N	104° 48' 15.120 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	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1135.90	18.72	219.16	1119.34	-117.49	-95.68	2.00	219.16	-72.80	
4	6630.32	18.72	219.16	6323.16	-1484.66	-1209.13	0.00	0.00	-919.99	
5	7566.22	0.00	0.00	7242.50	-1602.15	-1304.81	2.00	180.00	-992.79	
6	7596.22	0.00	0.00	7272.50	-1602.15	-1304.81	0.00	0.00	-992.79	
7	8346.27	90.00	90.08	7750.00	-1602.78	-827.31	12.00	90.08	-523.09	PC 20CDH LP
8	17940.33	90.00	90.08	7750.00	-1615.82	8766.74	0.00	78.07	8914.40	PC 20CDH PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	BUILD 2°/100'
1135.90	18.72	219.16	1119.34	-117.49	-95.68	-72.80	151.52	HOLD 18.72° INC
6630.32	18.72	219.16	6323.16	-1484.66	-1209.13	-919.99	1914.74	DROP 2°/100'
7566.22	0.00	0.00	7242.50	-1602.15	-1304.81	-992.79	2066.26	HOLD VERTICAL
7596.22	0.00	0.00	7272.50	-1602.15	-1304.81	-992.79	2066.26	KOP, BUILD 12°/100'
8346.27	90.00	90.08	7750.00	-1602.78	-827.31	-523.09	2543.75	LP @ 90° INC, 90.08° AZM HOLD
17940.33	90.00	90.08	7750.00	-1615.82	8766.74	8914.40	12137.81	TD at 17940.33' MD

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PC 20CDH LP	7750.00	-1602.78	-827.31	1217698.85	3194304.86	39° 55' 43.968 N	104° 48' 25.740 W	Point
- plan hits target center								
PC 20CDH PBHL	7750.00	-1615.82	8766.74	1217761.09	3203898.72	39° 55' 43.824 N	104° 46' 22.584 W	Point
- plan hits target center								

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4188.00	4375.93	PARKMAN
4892.00	5119.24	SUSSEX
5437.00	5694.67	SHANNON
7342.00	7665.97	NIOBRARA
7491.00	7823.17	NIO B TARGET
7727.00	8197.47	FORT HAYS
7750.00	8346.27	CODELL

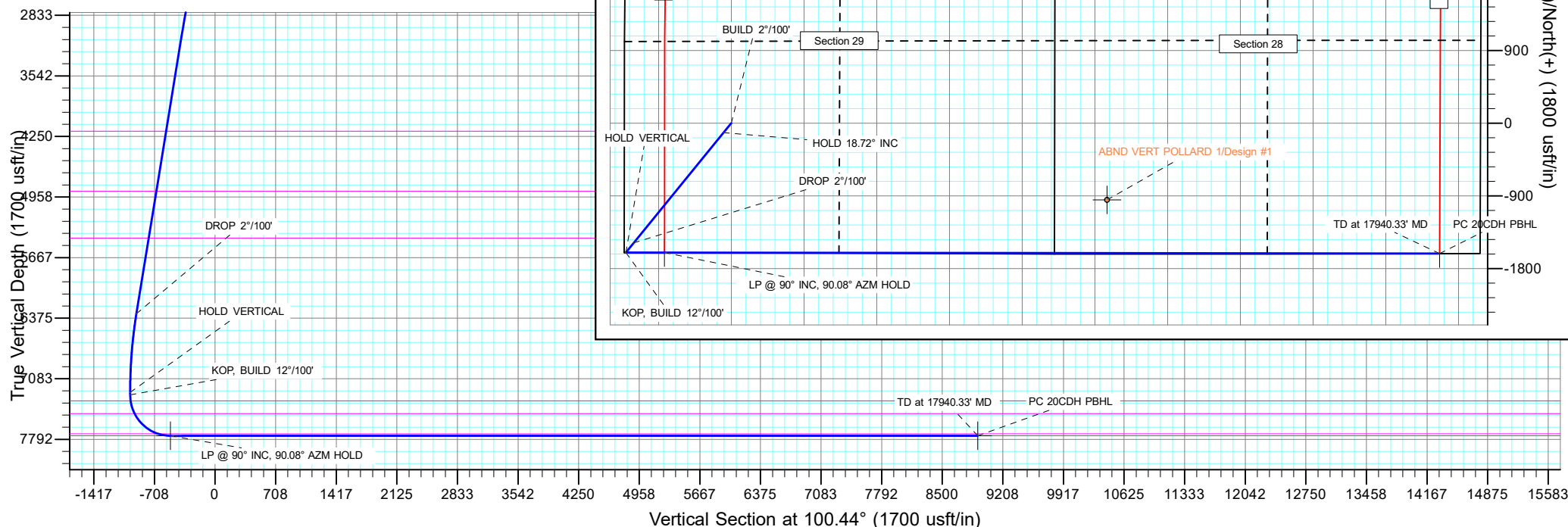
PROJECT DETAILS: Adams County

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

SHL:
1607' FSL, 1325' FWL
Sec 29-T1S-R66W

LP:
0' FSL, 500' FWL
Sec 29-T1S-R66W

BHL:
0' FSL, 500' FEL
Sec 28-T1S-R66W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PC 1S-66-2928-20CDH
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5091.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	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 29-T1-R66W			
Site Position:		Northing:	1,217,694.95 usft	Latitude:	39° 55' 43.968 N
From:	Lat/Long	Easting:	3,193,805.68 usft	Longitude:	104° 48' 32.148 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.45 °

Well	PC 1S-66-2928-20CDH					
Well Position	+N/-S	1,602.83 usft	Northing:	1,219,308.07 usft	Latitude:	39° 55' 59.808 N
	+E/-W	1,326.42 usft	Easting:	3,195,119.58 usft	Longitude:	104° 48' 15.120 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,066.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	9/11/2017	8.17	66.47	52,115.66469586

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	100.44

Plan Survey Tool Program	Date	9/12/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,940.30	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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,135.90	18.72	219.16	1,119.34	-117.49	-95.68	2.00	2.00	0.00	219.16	
6,630.32	18.72	219.16	6,323.16	-1,484.66	-1,209.13	0.00	0.00	0.00	0.00	
7,566.22	0.00	0.00	7,242.50	-1,602.15	-1,304.81	2.00	-2.00	0.00	180.00	
7,596.22	0.00	0.00	7,272.50	-1,602.15	-1,304.81	0.00	0.00	0.00	0.00	
8,346.27	90.00	90.08	7,750.00	-1,602.78	-827.31	12.00	12.00	12.01	90.08	PC 20CDH LP
17,940.33	90.00	90.08	7,750.00	-1,615.82	8,766.74	0.00	0.00	0.00	78.07	PC 20CDH PBHL

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PC 1S-66-2928-20CDH
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5091.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	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
BUILD 2°/100'									
300.00	2.00	219.16	299.98	-1.35	-1.10	-0.84	2.00	2.00	0.00
400.00	4.00	219.16	399.84	-5.41	-4.41	-3.35	2.00	2.00	0.00
500.00	6.00	219.16	499.45	-12.17	-9.91	-7.54	2.00	2.00	0.00
600.00	8.00	219.16	598.70	-21.62	-17.61	-13.40	2.00	2.00	0.00
700.00	10.00	219.16	697.47	-33.75	-27.48	-20.91	2.00	2.00	0.00
800.00	12.00	219.16	795.62	-48.54	-39.53	-30.08	2.00	2.00	0.00
900.00	14.00	219.16	893.06	-65.98	-53.74	-40.89	2.00	2.00	0.00
1,000.00	16.00	219.16	989.64	-86.05	-70.08	-53.32	2.00	2.00	0.00
1,100.00	18.00	219.16	1,085.27	-108.72	-88.54	-67.37	2.00	2.00	0.00
1,135.90	18.72	219.16	1,119.34	-117.49	-95.68	-72.80	2.00	2.00	0.00
HOLD 18.72° INC									
1,200.00	18.72	219.16	1,180.05	-133.44	-108.67	-82.69	0.00	0.00	0.00
1,300.00	18.72	219.16	1,274.76	-158.32	-128.94	-98.10	0.00	0.00	0.00
1,400.00	18.72	219.16	1,369.47	-183.20	-149.20	-113.52	0.00	0.00	0.00
1,500.00	18.72	219.16	1,464.18	-208.09	-169.47	-128.94	0.00	0.00	0.00
1,600.00	18.72	219.16	1,558.89	-232.97	-189.73	-144.36	0.00	0.00	0.00
1,700.00	18.72	219.16	1,653.61	-257.85	-210.00	-159.78	0.00	0.00	0.00
1,800.00	18.72	219.16	1,748.32	-282.74	-230.26	-175.20	0.00	0.00	0.00
1,900.00	18.72	219.16	1,843.03	-307.62	-250.53	-190.62	0.00	0.00	0.00
2,000.00	18.72	219.16	1,937.74	-332.50	-270.79	-206.04	0.00	0.00	0.00
2,100.00	18.72	219.16	2,032.45	-357.38	-291.06	-221.46	0.00	0.00	0.00
2,200.00	18.72	219.16	2,127.16	-382.27	-311.32	-236.88	0.00	0.00	0.00
2,300.00	18.72	219.16	2,221.87	-407.15	-331.59	-252.30	0.00	0.00	0.00
2,400.00	18.72	219.16	2,316.58	-432.03	-351.85	-267.71	0.00	0.00	0.00
2,500.00	18.72	219.16	2,411.29	-456.92	-372.12	-283.13	0.00	0.00	0.00
2,600.00	18.72	219.16	2,506.00	-481.80	-392.38	-298.55	0.00	0.00	0.00
2,700.00	18.72	219.16	2,600.72	-506.68	-412.65	-313.97	0.00	0.00	0.00
2,800.00	18.72	219.16	2,695.43	-531.56	-432.91	-329.39	0.00	0.00	0.00
2,900.00	18.72	219.16	2,790.14	-556.45	-453.18	-344.81	0.00	0.00	0.00
3,000.00	18.72	219.16	2,884.85	-581.33	-473.44	-360.23	0.00	0.00	0.00
3,100.00	18.72	219.16	2,979.56	-606.21	-493.71	-375.65	0.00	0.00	0.00
3,200.00	18.72	219.16	3,074.27	-631.10	-513.97	-391.07	0.00	0.00	0.00
3,300.00	18.72	219.16	3,168.98	-655.98	-534.24	-406.49	0.00	0.00	0.00
3,400.00	18.72	219.16	3,263.69	-680.86	-554.50	-421.91	0.00	0.00	0.00
3,500.00	18.72	219.16	3,358.40	-705.75	-574.77	-437.32	0.00	0.00	0.00
3,600.00	18.72	219.16	3,453.11	-730.63	-595.03	-452.74	0.00	0.00	0.00
3,700.00	18.72	219.16	3,547.82	-755.51	-615.30	-468.16	0.00	0.00	0.00
3,800.00	18.72	219.16	3,642.54	-780.39	-635.56	-483.58	0.00	0.00	0.00
3,900.00	18.72	219.16	3,737.25	-805.28	-655.83	-499.00	0.00	0.00	0.00
4,000.00	18.72	219.16	3,831.96	-830.16	-676.09	-514.42	0.00	0.00	0.00
4,100.00	18.72	219.16	3,926.67	-855.04	-696.36	-529.84	0.00	0.00	0.00
4,200.00	18.72	219.16	4,021.38	-879.93	-716.62	-545.26	0.00	0.00	0.00
4,300.00	18.72	219.16	4,116.09	-904.81	-736.89	-560.68	0.00	0.00	0.00
4,375.93	18.72	219.16	4,188.00	-923.70	-752.27	-572.38	0.00	0.00	0.00
PARKMAN									
4,400.00	18.72	219.16	4,210.80	-929.69	-757.15	-576.10	0.00	0.00	0.00
4,500.00	18.72	219.16	4,305.51	-954.58	-777.42	-591.51	0.00	0.00	0.00
4,600.00	18.72	219.16	4,400.22	-979.46	-797.68	-606.93	0.00	0.00	0.00
4,700.00	18.72	219.16	4,494.93	-1,004.34	-817.95	-622.35	0.00	0.00	0.00

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Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	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	18.72	219.16	4,589.65	-1,029.22	-838.21	-637.77	0.00	0.00	0.00
4,900.00	18.72	219.16	4,684.36	-1,054.11	-858.48	-653.19	0.00	0.00	0.00
5,000.00	18.72	219.16	4,779.07	-1,078.99	-878.74	-668.61	0.00	0.00	0.00
5,100.00	18.72	219.16	4,873.78	-1,103.87	-899.01	-684.03	0.00	0.00	0.00
5,119.24	18.72	219.16	4,892.00	-1,108.66	-902.91	-687.00	0.00	0.00	0.00
SUSSEX									
5,200.00	18.72	219.16	4,968.49	-1,128.76	-919.27	-699.45	0.00	0.00	0.00
5,300.00	18.72	219.16	5,063.20	-1,153.64	-939.54	-714.87	0.00	0.00	0.00
5,400.00	18.72	219.16	5,157.91	-1,178.52	-959.80	-730.29	0.00	0.00	0.00
5,500.00	18.72	219.16	5,252.62	-1,203.41	-980.07	-745.71	0.00	0.00	0.00
5,600.00	18.72	219.16	5,347.33	-1,228.29	-1,000.33	-761.12	0.00	0.00	0.00
5,694.67	18.72	219.16	5,437.00	-1,251.85	-1,019.52	-775.72	0.00	0.00	0.00
SHANNON									
5,700.00	18.72	219.16	5,442.04	-1,253.17	-1,020.60	-776.54	0.00	0.00	0.00
5,800.00	18.72	219.16	5,536.76	-1,278.05	-1,040.86	-791.96	0.00	0.00	0.00
5,900.00	18.72	219.16	5,631.47	-1,302.94	-1,061.13	-807.38	0.00	0.00	0.00
6,000.00	18.72	219.16	5,726.18	-1,327.82	-1,081.39	-822.80	0.00	0.00	0.00
6,100.00	18.72	219.16	5,820.89	-1,352.70	-1,101.66	-838.22	0.00	0.00	0.00
6,200.00	18.72	219.16	5,915.60	-1,377.59	-1,121.92	-853.64	0.00	0.00	0.00
6,300.00	18.72	219.16	6,010.31	-1,402.47	-1,142.19	-869.06	0.00	0.00	0.00
6,400.00	18.72	219.16	6,105.02	-1,427.35	-1,162.45	-884.48	0.00	0.00	0.00
6,500.00	18.72	219.16	6,199.73	-1,452.24	-1,182.72	-899.90	0.00	0.00	0.00
6,600.00	18.72	219.16	6,294.44	-1,477.12	-1,202.98	-915.31	0.00	0.00	0.00
6,630.32	18.72	219.16	6,323.16	-1,484.66	-1,209.13	-919.99	0.00	0.00	0.00
DROP 2°/100'									
6,700.00	17.32	219.16	6,389.42	-1,501.38	-1,222.74	-930.35	2.00	-2.00	0.00
6,800.00	15.32	219.16	6,485.38	-1,523.17	-1,240.49	-943.85	2.00	-2.00	0.00
6,900.00	13.32	219.16	6,582.27	-1,542.35	-1,256.11	-955.74	2.00	-2.00	0.00
7,000.00	11.32	219.16	6,679.96	-1,558.90	-1,269.59	-965.99	2.00	-2.00	0.00
7,100.00	9.32	219.16	6,778.34	-1,572.80	-1,280.91	-974.60	2.00	-2.00	0.00
7,200.00	7.32	219.16	6,877.28	-1,584.02	-1,290.05	-981.56	2.00	-2.00	0.00
7,300.00	5.32	219.16	6,976.66	-1,592.57	-1,297.00	-986.85	2.00	-2.00	0.00
7,400.00	3.32	219.16	7,076.37	-1,598.41	-1,301.77	-990.48	2.00	-2.00	0.00
7,500.00	1.32	219.16	7,176.29	-1,601.56	-1,304.33	-992.42	2.00	-2.00	0.00
7,566.22	0.00	0.00	7,242.50	-1,602.15	-1,304.81	-992.79	2.00	-2.00	0.00
HOLD VERTICAL									
7,596.22	0.00	0.00	7,272.50	-1,602.15	-1,304.81	-992.79	0.00	0.00	0.00
KOP, BUILD 12°/100'									
7,600.00	0.45	90.08	7,276.28	-1,602.15	-1,304.80	-992.78	12.00	12.00	0.00
7,625.00	3.45	90.08	7,301.26	-1,602.15	-1,303.94	-991.94	12.00	12.00	0.00
7,650.00	6.45	90.08	7,326.17	-1,602.15	-1,301.78	-989.82	12.00	12.00	0.00
7,665.97	8.37	90.08	7,342.00	-1,602.16	-1,299.73	-987.79	12.00	12.00	0.00
NIOBRARA									
7,675.00	9.45	90.08	7,350.92	-1,602.16	-1,298.33	-986.41	12.00	12.00	0.00
7,700.00	12.45	90.08	7,375.47	-1,602.16	-1,293.58	-981.74	12.00	12.00	0.00
7,725.00	15.45	90.08	7,399.72	-1,602.17	-1,287.55	-975.81	12.00	12.00	0.00
7,750.00	18.45	90.08	7,423.64	-1,602.18	-1,280.26	-968.64	12.00	12.00	0.00
7,775.00	21.45	90.08	7,447.13	-1,602.19	-1,271.73	-960.25	12.00	12.00	0.00
7,800.00	24.45	90.08	7,470.15	-1,602.21	-1,261.98	-950.66	12.00	12.00	0.00
7,823.17	27.23	90.08	7,491.00	-1,602.22	-1,251.89	-940.73	12.00	12.00	0.00
NIO B TARGET									
7,825.00	27.45	90.08	7,492.63	-1,602.22	-1,251.04	-939.90	12.00	12.00	0.00
7,850.00	30.45	90.08	7,514.50	-1,602.24	-1,238.94	-928.00	12.00	12.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PC 1S-66-2928-20CDH
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5091.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,875.00	33.45	90.08	7,535.71	-1,602.25	-1,225.72	-914.99	12.00	12.00	0.00	
7,900.00	36.45	90.08	7,556.20	-1,602.27	-1,211.39	-900.90	12.00	12.00	0.00	
7,925.00	39.45	90.08	7,575.91	-1,602.29	-1,196.02	-885.78	12.00	12.00	0.00	
7,950.00	42.45	90.08	7,594.79	-1,602.31	-1,179.64	-869.66	12.00	12.00	0.00	
7,975.00	45.45	90.08	7,612.79	-1,602.34	-1,162.29	-852.60	12.00	12.00	0.00	
8,000.00	48.45	90.08	7,629.85	-1,602.36	-1,144.02	-834.63	12.00	12.00	0.00	
8,025.00	51.45	90.08	7,645.94	-1,602.39	-1,124.89	-815.81	12.00	12.00	0.00	
8,050.00	54.45	90.08	7,661.00	-1,602.41	-1,104.94	-796.18	12.00	12.00	0.00	
8,075.00	57.45	90.08	7,674.99	-1,602.44	-1,084.23	-775.81	12.00	12.00	0.00	
8,100.00	60.45	90.08	7,687.89	-1,602.47	-1,062.81	-754.74	12.00	12.00	0.00	
8,125.00	63.45	90.08	7,699.64	-1,602.50	-1,040.75	-733.04	12.00	12.00	0.00	
8,150.00	66.45	90.08	7,710.23	-1,602.53	-1,018.10	-710.77	12.00	12.00	0.00	
8,175.00	69.45	90.08	7,719.61	-1,602.56	-994.94	-687.98	12.00	12.00	0.00	
8,197.47	72.14	90.08	7,727.00	-1,602.59	-973.72	-667.11	12.00	12.00	0.00	
FORT HAYS										
8,200.00	72.45	90.08	7,727.77	-1,602.59	-971.31	-664.74	12.00	12.00	0.00	
8,225.00	75.45	90.08	7,734.68	-1,602.62	-947.29	-641.11	12.00	12.00	0.00	
8,250.00	78.45	90.08	7,740.33	-1,602.65	-922.93	-617.15	12.00	12.00	0.00	
8,275.00	81.45	90.08	7,744.69	-1,602.68	-898.32	-592.94	12.00	12.00	0.00	
8,300.00	84.45	90.08	7,747.76	-1,602.72	-873.51	-568.54	12.00	12.00	0.00	
8,325.00	87.45	90.08	7,749.53	-1,602.75	-848.58	-544.01	12.00	12.00	0.00	
8,346.27	90.00	90.08	7,750.00	-1,602.78	-827.31	-523.09	12.00	12.00	0.00	
LP @ 90° INC, 90.08° AZM HOLD - CODELL										
8,400.00	90.00	90.08	7,750.00	-1,602.85	-773.59	-470.24	0.00	0.00	0.00	
8,500.00	90.00	90.08	7,750.00	-1,602.98	-673.59	-371.87	0.00	0.00	0.00	
8,600.00	90.00	90.08	7,750.00	-1,603.11	-573.59	-273.51	0.00	0.00	0.00	
8,700.00	90.00	90.08	7,750.00	-1,603.24	-473.59	-175.14	0.00	0.00	0.00	
8,800.00	90.00	90.08	7,750.00	-1,603.37	-373.59	-76.77	0.00	0.00	0.00	
8,900.00	90.00	90.08	7,750.01	-1,603.51	-273.59	21.60	0.00	0.00	0.00	
9,000.00	90.00	90.08	7,750.01	-1,603.64	-173.59	119.96	0.00	0.00	0.00	
9,100.00	90.00	90.08	7,750.01	-1,603.77	-73.59	218.33	0.00	0.00	0.00	
9,200.00	90.00	90.08	7,750.01	-1,603.90	26.41	316.70	0.00	0.00	0.00	
9,300.00	90.00	90.08	7,750.01	-1,604.04	126.41	415.07	0.00	0.00	0.00	
9,400.00	90.00	90.08	7,750.01	-1,604.17	226.41	513.43	0.00	0.00	0.00	
9,500.00	90.00	90.08	7,750.01	-1,604.30	326.41	611.80	0.00	0.00	0.00	
9,600.00	90.00	90.08	7,750.01	-1,604.43	426.41	710.17	0.00	0.00	0.00	
9,700.00	90.00	90.08	7,750.01	-1,604.56	526.41	808.54	0.00	0.00	0.00	
9,800.00	90.00	90.08	7,750.01	-1,604.70	626.41	906.90	0.00	0.00	0.00	
9,900.00	90.00	90.08	7,750.01	-1,604.83	726.41	1,005.27	0.00	0.00	0.00	
10,000.00	90.00	90.08	7,750.01	-1,604.96	826.41	1,103.64	0.00	0.00	0.00	
10,100.00	90.00	90.08	7,750.01	-1,605.10	926.41	1,202.01	0.00	0.00	0.00	
10,200.00	90.00	90.08	7,750.01	-1,605.23	1,026.41	1,300.37	0.00	0.00	0.00	
10,300.00	90.00	90.08	7,750.01	-1,605.36	1,126.41	1,398.74	0.00	0.00	0.00	
10,400.00	90.00	90.08	7,750.02	-1,605.50	1,226.41	1,497.11	0.00	0.00	0.00	
10,500.00	90.00	90.08	7,750.02	-1,605.63	1,326.41	1,595.48	0.00	0.00	0.00	
10,600.00	90.00	90.08	7,750.02	-1,605.76	1,426.41	1,693.84	0.00	0.00	0.00	
10,700.00	90.00	90.08	7,750.02	-1,605.90	1,526.41	1,792.21	0.00	0.00	0.00	
10,800.00	90.00	90.08	7,750.02	-1,606.03	1,626.41	1,890.58	0.00	0.00	0.00	
10,900.00	90.00	90.08	7,750.02	-1,606.16	1,726.41	1,988.95	0.00	0.00	0.00	
11,000.00	90.00	90.08	7,750.02	-1,606.30	1,826.41	2,087.31	0.00	0.00	0.00	
11,100.00	90.00	90.08	7,750.02	-1,606.43	1,926.41	2,185.68	0.00	0.00	0.00	
11,200.00	90.00	90.08	7,750.02	-1,606.57	2,026.41	2,284.05	0.00	0.00	0.00	
11,300.00	90.00	90.08	7,750.02	-1,606.70	2,126.41	2,382.42	0.00	0.00	0.00	
11,400.00	90.00	90.08	7,750.02	-1,606.83	2,226.41	2,480.79	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PC 1S-66-2928-20CDH
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5091.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	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)	
11,500.00	90.00	90.08	7,750.02	-1,606.97	2,326.41	2,579.15	0.00	0.00	0.00	
11,600.00	90.00	90.08	7,750.02	-1,607.10	2,426.41	2,677.52	0.00	0.00	0.00	
11,700.00	90.00	90.08	7,750.02	-1,607.24	2,526.41	2,775.89	0.00	0.00	0.00	
11,800.00	90.00	90.08	7,750.02	-1,607.37	2,626.41	2,874.26	0.00	0.00	0.00	
11,900.00	90.00	90.08	7,750.02	-1,607.51	2,726.41	2,972.62	0.00	0.00	0.00	
12,000.00	90.00	90.08	7,750.02	-1,607.64	2,826.41	3,070.99	0.00	0.00	0.00	
12,100.00	90.00	90.08	7,750.02	-1,607.78	2,926.41	3,169.36	0.00	0.00	0.00	
12,200.00	90.00	90.08	7,750.02	-1,607.91	3,026.41	3,267.73	0.00	0.00	0.00	
12,300.00	90.00	90.08	7,750.02	-1,608.05	3,126.41	3,366.10	0.00	0.00	0.00	
12,400.00	90.00	90.08	7,750.02	-1,608.18	3,226.41	3,464.46	0.00	0.00	0.00	
12,500.00	90.00	90.08	7,750.02	-1,608.32	3,326.41	3,562.83	0.00	0.00	0.00	
12,600.00	90.00	90.08	7,750.02	-1,608.45	3,426.41	3,661.20	0.00	0.00	0.00	
12,700.00	90.00	90.08	7,750.02	-1,608.59	3,526.41	3,759.57	0.00	0.00	0.00	
12,800.00	90.00	90.08	7,750.02	-1,608.72	3,626.41	3,857.94	0.00	0.00	0.00	
12,900.00	90.00	90.08	7,750.02	-1,608.86	3,726.41	3,956.30	0.00	0.00	0.00	
13,000.00	90.00	90.08	7,750.02	-1,608.99	3,826.41	4,054.67	0.00	0.00	0.00	
13,100.00	90.00	90.08	7,750.02	-1,609.13	3,926.41	4,153.04	0.00	0.00	0.00	
13,200.00	90.00	90.08	7,750.02	-1,609.27	4,026.41	4,251.41	0.00	0.00	0.00	
13,300.00	90.00	90.08	7,750.02	-1,609.40	4,126.41	4,349.78	0.00	0.00	0.00	
13,400.00	90.00	90.08	7,750.02	-1,609.54	4,226.41	4,448.14	0.00	0.00	0.00	
13,500.00	90.00	90.08	7,750.02	-1,609.67	4,326.41	4,546.51	0.00	0.00	0.00	
13,600.00	90.00	90.08	7,750.02	-1,609.81	4,426.41	4,644.88	0.00	0.00	0.00	
13,700.00	90.00	90.08	7,750.02	-1,609.95	4,526.41	4,743.25	0.00	0.00	0.00	
13,800.00	90.00	90.08	7,750.02	-1,610.08	4,626.41	4,841.62	0.00	0.00	0.00	
13,900.00	90.00	90.08	7,750.02	-1,610.22	4,726.41	4,939.99	0.00	0.00	0.00	
14,000.00	90.00	90.08	7,750.02	-1,610.36	4,826.41	5,038.35	0.00	0.00	0.00	
14,100.00	90.00	90.08	7,750.02	-1,610.49	4,926.41	5,136.72	0.00	0.00	0.00	
14,200.00	90.00	90.08	7,750.02	-1,610.63	5,026.41	5,235.09	0.00	0.00	0.00	
14,300.00	90.00	90.08	7,750.02	-1,610.77	5,126.41	5,333.46	0.00	0.00	0.00	
14,400.00	90.00	90.08	7,750.02	-1,610.90	5,226.41	5,431.83	0.00	0.00	0.00	
14,500.00	90.00	90.08	7,750.02	-1,611.04	5,326.41	5,530.19	0.00	0.00	0.00	
14,600.00	90.00	90.08	7,750.02	-1,611.18	5,426.41	5,628.56	0.00	0.00	0.00	
14,700.00	90.00	90.08	7,750.02	-1,611.32	5,526.41	5,726.93	0.00	0.00	0.00	
14,800.00	90.00	90.08	7,750.02	-1,611.45	5,626.41	5,825.30	0.00	0.00	0.00	
14,900.00	90.00	90.08	7,750.02	-1,611.59	5,726.41	5,923.67	0.00	0.00	0.00	
15,000.00	90.00	90.08	7,750.02	-1,611.73	5,826.41	6,022.04	0.00	0.00	0.00	
15,100.00	90.00	90.08	7,750.02	-1,611.87	5,926.41	6,120.41	0.00	0.00	0.00	
15,200.00	90.00	90.08	7,750.02	-1,612.00	6,026.41	6,218.77	0.00	0.00	0.00	
15,300.00	90.00	90.08	7,750.02	-1,612.14	6,126.41	6,317.14	0.00	0.00	0.00	
15,400.00	90.00	90.08	7,750.02	-1,612.28	6,226.41	6,415.51	0.00	0.00	0.00	
15,500.00	90.00	90.08	7,750.02	-1,612.42	6,326.41	6,513.88	0.00	0.00	0.00	
15,600.00	90.00	90.08	7,750.02	-1,612.56	6,426.41	6,612.25	0.00	0.00	0.00	
15,700.00	90.00	90.08	7,750.02	-1,612.69	6,526.41	6,710.62	0.00	0.00	0.00	
15,800.00	90.00	90.08	7,750.02	-1,612.83	6,626.41	6,808.98	0.00	0.00	0.00	
15,900.00	90.00	90.08	7,750.02	-1,612.97	6,726.41	6,907.35	0.00	0.00	0.00	
16,000.00	90.00	90.08	7,750.01	-1,613.11	6,826.41	7,005.72	0.00	0.00	0.00	
16,100.00	90.00	90.08	7,750.01	-1,613.25	6,926.41	7,104.09	0.00	0.00	0.00	
16,200.00	90.00	90.08	7,750.01	-1,613.39	7,026.41	7,202.46	0.00	0.00	0.00	
16,300.00	90.00	90.08	7,750.01	-1,613.53	7,126.41	7,300.83	0.00	0.00	0.00	
16,400.00	90.00	90.08	7,750.01	-1,613.67	7,226.41	7,399.20	0.00	0.00	0.00	
16,500.00	90.00	90.08	7,750.01	-1,613.80	7,326.41	7,497.56	0.00	0.00	0.00	
16,600.00	90.00	90.08	7,750.01	-1,613.94	7,426.41	7,595.93	0.00	0.00	0.00	
16,700.00	90.00	90.08	7,750.01	-1,614.08	7,526.41	7,694.30	0.00	0.00	0.00	
16,800.00	90.00	90.08	7,750.01	-1,614.22	7,626.41	7,792.67	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PC 1S-66-2928-20CDH
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5091.00usft
Project:	Adams County	MD Reference:	KB 25' @ 5091.00usft
Site:	Sec 29-T1-R66W	North Reference:	True
Well:	PC 1S-66-2928-20CDH	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)	
16,900.00	90.00	90.08	7,750.01	-1,614.36	7,726.41	7,891.04	0.00	0.00	0.00	
17,000.00	90.00	90.08	7,750.01	-1,614.50	7,826.41	7,989.41	0.00	0.00	0.00	
17,100.00	90.00	90.08	7,750.01	-1,614.64	7,926.41	8,087.78	0.00	0.00	0.00	
17,200.00	90.00	90.08	7,750.01	-1,614.78	8,026.41	8,186.15	0.00	0.00	0.00	
17,300.00	90.00	90.08	7,750.01	-1,614.92	8,126.41	8,284.51	0.00	0.00	0.00	
17,400.00	90.00	90.08	7,750.01	-1,615.06	8,226.41	8,382.88	0.00	0.00	0.00	
17,500.00	90.00	90.08	7,750.00	-1,615.20	8,326.41	8,481.25	0.00	0.00	0.00	
17,600.00	90.00	90.08	7,750.00	-1,615.34	8,426.41	8,579.62	0.00	0.00	0.00	
17,700.00	90.00	90.08	7,750.00	-1,615.48	8,526.41	8,677.99	0.00	0.00	0.00	
17,800.00	90.00	90.08	7,750.00	-1,615.62	8,626.41	8,776.36	0.00	0.00	0.00	
17,900.00	90.00	90.08	7,750.00	-1,615.76	8,726.41	8,874.73	0.00	0.00	0.00	
17,940.33	90.00	90.08	7,750.00	-1,615.82	8,766.74	8,914.40	0.00	0.00	0.00	
TD at 17940.33' MD										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PC 20CDH PBHL - plan hits target center - Point	0.00	0.00	7,750.00	-1,615.82	8,766.74	1,217,761.09	3,203,898.72	39° 55' 43.824 N	104° 46' 22.584 W
PC 20CDH LP - plan hits target center - Point	0.00	0.00	7,750.00	-1,602.78	-827.31	1,217,698.85	3,194,304.86	39° 55' 43.968 N	104° 48' 25.740 W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,375.93	4,188.00	PARKMAN				
5,119.24	4,892.00	SUSSEX				
5,694.67	5,437.00	SHANNON				
7,665.97	7,342.00	NIOBRARA				
7,823.17	7,491.00	NIO B TARGET				
8,197.47	7,727.00	FORT HAYS				
8,346.27	7,750.00	CODELL				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
200.00	200.00	0.00	0.00	BUILD 2°/100'
1,135.90	1,119.34	-117.49	-95.68	HOLD 18.72° INC
6,630.32	6,323.16	-1,484.66	-1,209.13	DROP 2°/100'
7,566.22	7,242.50	-1,602.15	-1,304.81	HOLD VERTICAL
7,596.22	7,272.50	-1,602.15	-1,304.81	KOP, BUILD 12°/100'
8,346.27	7,750.00	-1,602.78	-827.31	LP @ 90° INC, 90.08° AZM HOLD
17,940.33	7,750.00	-1,615.82	8,766.74	TD at 17940.33' MD