

EXTRACTION OIL & GAS

Adams County

Sec 12-T1S-R66W

DUCK CLUB 12W-20-12C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

26 March, 2018



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



Azimuths to True North
Magnetic North: 8.12°
Magnetic Field
Strength: 52138.4nT
Dip Angle: 66.51°
Date: 10/10/2017
Model: IGRF2015

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

| +N/-S | +E/-W | Northing | Easting | 5037.00 | Latitude | Longitude | Slot |
|-------|-------|------------|------------|------------------|-------------------|-----------|------|
| 0.00 | 0.00 | 1235985.86 | 3215508.62 | 39° 58' 42.960 N | 104° 43' 51.528 W | | |

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | Vsect | Target |
|-----|----------|-------|--------|---------|----------|----------|-------|--------|----------|---------------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1438.64 | 26.77 | 131.49 | 1390.45 | -203.44 | 230.06 | 2.00 | 131.49 | -155.32 | |
| 4 | 6183.37 | 26.77 | 131.49 | 5626.55 | -1619.26 | 1831.13 | 0.00 | 0.00 | -1236.24 | |
| 5 | 7522.01 | 0.00 | 0.00 | 6917.00 | -1822.70 | 2061.19 | 2.00 | 180.00 | -1391.56 | |
| 6 | 7552.01 | 0.00 | 0.00 | 6947.00 | -1822.70 | 2061.19 | 0.00 | 0.00 | -1391.56 | |
| 7 | 8452.07 | 90.00 | 270.14 | 7520.00 | -1821.31 | 1488.19 | 10.00 | 270.14 | -847.45 | DC 12C - LP |
| 8 | 18059.48 | 90.00 | 270.14 | 7520.00 | -1798.17 | -8119.18 | 0.00 | 0.00 | 8275.59 | DC 12C - PBHL |

ANNOTATIONS

| MD | Inc | Azi | TVD | +N/-S | +E/-W | Vsect | Departure | Annotation |
|----------|-------|--------|---------|----------|----------|----------|-----------|----------------------------------|
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1438.64 | 26.77 | 131.49 | 1390.45 | -203.44 | 230.06 | -155.32 | 307.11 | Start 4744.73 hold at 1438.64 MD |
| 6183.37 | 26.77 | 131.49 | 5626.55 | -1619.26 | 1831.13 | -1236.24 | 2444.39 | Start Drop -2.00 |
| 7522.01 | 0.00 | 0.00 | 6917.00 | -1822.70 | 2061.19 | -1391.56 | 2751.50 | Start 30.00 hold at 7522.01 MD |
| 7552.01 | 0.00 | 0.00 | 6947.00 | -1822.70 | 2061.19 | -1391.56 | 2751.50 | Start DLS 10.00 TFO 270.14 |
| 8452.07 | 90.00 | 270.14 | 7520.00 | -1821.31 | 1488.19 | -847.45 | 3324.50 | Start 9607.40 hold at 8452.07 MD |
| 18059.48 | 90.00 | 270.14 | 7520.00 | -1798.17 | -8119.18 | 8275.59 | 12931.90 | TD at 18059.48 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---------------------------|---------|----------|----------|------------|------------|------------------|-------------------|-------|
| DC 12C - LP | 7520.00 | -1821.31 | 1488.19 | 1234177.52 | 3217012.55 | 39° 58' 24.960 N | 104° 43' 32.412 W | Point |
| - plan hits target center | | | | | | | | |
| DC 12C - PBHL | 7520.00 | -1798.17 | -8119.18 | 1234117.34 | 3207405.33 | 39° 58' 25.176 N | 104° 45' 35.820 W | Point |
| - plan hits target center | | | | | | | | |

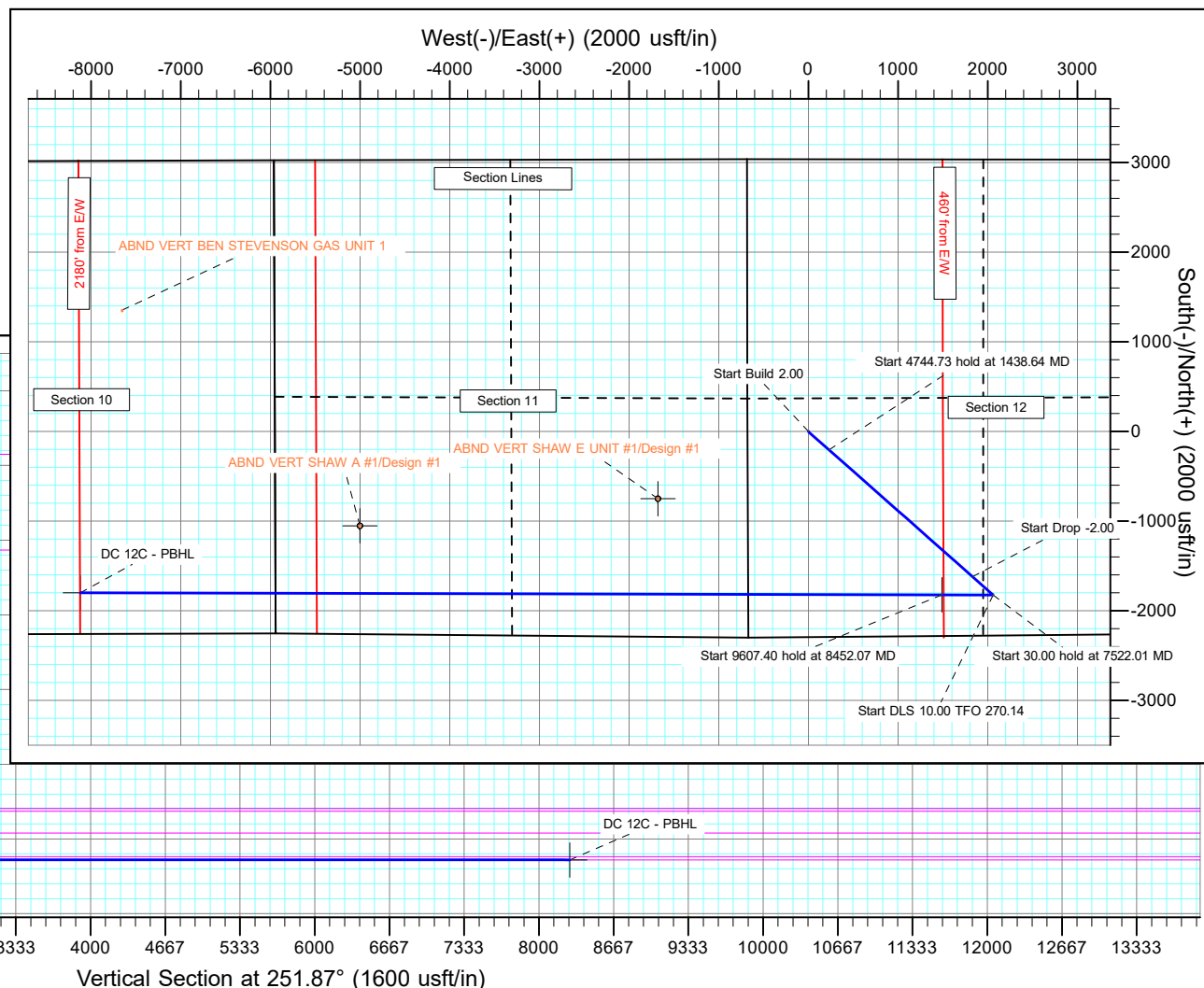
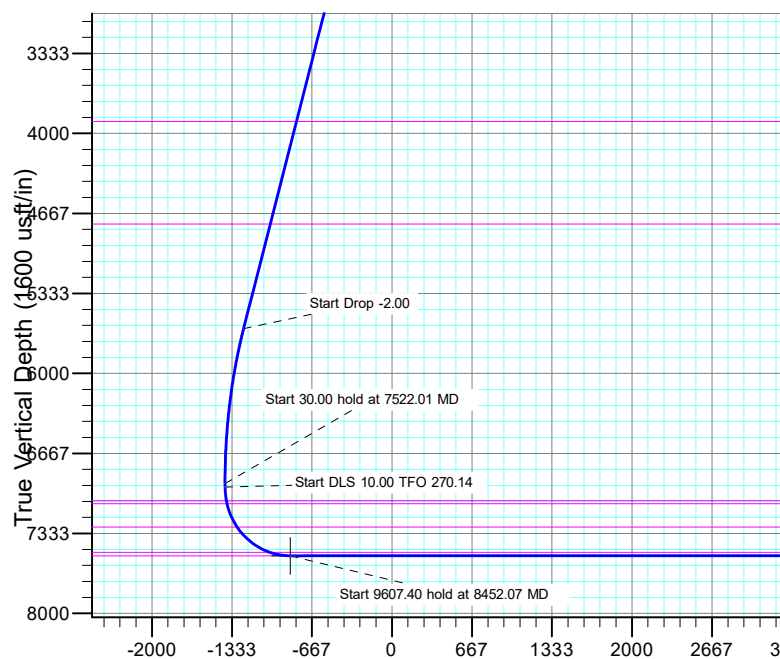
FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|---------|----------------|
| 3900.00 | 4249.51 | PARKMAN |
| 4755.00 | 5207.17 | SUSSEX |
| 7080.00 | 7665.75 | SHARON SPRINGS |
| 7086.00 | 7692.41 | NIOBRARA |
| 7280.00 | 7907.35 | NIO B |
| 7490.00 | 8265.84 | FORT HAYS |
| 7520.00 | 8452.07 | 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:
2296' FSL, 680' FWL
Sec 12-T1S-R66W
LP:
460' FSL, 2161' FWL
Sec 12-T1S-R66W
BHL:
460' FSL, 2176' FEL
Sec 10-T1S-R66W



Planning Report

| | | | |
|------------------|----------------------|-------------------------------------|---------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well DUCK CLUB 12W-20-12C |
| 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-20-12C | 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-20-12C | | | | | |
|----------------------|----------------------|----------------|---------------------|-------------------|---------------|-------------------|
| Well Position | +N/-S | -3,038.65 usft | Northing: | 1,235,985.86 usft | Latitude: | 39° 58' 42.960 N |
| | +E/-W | 685.97 usft | Easting: | 3,215,508.62 usft | Longitude: | 104° 43' 51.528 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 | 52,138.41183684 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| 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 | 251.87 |

| | | | | |
|---------------------------------|------------------------|--------------------------|---------------------------|----------------|
| Plan Survey Tool Program | Date | 3/14/2018 | | |
| Depth From (usft) | Depth To (usft) | Survey (Wellbore) | Tool Name | Remarks |
| 1 | 0.00 | 18,059.07 | PROPOSAL 1 (ORIGINAL WELL | MWD OWSG |
| | | | OWSG MWD - Standard | |

| | | | | | | | | | | |
|------------------------------|------------------------|--------------------|------------------------------|---------------------|---------------------|------------------------------|-----------------------------|----------------------------|----------------|---------------|
| Plan Sections | | | | | | | | | | |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,438.64 | 26.77 | 131.49 | 1,390.45 | -203.44 | 230.06 | 2.00 | 2.00 | 0.00 | 131.49 | |
| 6,183.37 | 26.77 | 131.49 | 5,626.55 | -1,619.26 | 1,831.13 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,522.01 | 0.00 | 0.00 | 6,917.00 | -1,822.70 | 2,061.19 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 7,552.01 | 0.00 | 0.00 | 6,947.00 | -1,822.70 | 2,061.19 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 8,452.08 | 90.00 | 270.14 | 7,520.00 | -1,821.31 | 1,488.19 | 10.00 | 10.00 | -9.98 | 270.14 | DC 12C - LP |
| 18,059.48 | 90.00 | 270.14 | 7,520.00 | -1,798.17 | -8,119.18 | 0.00 | 0.00 | 0.00 | 0.00 | DC 12C - PBHL |

Planning Report

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

| Planned Survey | | | | | | | | | |
|----------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Start Build 2.00 | | | | | | | | | |
| 200.00 | 2.00 | 131.49 | 199.98 | -1.16 | 1.31 | -0.88 | 2.00 | 2.00 | 0.00 |
| 300.00 | 4.00 | 131.49 | 299.84 | -4.62 | 5.23 | -3.53 | 2.00 | 2.00 | 0.00 |
| 400.00 | 6.00 | 131.49 | 399.45 | -10.40 | 11.76 | -7.94 | 2.00 | 2.00 | 0.00 |
| 500.00 | 8.00 | 131.49 | 498.70 | -18.47 | 20.89 | -14.10 | 2.00 | 2.00 | 0.00 |
| 600.00 | 10.00 | 131.49 | 597.47 | -28.83 | 32.60 | -22.01 | 2.00 | 2.00 | 0.00 |
| 700.00 | 12.00 | 131.49 | 695.62 | -41.47 | 46.90 | -31.66 | 2.00 | 2.00 | 0.00 |
| 800.00 | 14.00 | 131.49 | 793.06 | -56.37 | 63.75 | -43.04 | 2.00 | 2.00 | 0.00 |
| 900.00 | 16.00 | 131.49 | 889.64 | -73.52 | 83.13 | -56.13 | 2.00 | 2.00 | 0.00 |
| 1,000.00 | 18.00 | 131.49 | 985.27 | -92.88 | 105.04 | -70.91 | 2.00 | 2.00 | 0.00 |
| 1,100.00 | 20.00 | 131.49 | 1,079.82 | -114.45 | 129.42 | -87.38 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 22.00 | 131.49 | 1,173.17 | -138.19 | 156.27 | -105.50 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 24.00 | 131.49 | 1,265.21 | -164.07 | 185.54 | -125.26 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 26.00 | 131.49 | 1,355.84 | -192.06 | 217.19 | -146.63 | 2.00 | 2.00 | 0.00 |
| 1,438.64 | 26.77 | 131.49 | 1,390.45 | -203.44 | 230.06 | -155.32 | 2.00 | 2.00 | 0.00 |
| Start 4744.73 hold at 1438.64 MD | | | | | | | | | |
| 1,500.00 | 26.77 | 131.49 | 1,445.24 | -221.75 | 250.76 | -169.30 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 26.77 | 131.49 | 1,534.52 | -251.59 | 284.51 | -192.08 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 26.77 | 131.49 | 1,623.80 | -281.43 | 318.25 | -214.86 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 26.77 | 131.49 | 1,713.08 | -311.27 | 352.00 | -237.64 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 26.77 | 131.49 | 1,802.36 | -341.11 | 385.74 | -260.42 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 26.77 | 131.49 | 1,891.64 | -370.95 | 419.49 | -283.20 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 26.77 | 131.49 | 1,980.92 | -400.79 | 453.23 | -305.99 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 26.77 | 131.49 | 2,070.20 | -430.63 | 486.97 | -328.77 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 26.77 | 131.49 | 2,159.48 | -460.47 | 520.72 | -351.55 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 26.77 | 131.49 | 2,248.76 | -490.31 | 554.46 | -374.33 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 26.77 | 131.49 | 2,338.04 | -520.15 | 588.21 | -397.11 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 26.77 | 131.49 | 2,427.32 | -549.99 | 621.95 | -419.89 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 26.77 | 131.49 | 2,516.60 | -579.83 | 655.69 | -442.68 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 26.77 | 131.49 | 2,605.88 | -609.67 | 689.44 | -465.46 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 26.77 | 131.49 | 2,695.16 | -639.51 | 723.18 | -488.24 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 26.77 | 131.49 | 2,784.44 | -669.35 | 756.93 | -511.02 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 26.77 | 131.49 | 2,873.72 | -699.19 | 790.67 | -533.80 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 26.77 | 131.49 | 2,963.00 | -729.03 | 824.42 | -556.58 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 26.77 | 131.49 | 3,052.28 | -758.87 | 858.16 | -579.36 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 26.77 | 131.49 | 3,141.56 | -788.71 | 891.90 | -602.15 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 26.77 | 131.49 | 3,230.84 | -818.55 | 925.65 | -624.93 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 26.77 | 131.49 | 3,320.12 | -848.39 | 959.39 | -647.71 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 26.77 | 131.49 | 3,409.40 | -878.23 | 993.14 | -670.49 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 26.77 | 131.49 | 3,498.68 | -908.07 | 1,026.88 | -693.27 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 26.77 | 131.49 | 3,587.96 | -937.91 | 1,060.63 | -716.05 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 26.77 | 131.49 | 3,677.24 | -967.75 | 1,094.37 | -738.84 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 26.77 | 131.49 | 3,766.52 | -997.59 | 1,128.11 | -761.62 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 26.77 | 131.49 | 3,855.80 | -1,027.43 | 1,161.86 | -784.40 | 0.00 | 0.00 | 0.00 |
| 4,249.51 | 26.77 | 131.49 | 3,900.00 | -1,042.20 | 1,178.57 | -795.68 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 4,300.00 | 26.77 | 131.49 | 3,945.08 | -1,057.27 | 1,195.60 | -807.18 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 26.77 | 131.49 | 4,034.36 | -1,087.11 | 1,229.35 | -829.96 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 26.77 | 131.49 | 4,123.64 | -1,116.95 | 1,263.09 | -852.74 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 26.77 | 131.49 | 4,212.92 | -1,146.79 | 1,296.84 | -875.52 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 26.77 | 131.49 | 4,302.20 | -1,176.63 | 1,330.58 | -898.31 | 0.00 | 0.00 | 0.00 |

Planning Report

| | | | |
|------------------|----------------------|-------------------------------------|---------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well DUCK CLUB 12W-20-12C |
| 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-20-12C | 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 | 26.77 | 131.49 | 4,391.47 | -1,206.47 | 1,364.32 | -921.09 | 0.00 | 0.00 | 0.00 | |
| 4,900.00 | 26.77 | 131.49 | 4,480.75 | -1,236.31 | 1,398.07 | -943.87 | 0.00 | 0.00 | 0.00 | |
| 5,000.00 | 26.77 | 131.49 | 4,570.03 | -1,266.14 | 1,431.81 | -966.65 | 0.00 | 0.00 | 0.00 | |
| 5,100.00 | 26.77 | 131.49 | 4,659.31 | -1,295.98 | 1,465.56 | -989.43 | 0.00 | 0.00 | 0.00 | |
| 5,200.00 | 26.77 | 131.49 | 4,748.59 | -1,325.82 | 1,499.30 | -1,012.21 | 0.00 | 0.00 | 0.00 | |
| 5,207.17 | 26.77 | 131.49 | 4,755.00 | -1,327.97 | 1,501.72 | -1,013.85 | 0.00 | 0.00 | 0.00 | |
| SUSSEX | | | | | | | | | | |
| 5,300.00 | 26.77 | 131.49 | 4,837.87 | -1,355.66 | 1,533.05 | -1,035.00 | 0.00 | 0.00 | 0.00 | |
| 5,400.00 | 26.77 | 131.49 | 4,927.15 | -1,385.50 | 1,566.79 | -1,057.78 | 0.00 | 0.00 | 0.00 | |
| 5,500.00 | 26.77 | 131.49 | 5,016.43 | -1,415.34 | 1,600.53 | -1,080.56 | 0.00 | 0.00 | 0.00 | |
| 5,600.00 | 26.77 | 131.49 | 5,105.71 | -1,445.18 | 1,634.28 | -1,103.34 | 0.00 | 0.00 | 0.00 | |
| 5,700.00 | 26.77 | 131.49 | 5,194.99 | -1,475.02 | 1,668.02 | -1,126.12 | 0.00 | 0.00 | 0.00 | |
| 5,800.00 | 26.77 | 131.49 | 5,284.27 | -1,504.86 | 1,701.77 | -1,148.90 | 0.00 | 0.00 | 0.00 | |
| 5,900.00 | 26.77 | 131.49 | 5,373.55 | -1,534.70 | 1,735.51 | -1,171.68 | 0.00 | 0.00 | 0.00 | |
| 6,000.00 | 26.77 | 131.49 | 5,462.83 | -1,564.54 | 1,769.26 | -1,194.47 | 0.00 | 0.00 | 0.00 | |
| 6,100.00 | 26.77 | 131.49 | 5,552.11 | -1,594.38 | 1,803.00 | -1,217.25 | 0.00 | 0.00 | 0.00 | |
| 6,183.37 | 26.77 | 131.49 | 5,626.55 | -1,619.26 | 1,831.13 | -1,236.24 | 0.00 | 0.00 | 0.00 | |
| Start Drop -2.00 | | | | | | | | | | |
| 6,200.00 | 26.44 | 131.49 | 5,641.42 | -1,624.19 | 1,836.71 | -1,240.01 | 2.00 | -2.00 | 0.00 | |
| 6,300.00 | 24.44 | 131.49 | 5,731.71 | -1,652.65 | 1,868.89 | -1,261.73 | 2.00 | -2.00 | 0.00 | |
| 6,400.00 | 22.44 | 131.49 | 5,823.46 | -1,679.00 | 1,898.69 | -1,281.85 | 2.00 | -2.00 | 0.00 | |
| 6,500.00 | 20.44 | 131.49 | 5,916.53 | -1,703.21 | 1,926.07 | -1,300.33 | 2.00 | -2.00 | 0.00 | |
| 6,600.00 | 18.44 | 131.49 | 6,010.83 | -1,725.26 | 1,951.00 | -1,317.17 | 2.00 | -2.00 | 0.00 | |
| 6,700.00 | 16.44 | 131.49 | 6,106.23 | -1,745.11 | 1,973.45 | -1,332.32 | 2.00 | -2.00 | 0.00 | |
| 6,800.00 | 14.44 | 131.49 | 6,202.61 | -1,762.75 | 1,993.39 | -1,345.79 | 2.00 | -2.00 | 0.00 | |
| 6,900.00 | 12.44 | 131.49 | 6,299.87 | -1,778.14 | 2,010.80 | -1,357.54 | 2.00 | -2.00 | 0.00 | |
| 7,000.00 | 10.44 | 131.49 | 6,397.88 | -1,791.28 | 2,025.66 | -1,367.57 | 2.00 | -2.00 | 0.00 | |
| 7,100.00 | 8.44 | 131.49 | 6,496.52 | -1,802.15 | 2,037.95 | -1,375.87 | 2.00 | -2.00 | 0.00 | |
| 7,200.00 | 6.44 | 131.49 | 6,595.67 | -1,810.72 | 2,047.65 | -1,382.42 | 2.00 | -2.00 | 0.00 | |
| 7,300.00 | 4.44 | 131.49 | 6,695.21 | -1,817.00 | 2,054.75 | -1,387.21 | 2.00 | -2.00 | 0.00 | |
| 7,400.00 | 2.44 | 131.49 | 6,795.03 | -1,820.98 | 2,059.24 | -1,390.24 | 2.00 | -2.00 | 0.00 | |
| 7,500.00 | 0.44 | 131.49 | 6,894.99 | -1,822.64 | 2,061.13 | -1,391.52 | 2.00 | -2.00 | 0.00 | |
| 7,522.01 | 0.00 | 0.00 | 6,917.00 | -1,822.70 | 2,061.19 | -1,391.56 | 2.00 | -2.00 | 0.00 | |
| Start 30.00 hold at 7522.01 MD | | | | | | | | | | |
| 7,552.01 | 0.00 | 0.00 | 6,947.00 | -1,822.70 | 2,061.19 | -1,391.56 | 0.00 | 0.00 | 0.00 | |
| Start DLS 10.00 TFO 270.14 | | | | | | | | | | |
| 7,600.00 | 4.80 | 270.14 | 6,994.94 | -1,822.70 | 2,059.18 | -1,389.65 | 10.00 | 10.00 | 0.00 | |
| 7,650.00 | 9.80 | 270.14 | 7,044.51 | -1,822.68 | 2,052.83 | -1,383.62 | 10.00 | 10.00 | 0.00 | |
| 7,665.75 | 11.37 | 270.14 | 7,060.00 | -1,822.67 | 2,049.94 | -1,380.87 | 10.00 | 10.00 | 0.00 | |
| SHARON SPRINGS | | | | | | | | | | |
| 7,692.41 | 14.04 | 270.14 | 7,086.00 | -1,822.66 | 2,044.07 | -1,375.31 | 10.00 | 10.00 | 0.00 | |
| NIOBRARA | | | | | | | | | | |
| 7,700.00 | 14.80 | 270.14 | 7,093.35 | -1,822.65 | 2,042.18 | -1,373.51 | 10.00 | 10.00 | 0.00 | |
| 7,750.00 | 19.80 | 270.14 | 7,141.08 | -1,822.62 | 2,027.32 | -1,359.40 | 10.00 | 10.00 | 0.00 | |
| 7,800.00 | 24.80 | 270.14 | 7,187.32 | -1,822.57 | 2,008.36 | -1,341.39 | 10.00 | 10.00 | 0.00 | |
| 7,850.00 | 29.80 | 270.14 | 7,231.74 | -1,822.52 | 1,985.43 | -1,319.62 | 10.00 | 10.00 | 0.00 | |
| 7,900.00 | 34.80 | 270.14 | 7,273.99 | -1,822.45 | 1,958.73 | -1,294.26 | 10.00 | 10.00 | 0.00 | |
| 7,907.35 | 35.53 | 270.14 | 7,280.00 | -1,822.44 | 1,954.49 | -1,290.24 | 10.00 | 10.00 | 0.00 | |
| NIO B | | | | | | | | | | |
| 7,950.00 | 39.80 | 270.14 | 7,313.75 | -1,822.38 | 1,928.44 | -1,265.50 | 10.00 | 10.00 | 0.00 | |
| 8,000.00 | 44.80 | 270.14 | 7,350.73 | -1,822.30 | 1,894.80 | -1,233.56 | 10.00 | 10.00 | 0.00 | |
| 8,050.00 | 49.80 | 270.14 | 7,384.63 | -1,822.21 | 1,858.07 | -1,198.68 | 10.00 | 10.00 | 0.00 | |
| 8,100.00 | 54.80 | 270.14 | 7,415.20 | -1,822.11 | 1,818.53 | -1,161.13 | 10.00 | 10.00 | 0.00 | |

Planning Report

| | | | |
|------------------|----------------------|-------------------------------------|---------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well DUCK CLUB 12W-20-12C |
| 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-20-12C | 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) | |
| 8,150.00 | 59.79 | 270.14 | 7,442.20 | -1,822.01 | 1,776.47 | -1,121.19 | 10.00 | 10.00 | 0.00 | |
| 8,200.00 | 64.79 | 270.14 | 7,465.44 | -1,821.90 | 1,732.21 | -1,079.17 | 10.00 | 10.00 | 0.00 | |
| 8,250.00 | 69.79 | 270.14 | 7,484.74 | -1,821.79 | 1,686.10 | -1,035.38 | 10.00 | 10.00 | 0.00 | |
| 8,265.84 | 71.38 | 270.14 | 7,490.00 | -1,821.76 | 1,671.17 | -1,021.20 | 10.00 | 10.00 | 0.00 | |
| FORT HAYS | | | | | | | | | | |
| 8,300.00 | 74.79 | 270.14 | 7,499.94 | -1,821.68 | 1,638.49 | -990.17 | 10.00 | 10.00 | 0.00 | |
| 8,350.00 | 79.79 | 270.14 | 7,510.93 | -1,821.56 | 1,589.73 | -943.87 | 10.00 | 10.00 | 0.00 | |
| 8,400.00 | 84.79 | 270.14 | 7,517.64 | -1,821.44 | 1,540.19 | -896.83 | 10.00 | 10.00 | 0.00 | |
| 8,452.07 | 90.00 | 270.14 | 7,520.00 | -1,821.31 | 1,488.19 | -847.45 | 10.00 | 10.00 | 0.00 | |
| Start 9607.40 hold at 8452.07 MD - CODELL | | | | | | | | | | |
| 8,500.00 | 90.00 | 270.14 | 7,520.00 | -1,821.20 | 1,440.27 | -801.94 | 0.00 | 0.00 | 0.00 | |
| 8,600.00 | 90.00 | 270.14 | 7,520.00 | -1,820.95 | 1,340.27 | -706.98 | 0.00 | 0.00 | 0.00 | |
| 8,700.00 | 90.00 | 270.14 | 7,520.00 | -1,820.71 | 1,240.27 | -612.02 | 0.00 | 0.00 | 0.00 | |
| 8,800.00 | 90.00 | 270.14 | 7,520.00 | -1,820.47 | 1,140.27 | -517.07 | 0.00 | 0.00 | 0.00 | |
| 8,900.00 | 90.00 | 270.14 | 7,520.00 | -1,820.23 | 1,040.27 | -422.11 | 0.00 | 0.00 | 0.00 | |
| 9,000.00 | 90.00 | 270.14 | 7,520.00 | -1,819.99 | 940.27 | -327.15 | 0.00 | 0.00 | 0.00 | |
| 9,100.00 | 90.00 | 270.14 | 7,520.00 | -1,819.74 | 840.27 | -232.19 | 0.00 | 0.00 | 0.00 | |
| 9,200.00 | 90.00 | 270.14 | 7,520.00 | -1,819.50 | 740.27 | -137.23 | 0.00 | 0.00 | 0.00 | |
| 9,300.00 | 90.00 | 270.14 | 7,520.00 | -1,819.26 | 640.27 | -42.28 | 0.00 | 0.00 | 0.00 | |
| 9,400.00 | 90.00 | 270.14 | 7,520.00 | -1,819.02 | 540.27 | 52.68 | 0.00 | 0.00 | 0.00 | |
| 9,500.00 | 90.00 | 270.14 | 7,520.00 | -1,818.77 | 440.27 | 147.64 | 0.00 | 0.00 | 0.00 | |
| 9,600.00 | 90.00 | 270.14 | 7,520.00 | -1,818.53 | 340.27 | 242.60 | 0.00 | 0.00 | 0.00 | |
| 9,700.00 | 90.00 | 270.14 | 7,520.00 | -1,818.29 | 240.27 | 337.56 | 0.00 | 0.00 | 0.00 | |
| 9,800.00 | 90.00 | 270.14 | 7,520.00 | -1,818.05 | 140.27 | 432.51 | 0.00 | 0.00 | 0.00 | |
| 9,900.00 | 90.00 | 270.14 | 7,520.00 | -1,817.81 | 40.27 | 527.47 | 0.00 | 0.00 | 0.00 | |
| 10,000.00 | 90.00 | 270.14 | 7,520.00 | -1,817.56 | -59.73 | 622.43 | 0.00 | 0.00 | 0.00 | |
| 10,100.00 | 90.00 | 270.14 | 7,520.00 | -1,817.32 | -159.73 | 717.39 | 0.00 | 0.00 | 0.00 | |
| 10,200.00 | 90.00 | 270.14 | 7,520.00 | -1,817.08 | -259.73 | 812.35 | 0.00 | 0.00 | 0.00 | |
| 10,300.00 | 90.00 | 270.14 | 7,520.00 | -1,816.84 | -359.73 | 907.30 | 0.00 | 0.00 | 0.00 | |
| 10,400.00 | 90.00 | 270.14 | 7,520.00 | -1,816.59 | -459.73 | 1,002.26 | 0.00 | 0.00 | 0.00 | |
| 10,500.00 | 90.00 | 270.14 | 7,520.00 | -1,816.35 | -559.73 | 1,097.22 | 0.00 | 0.00 | 0.00 | |
| 10,600.00 | 90.00 | 270.14 | 7,520.00 | -1,816.11 | -659.73 | 1,192.18 | 0.00 | 0.00 | 0.00 | |
| 10,700.00 | 90.00 | 270.14 | 7,520.00 | -1,815.87 | -759.73 | 1,287.14 | 0.00 | 0.00 | 0.00 | |
| 10,800.00 | 90.00 | 270.14 | 7,520.00 | -1,815.63 | -859.73 | 1,382.09 | 0.00 | 0.00 | 0.00 | |
| 10,900.00 | 90.00 | 270.14 | 7,520.00 | -1,815.38 | -959.73 | 1,477.05 | 0.00 | 0.00 | 0.00 | |
| 11,000.00 | 90.00 | 270.14 | 7,520.00 | -1,815.14 | -1,059.73 | 1,572.01 | 0.00 | 0.00 | 0.00 | |
| 11,100.00 | 90.00 | 270.14 | 7,520.00 | -1,814.90 | -1,159.73 | 1,666.97 | 0.00 | 0.00 | 0.00 | |
| 11,200.00 | 90.00 | 270.14 | 7,520.00 | -1,814.66 | -1,259.73 | 1,761.93 | 0.00 | 0.00 | 0.00 | |
| 11,300.00 | 90.00 | 270.14 | 7,520.00 | -1,814.42 | -1,359.73 | 1,856.89 | 0.00 | 0.00 | 0.00 | |
| 11,400.00 | 90.00 | 270.14 | 7,520.00 | -1,814.17 | -1,459.73 | 1,951.84 | 0.00 | 0.00 | 0.00 | |
| 11,500.00 | 90.00 | 270.14 | 7,520.00 | -1,813.93 | -1,559.72 | 2,046.80 | 0.00 | 0.00 | 0.00 | |
| 11,600.00 | 90.00 | 270.14 | 7,520.00 | -1,813.69 | -1,659.72 | 2,141.76 | 0.00 | 0.00 | 0.00 | |
| 11,700.00 | 90.00 | 270.14 | 7,520.00 | -1,813.45 | -1,759.72 | 2,236.72 | 0.00 | 0.00 | 0.00 | |
| 11,800.00 | 90.00 | 270.14 | 7,520.00 | -1,813.20 | -1,859.72 | 2,331.68 | 0.00 | 0.00 | 0.00 | |
| 11,900.00 | 90.00 | 270.14 | 7,520.00 | -1,812.96 | -1,959.72 | 2,426.63 | 0.00 | 0.00 | 0.00 | |
| 12,000.00 | 90.00 | 270.14 | 7,520.00 | -1,812.72 | -2,059.72 | 2,521.59 | 0.00 | 0.00 | 0.00 | |
| 12,100.00 | 90.00 | 270.14 | 7,520.00 | -1,812.48 | -2,159.72 | 2,616.55 | 0.00 | 0.00 | 0.00 | |
| 12,200.00 | 90.00 | 270.14 | 7,520.00 | -1,812.24 | -2,259.72 | 2,711.51 | 0.00 | 0.00 | 0.00 | |
| 12,300.00 | 90.00 | 270.14 | 7,520.00 | -1,811.99 | -2,359.72 | 2,806.47 | 0.00 | 0.00 | 0.00 | |
| 12,400.00 | 90.00 | 270.14 | 7,520.00 | -1,811.75 | -2,459.72 | 2,901.42 | 0.00 | 0.00 | 0.00 | |
| 12,500.00 | 90.00 | 270.14 | 7,520.00 | -1,811.51 | -2,559.72 | 2,996.38 | 0.00 | 0.00 | 0.00 | |
| 12,600.00 | 90.00 | 270.14 | 7,520.00 | -1,811.27 | -2,659.72 | 3,091.34 | 0.00 | 0.00 | 0.00 | |
| 12,700.00 | 90.00 | 270.14 | 7,520.00 | -1,811.02 | -2,759.72 | 3,186.30 | 0.00 | 0.00 | 0.00 | |
| 12,800.00 | 90.00 | 270.14 | 7,520.00 | -1,810.78 | -2,859.72 | 3,281.26 | 0.00 | 0.00 | 0.00 | |

Planning Report

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

| Planned Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 12,900.00 | 90.00 | 270.14 | 7,520.00 | -1,810.54 | -2,959.72 | 3,376.21 | 0.00 | 0.00 | 0.00 | |
| 13,000.00 | 90.00 | 270.14 | 7,520.00 | -1,810.30 | -3,059.72 | 3,471.17 | 0.00 | 0.00 | 0.00 | |
| 13,100.00 | 90.00 | 270.14 | 7,520.00 | -1,810.06 | -3,159.72 | 3,566.13 | 0.00 | 0.00 | 0.00 | |
| 13,200.00 | 90.00 | 270.14 | 7,520.00 | -1,809.81 | -3,259.72 | 3,661.09 | 0.00 | 0.00 | 0.00 | |
| 13,300.00 | 90.00 | 270.14 | 7,520.00 | -1,809.57 | -3,359.72 | 3,756.05 | 0.00 | 0.00 | 0.00 | |
| 13,400.00 | 90.00 | 270.14 | 7,520.00 | -1,809.33 | -3,459.72 | 3,851.00 | 0.00 | 0.00 | 0.00 | |
| 13,500.00 | 90.00 | 270.14 | 7,520.00 | -1,809.09 | -3,559.72 | 3,945.96 | 0.00 | 0.00 | 0.00 | |
| 13,600.00 | 90.00 | 270.14 | 7,520.00 | -1,808.84 | -3,659.72 | 4,040.92 | 0.00 | 0.00 | 0.00 | |
| 13,700.00 | 90.00 | 270.14 | 7,520.00 | -1,808.60 | -3,759.72 | 4,135.88 | 0.00 | 0.00 | 0.00 | |
| 13,800.00 | 90.00 | 270.14 | 7,520.00 | -1,808.36 | -3,859.72 | 4,230.84 | 0.00 | 0.00 | 0.00 | |
| 13,900.00 | 90.00 | 270.14 | 7,520.00 | -1,808.12 | -3,959.72 | 4,325.79 | 0.00 | 0.00 | 0.00 | |
| 14,000.00 | 90.00 | 270.14 | 7,520.00 | -1,807.88 | -4,059.72 | 4,420.75 | 0.00 | 0.00 | 0.00 | |
| 14,100.00 | 90.00 | 270.14 | 7,520.00 | -1,807.63 | -4,159.72 | 4,515.71 | 0.00 | 0.00 | 0.00 | |
| 14,200.00 | 90.00 | 270.14 | 7,520.00 | -1,807.39 | -4,259.72 | 4,610.67 | 0.00 | 0.00 | 0.00 | |
| 14,300.00 | 90.00 | 270.14 | 7,520.00 | -1,807.15 | -4,359.72 | 4,705.63 | 0.00 | 0.00 | 0.00 | |
| 14,400.00 | 90.00 | 270.14 | 7,520.00 | -1,806.91 | -4,459.72 | 4,800.58 | 0.00 | 0.00 | 0.00 | |
| 14,500.00 | 90.00 | 270.14 | 7,520.00 | -1,806.67 | -4,559.72 | 4,895.54 | 0.00 | 0.00 | 0.00 | |
| 14,600.00 | 90.00 | 270.14 | 7,520.00 | -1,806.42 | -4,659.72 | 4,990.50 | 0.00 | 0.00 | 0.00 | |
| 14,700.00 | 90.00 | 270.14 | 7,520.00 | -1,806.18 | -4,759.72 | 5,085.46 | 0.00 | 0.00 | 0.00 | |
| 14,800.00 | 90.00 | 270.14 | 7,520.00 | -1,805.94 | -4,859.72 | 5,180.42 | 0.00 | 0.00 | 0.00 | |
| 14,900.00 | 90.00 | 270.14 | 7,520.00 | -1,805.70 | -4,959.71 | 5,275.37 | 0.00 | 0.00 | 0.00 | |
| 15,000.00 | 90.00 | 270.14 | 7,520.00 | -1,805.45 | -5,059.71 | 5,370.33 | 0.00 | 0.00 | 0.00 | |
| 15,100.00 | 90.00 | 270.14 | 7,520.00 | -1,805.21 | -5,159.71 | 5,465.29 | 0.00 | 0.00 | 0.00 | |
| 15,200.00 | 90.00 | 270.14 | 7,520.00 | -1,804.97 | -5,259.71 | 5,560.25 | 0.00 | 0.00 | 0.00 | |
| 15,300.00 | 90.00 | 270.14 | 7,520.00 | -1,804.73 | -5,359.71 | 5,655.21 | 0.00 | 0.00 | 0.00 | |
| 15,400.00 | 90.00 | 270.14 | 7,520.00 | -1,804.49 | -5,459.71 | 5,750.16 | 0.00 | 0.00 | 0.00 | |
| 15,500.00 | 90.00 | 270.14 | 7,520.00 | -1,804.24 | -5,559.71 | 5,845.12 | 0.00 | 0.00 | 0.00 | |
| 15,600.00 | 90.00 | 270.14 | 7,520.00 | -1,804.00 | -5,659.71 | 5,940.08 | 0.00 | 0.00 | 0.00 | |
| 15,700.00 | 90.00 | 270.14 | 7,520.00 | -1,803.76 | -5,759.71 | 6,035.04 | 0.00 | 0.00 | 0.00 | |
| 15,800.00 | 90.00 | 270.14 | 7,520.00 | -1,803.52 | -5,859.71 | 6,130.00 | 0.00 | 0.00 | 0.00 | |
| 15,900.00 | 90.00 | 270.14 | 7,520.00 | -1,803.27 | -5,959.71 | 6,224.95 | 0.00 | 0.00 | 0.00 | |
| 16,000.00 | 90.00 | 270.14 | 7,520.00 | -1,803.03 | -6,059.71 | 6,319.91 | 0.00 | 0.00 | 0.00 | |
| 16,100.00 | 90.00 | 270.14 | 7,520.00 | -1,802.79 | -6,159.71 | 6,414.87 | 0.00 | 0.00 | 0.00 | |
| 16,200.00 | 90.00 | 270.14 | 7,520.00 | -1,802.55 | -6,259.71 | 6,509.83 | 0.00 | 0.00 | 0.00 | |
| 16,300.00 | 90.00 | 270.14 | 7,520.00 | -1,802.31 | -6,359.71 | 6,604.79 | 0.00 | 0.00 | 0.00 | |
| 16,400.00 | 90.00 | 270.14 | 7,520.00 | -1,802.06 | -6,459.71 | 6,699.74 | 0.00 | 0.00 | 0.00 | |
| 16,500.00 | 90.00 | 270.14 | 7,520.00 | -1,801.82 | -6,559.71 | 6,794.70 | 0.00 | 0.00 | 0.00 | |
| 16,600.00 | 90.00 | 270.14 | 7,520.00 | -1,801.58 | -6,659.71 | 6,889.66 | 0.00 | 0.00 | 0.00 | |
| 16,700.00 | 90.00 | 270.14 | 7,520.00 | -1,801.34 | -6,759.71 | 6,984.62 | 0.00 | 0.00 | 0.00 | |
| 16,800.00 | 90.00 | 270.14 | 7,520.00 | -1,801.09 | -6,859.71 | 7,079.58 | 0.00 | 0.00 | 0.00 | |
| 16,900.00 | 90.00 | 270.14 | 7,520.00 | -1,800.85 | -6,959.71 | 7,174.54 | 0.00 | 0.00 | 0.00 | |
| 17,000.00 | 90.00 | 270.14 | 7,520.00 | -1,800.61 | -7,059.71 | 7,269.49 | 0.00 | 0.00 | 0.00 | |
| 17,100.00 | 90.00 | 270.14 | 7,520.00 | -1,800.37 | -7,159.71 | 7,364.45 | 0.00 | 0.00 | 0.00 | |
| 17,200.00 | 90.00 | 270.14 | 7,520.00 | -1,800.13 | -7,259.71 | 7,459.41 | 0.00 | 0.00 | 0.00 | |
| 17,300.00 | 90.00 | 270.14 | 7,520.00 | -1,799.88 | -7,359.71 | 7,554.37 | 0.00 | 0.00 | 0.00 | |
| 17,400.00 | 90.00 | 270.14 | 7,520.00 | -1,799.64 | -7,459.71 | 7,649.33 | 0.00 | 0.00 | 0.00 | |
| 17,500.00 | 90.00 | 270.14 | 7,520.00 | -1,799.40 | -7,559.71 | 7,744.28 | 0.00 | 0.00 | 0.00 | |
| 17,600.00 | 90.00 | 270.14 | 7,520.00 | -1,799.16 | -7,659.71 | 7,839.24 | 0.00 | 0.00 | 0.00 | |
| 17,700.00 | 90.00 | 270.14 | 7,520.00 | -1,798.92 | -7,759.71 | 7,934.20 | 0.00 | 0.00 | 0.00 | |
| 17,800.00 | 90.00 | 270.14 | 7,520.00 | -1,798.67 | -7,859.71 | 8,029.16 | 0.00 | 0.00 | 0.00 | |
| 17,900.00 | 90.00 | 270.14 | 7,520.00 | -1,798.43 | -7,959.71 | 8,124.12 | 0.00 | 0.00 | 0.00 | |
| 18,000.00 | 90.00 | 270.14 | 7,520.00 | -1,798.19 | -8,059.71 | 8,219.07 | 0.00 | 0.00 | 0.00 | |
| 18,059.48 | 90.00 | 270.14 | 7,520.00 | -1,798.17 | -8,119.18 | 8,275.59 | 0.00 | 0.00 | 0.00 | |

Planning Report

| | | | |
|------------------|----------------------|-------------------------------------|---------------------------|
| Database: | EDT_32Bit_ODBC | Local Co-ordinate Reference: | Well DUCK CLUB 12W-20-12C |
| 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-20-12C | 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 18059.48 | | | | | | | | | |

| 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 12C - LP - plan hits target center - Point | 0.00 | 0.00 | 7,520.00 | -1,821.31 | 1,488.19 | 1,234,177.52 | 3,217,012.55 | 39° 58' 24.960 N | 104° 43' 32.412 W |
| DC 12C - PBHL - plan hits target center - Point | 0.00 | 0.00 | 7,520.00 | -1,798.17 | -8,119.18 | 1,234,117.34 | 3,207,405.34 | 39° 58' 25.176 N | 104° 45' 35.820 W |

| Formations | | | | | | |
|-----------------------|-----------------------|----------------|-----------|---------|-------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 4,249.51 | 3,900.00 | PARKMAN | | | | |
| 5,207.17 | 4,755.00 | SUSSEX | | | | |
| 7,665.75 | 7,060.00 | SHARON SPRINGS | | | | |
| 7,692.41 | 7,086.00 | NIOBRARA | | | | |
| 7,907.35 | 7,280.00 | NIO B | | | | |
| 8,265.84 | 7,490.00 | FORT HAYS | | | | |
| 8,452.08 | 7,520.00 | CODELL | | | | |

| Plan Annotations | | | | | |
|-----------------------|-----------------------|-------------------|--------------|----------------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | | |
| | | +N/-S (usft) | +E/-W (usft) | Comment | |
| 100.00 | 100.00 | 0.00 | 0.00 | Start Build 2.00 | |
| 1,438.64 | 1,390.45 | -203.44 | 230.06 | Start 4744.73 hold at 1438.64 MD | |
| 6,183.37 | 5,626.55 | -1,619.26 | 1,831.13 | Start Drop -2.00 | |
| 7,522.01 | 6,917.00 | -1,822.70 | 2,061.19 | Start 30.00 hold at 7522.01 MD | |
| 7,552.01 | 6,947.00 | -1,822.70 | 2,061.19 | Start DLS 10.00 TFO 270.14 | |
| 8,452.08 | 7,520.00 | -1,821.31 | 1,488.19 | Start 9607.40 hold at 8452.07 MD | |
| 18,059.48 | 7,520.00 | -1,798.17 | -8,119.18 | TD at 18059.48 | |