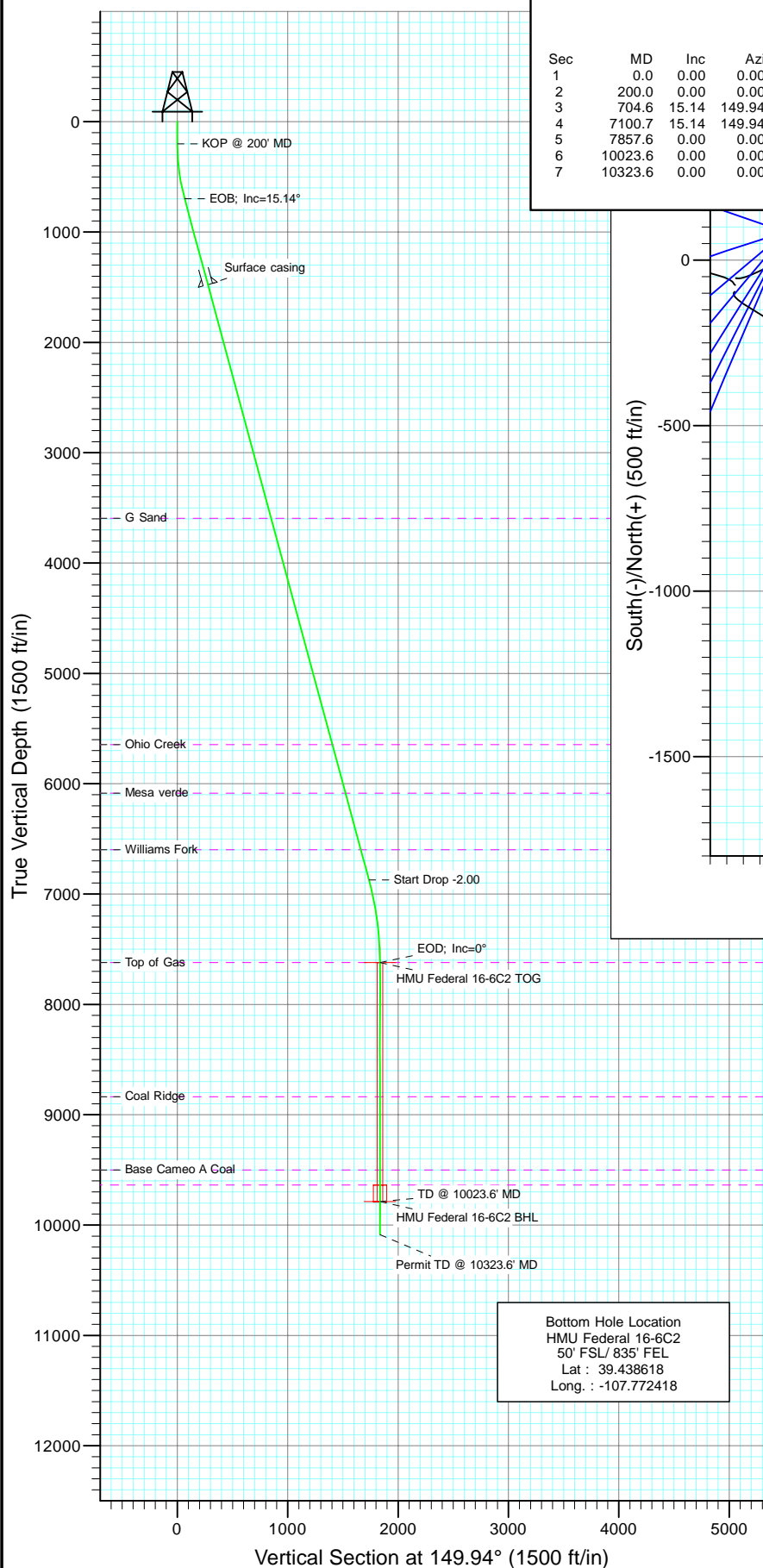
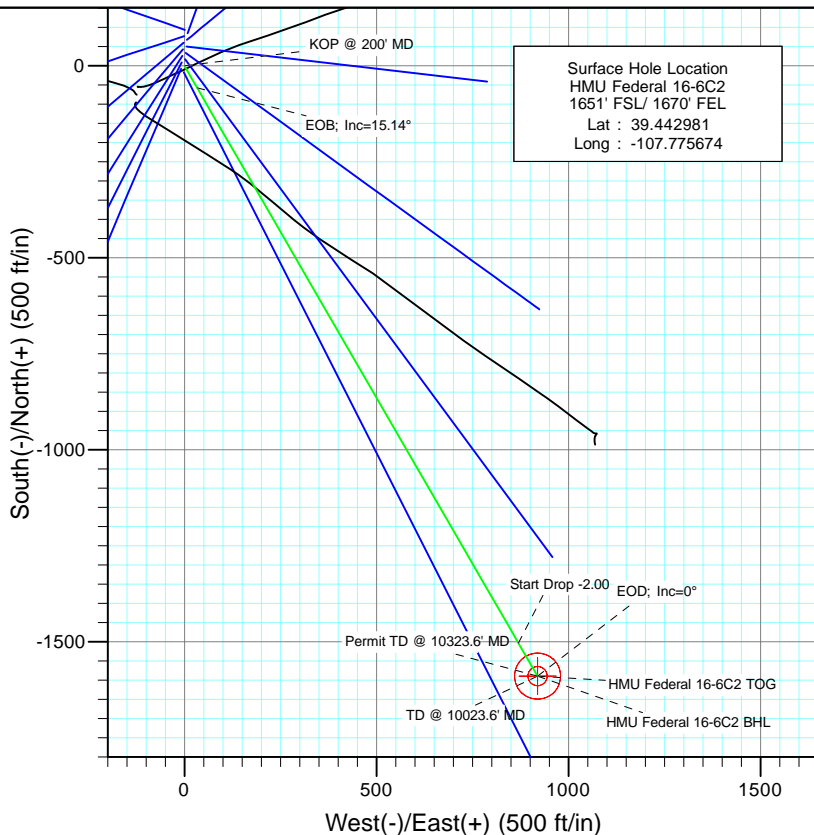




Project: Mamm Creek
Site: (J16W)
Well: HMU Federal 16-6C2
Wellbore: DD
Design: Plan #1



| SECTION DETAILS | | | | | | | | | | |
|-----------------|---------|-------|--------|---------|---------|-------|------|--------|--------|------------------------|
| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | V Sect | Target |
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 704.6 | 15.14 | 149.94 | 698.8 | -57.4 | 33.2 | 3.00 | 149.94 | 66.3 | |
| 4 | 7100.7 | 15.14 | 149.94 | 6872.9 | -1503.1 | 869.8 | 0.00 | 0.00 | 1736.6 | |
| 5 | 7857.6 | 0.00 | 0.00 | 7621.0 | -1589.1 | 919.6 | 2.00 | 180.00 | 1836.0 | HMU Federal 16-6C2 TOG |
| 6 | 10023.6 | 0.00 | 0.00 | 9787.0 | -1589.1 | 919.6 | 0.00 | 0.00 | 1836.0 | HMU Federal 16-6C2 BHL |
| 7 | 10323.6 | 0.00 | 0.00 | 10087.0 | -1589.1 | 919.6 | 0.00 | 0.00 | 1836.0 | |



Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 52330.6snT
Dip Angle: 65.77°
Date: 10/29/2010
Model: IGRF200510

FORMATION TOP DETAILS

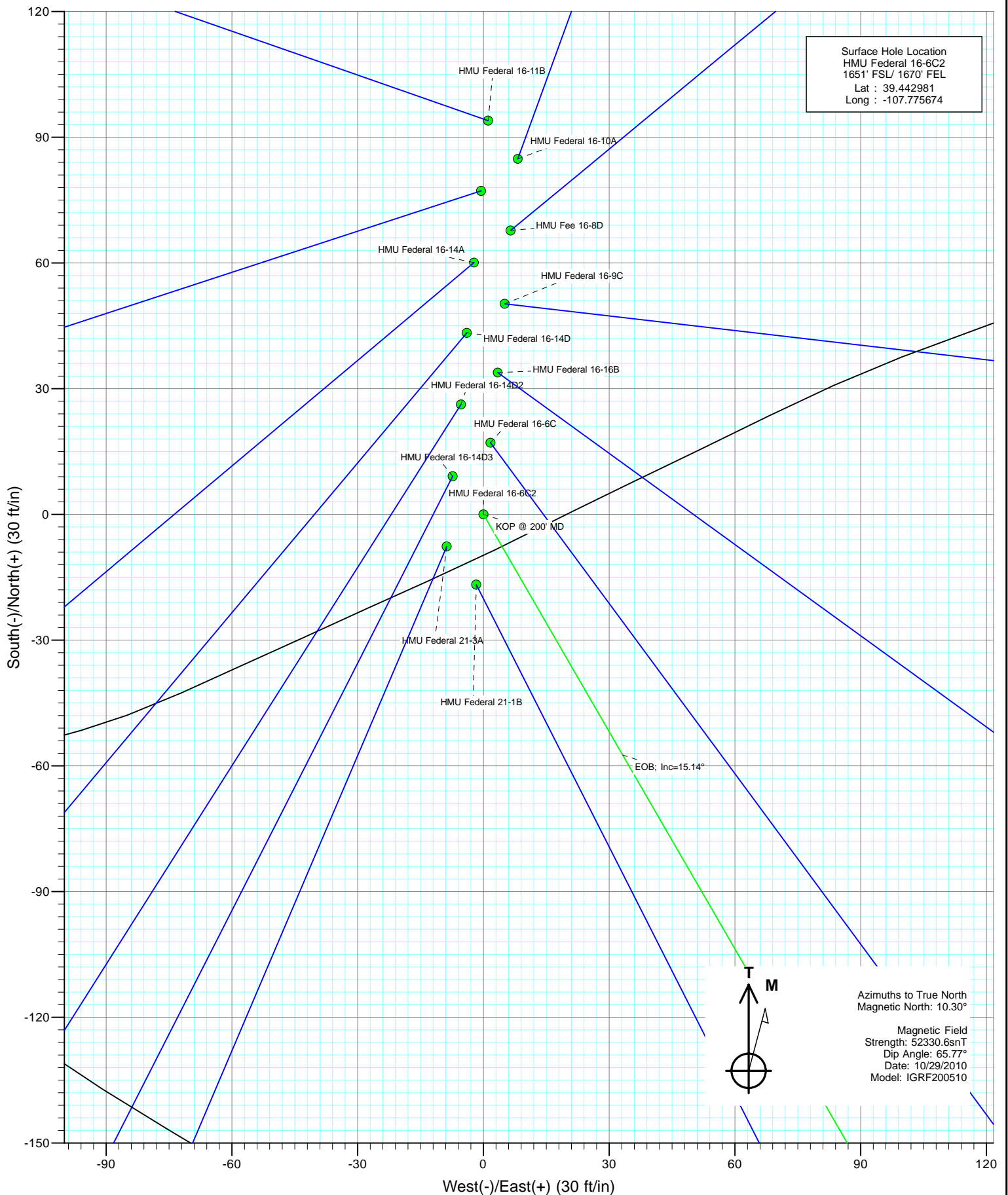
| TVDPath | MDPath | Formation |
|---------|--------|-------------------|
| 3595.0 | 3705.0 | G Sand |
| 5645.0 | 5828.7 | Ohio Creek |
| 6086.0 | 6285.5 | Mesa verde |
| 6598.0 | 6815.9 | Williams Fork |
| 7621.0 | 7857.6 | Top of Gas |
| 8837.0 | 9073.6 | Coal Ridge |
| 9501.0 | 9737.6 | Base Cameo A Coal |
| 9637.0 | 9873.6 | Rollins |

DESIGN DETAILS: Plan #1

| 105XXX; KR | | | | |
|-------------------------------------|---------|--------|-----|--------------|
| KBE @ 7667.0ft (Original Well Elev) | | | | |
| Target | Azimuth | Origin | N/S | E/W From TVD |
| HMU Federal 16-6C2 BHL | 149.94 | Slot | 0.0 | 0.0 |

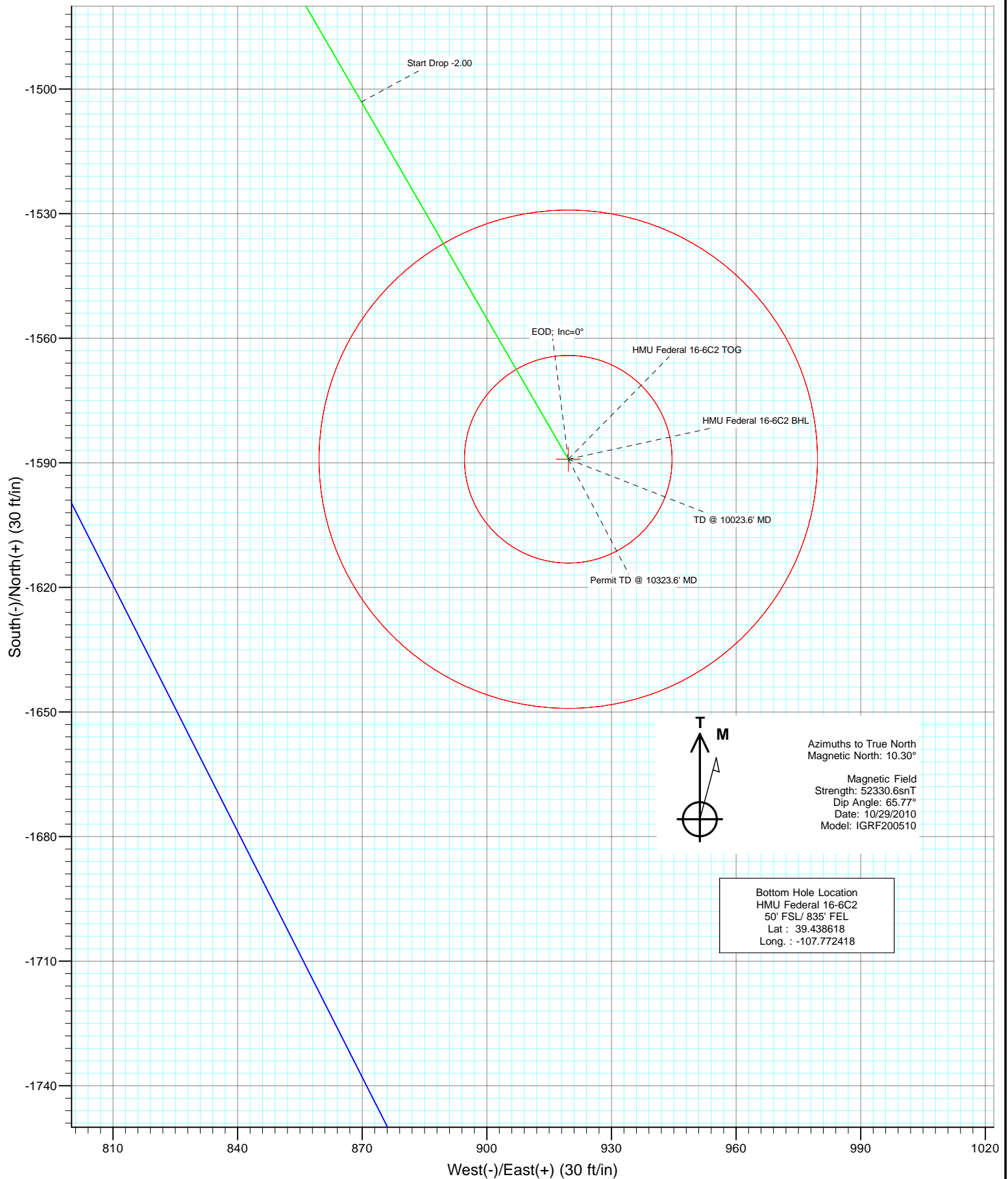


Project: Mamm Creek
Site: (J16W)
Well: HMU Federal 16-6C2
Wellbore: DD
Design: Plan #1





Project: Mamm Creek
Site: (J16W)
Well: HMU Federal 16-6C2
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

| | | | |
|-------------|---------------------------|---------------|----------------|
| Project | Mamm Creek | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Central Zone | | |

| | | | | | |
|-----------------------|----------|--------------|-----------------|-------------------|-------------|
| Site | | (J16W) | | | |
| Site Position: | | Northing: | 1,594,381.52 ft | Latitude: | 39.443239 |
| From: | Lat/Long | Easting: | 2,357,395.39 ft | Longitude: | -107.775670 |
| Position Uncertainty: | 0.0 ft | Slot Radius: | 13.200 in | Grid Convergence: | -1.44 ° |

| | | | | | | |
|----------------------|--------------------|--------|---------------------|-----------------|---------------|-------------|
| Well | HMU Federal 16-6C2 | | | | | |
| Well Position | +N/-S | 0.0 ft | Northing: | 1,594,287.60 ft | Latitude: | 39.442981 |
| | +E/-W | 0.0 ft | Easting: | 2,357,391.90 ft | Longitude: | -107.775674 |
| Position Uncertainty | | 0.0 ft | Wellhead Elevation: | ft | Ground Level: | 7,645.0 ft |

| | | | | | |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore | DD | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF200510 | 10/29/2010 | 10.30 | 65.77 | 52,331 |

| | | | | |
|-------------------|--------------------------|---------------|---------------|------------------|
| Design | Plan #1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 149.94 |

| Plan Sections | | | | | | | | | | |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|----------------------------|---------------------------|------------|--------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 704.6 | 15.14 | 149.94 | 698.8 | -57.4 | 33.2 | 3.00 | 3.00 | 0.00 | 149.94 | |
| 7,100.7 | 15.14 | 149.94 | 6,872.9 | -1,503.1 | 869.8 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,857.6 | 0.00 | 0.00 | 7,621.0 | -1,589.1 | 919.6 | 2.00 | -2.00 | 0.00 | 180.00 | HMU Federal 16-6C2 |
| 10,023.6 | 0.00 | 0.00 | 9,787.0 | -1,589.1 | 919.6 | 0.00 | 0.00 | 0.00 | 0.00 | HMU Federal 16-6C2 |
| 10,323.6 | 0.00 | 0.00 | 10,087.0 | -1,589.1 | 919.6 | 0.00 | 0.00 | 0.00 | 0.00 | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Comments / Formations |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 30.0 | 0.00 | 0.00 | 30.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 60.0 | 0.00 | 0.00 | 60.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 90.0 | 0.00 | 0.00 | 90.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 120.0 | 0.00 | 0.00 | 120.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 150.0 | 0.00 | 0.00 | 150.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 180.0 | 0.00 | 0.00 | 180.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | |
| 200.0 | 0.00 | 0.00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | KOP @ 200' MD |
| 210.0 | 0.30 | 149.94 | 210.0 | 0.0 | 0.0 | 0.0 | 3.00 | 3.00 | |
| 240.0 | 1.20 | 149.94 | 240.0 | -0.4 | 0.2 | 0.4 | 3.00 | 3.00 | |
| 270.0 | 2.10 | 149.94 | 270.0 | -1.1 | 0.6 | 1.3 | 3.00 | 3.00 | |
| 300.0 | 3.00 | 149.94 | 300.0 | -2.3 | 1.3 | 2.6 | 3.00 | 3.00 | |
| 330.0 | 3.90 | 149.94 | 329.9 | -3.8 | 2.2 | 4.4 | 3.00 | 3.00 | |
| 360.0 | 4.80 | 149.94 | 359.8 | -5.8 | 3.4 | 6.7 | 3.00 | 3.00 | |
| 390.0 | 5.70 | 149.94 | 389.7 | -8.2 | 4.7 | 9.4 | 3.00 | 3.00 | |
| 420.0 | 6.60 | 149.94 | 419.5 | -11.0 | 6.3 | 12.7 | 3.00 | 3.00 | |
| 450.0 | 7.50 | 149.94 | 449.3 | -14.1 | 8.2 | 16.3 | 3.00 | 3.00 | |
| 480.0 | 8.40 | 149.94 | 479.0 | -17.7 | 10.3 | 20.5 | 3.00 | 3.00 | |
| 510.0 | 9.30 | 149.94 | 508.6 | -21.7 | 12.6 | 25.1 | 3.00 | 3.00 | |
| 540.0 | 10.20 | 149.94 | 538.2 | -26.1 | 15.1 | 30.2 | 3.00 | 3.00 | |
| 570.0 | 11.10 | 149.94 | 567.7 | -30.9 | 17.9 | 35.7 | 3.00 | 3.00 | |
| 600.0 | 12.00 | 149.94 | 597.1 | -36.1 | 20.9 | 41.7 | 3.00 | 3.00 | |
| 630.0 | 12.90 | 149.94 | 626.4 | -41.7 | 24.1 | 48.2 | 3.00 | 3.00 | |
| 660.0 | 13.80 | 149.94 | 655.6 | -47.7 | 27.6 | 55.1 | 3.00 | 3.00 | |
| 690.0 | 14.70 | 149.94 | 684.6 | -54.1 | 31.3 | 62.5 | 3.00 | 3.00 | |
| 704.6 | 15.14 | 149.94 | 698.8 | -57.4 | 33.2 | 66.3 | 3.00 | 3.00 | EOB; Inc=15.14° |
| 720.0 | 15.14 | 149.94 | 713.6 | -60.8 | 35.2 | 70.3 | 0.00 | 0.00 | |
| 750.0 | 15.14 | 149.94 | 742.6 | -67.6 | 39.1 | 78.1 | 0.00 | 0.00 | |
| 780.0 | 15.14 | 149.94 | 771.5 | -74.4 | 43.1 | 86.0 | 0.00 | 0.00 | |
| 810.0 | 15.14 | 149.94 | 800.5 | -81.2 | 47.0 | 93.8 | 0.00 | 0.00 | |
| 840.0 | 15.14 | 149.94 | 829.5 | -88.0 | 50.9 | 101.6 | 0.00 | 0.00 | |
| 870.0 | 15.14 | 149.94 | 858.4 | -94.7 | 54.8 | 109.5 | 0.00 | 0.00 | |
| 900.0 | 15.14 | 149.94 | 887.4 | -101.5 | 58.8 | 117.3 | 0.00 | 0.00 | |
| 930.0 | 15.14 | 149.94 | 916.3 | -108.3 | 62.7 | 125.1 | 0.00 | 0.00 | |
| 960.0 | 15.14 | 149.94 | 945.3 | -115.1 | 66.6 | 133.0 | 0.00 | 0.00 | |
| 990.0 | 15.14 | 149.94 | 974.2 | -121.9 | 70.5 | 140.8 | 0.00 | 0.00 | |
| 1,020.0 | 15.14 | 149.94 | 1,003.2 | -128.7 | 74.4 | 148.6 | 0.00 | 0.00 | |
| 1,050.0 | 15.14 | 149.94 | 1,032.2 | -135.4 | 78.4 | 156.5 | 0.00 | 0.00 | |
| 1,080.0 | 15.14 | 149.94 | 1,061.1 | -142.2 | 82.3 | 164.3 | 0.00 | 0.00 | |
| 1,110.0 | 15.14 | 149.94 | 1,090.1 | -149.0 | 86.2 | 172.1 | 0.00 | 0.00 | |
| 1,140.0 | 15.14 | 149.94 | 1,119.0 | -155.8 | 90.1 | 180.0 | 0.00 | 0.00 | |
| 1,170.0 | 15.14 | 149.94 | 1,148.0 | -162.6 | 94.1 | 187.8 | 0.00 | 0.00 | |
| 1,200.0 | 15.14 | 149.94 | 1,177.0 | -169.3 | 98.0 | 195.6 | 0.00 | 0.00 | |
| 1,230.0 | 15.14 | 149.94 | 1,205.9 | -176.1 | 101.9 | 203.5 | 0.00 | 0.00 | |
| 1,260.0 | 15.14 | 149.94 | 1,234.9 | -182.9 | 105.8 | 211.3 | 0.00 | 0.00 | |
| 1,290.0 | 15.14 | 149.94 | 1,263.8 | -189.7 | 109.8 | 219.2 | 0.00 | 0.00 | |
| 1,320.0 | 15.14 | 149.94 | 1,292.8 | -196.5 | 113.7 | 227.0 | 0.00 | 0.00 | |
| 1,350.0 | 15.14 | 149.94 | 1,321.8 | -203.2 | 117.6 | 234.8 | 0.00 | 0.00 | |
| 1,380.0 | 15.14 | 149.94 | 1,350.7 | -210.0 | 121.5 | 242.7 | 0.00 | 0.00 | |
| 1,410.0 | 15.14 | 149.94 | 1,379.7 | -216.8 | 125.5 | 250.5 | 0.00 | 0.00 | |
| 1,440.0 | 15.14 | 149.94 | 1,408.6 | -223.6 | 129.4 | 258.3 | 0.00 | 0.00 | |
| 1,470.0 | 15.14 | 149.94 | 1,437.6 | -230.4 | 133.3 | 266.2 | 0.00 | 0.00 | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Comments / Formations |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 1,500.0 | 15.14 | 149.94 | 1,466.5 | -237.1 | 137.2 | 274.0 | 0.00 | 0.00 | |
| 1,513.0 | 15.14 | 149.94 | 1,479.1 | -240.1 | 138.9 | 277.4 | 0.00 | 0.00 | Surface casing |
| 1,530.0 | 15.14 | 149.94 | 1,495.5 | -243.9 | 141.2 | 281.8 | 0.00 | 0.00 | |
| 1,560.0 | 15.14 | 149.94 | 1,524.5 | -250.7 | 145.1 | 289.7 | 0.00 | 0.00 | |
| 1,590.0 | 15.14 | 149.94 | 1,553.4 | -257.5 | 149.0 | 297.5 | 0.00 | 0.00 | |
| 1,620.0 | 15.14 | 149.94 | 1,582.4 | -264.3 | 152.9 | 305.3 | 0.00 | 0.00 | |
| 1,650.0 | 15.14 | 149.94 | 1,611.3 | -271.1 | 156.9 | 313.2 | 0.00 | 0.00 | |
| 1,680.0 | 15.14 | 149.94 | 1,640.3 | -277.8 | 160.8 | 321.0 | 0.00 | 0.00 | |
| 1,710.0 | 15.14 | 149.94 | 1,669.3 | -284.6 | 164.7 | 328.8 | 0.00 | 0.00 | |
| 1,740.0 | 15.14 | 149.94 | 1,698.2 | -291.4 | 168.6 | 336.7 | 0.00 | 0.00 | |
| 1,770.0 | 15.14 | 149.94 | 1,727.2 | -298.2 | 172.5 | 344.5 | 0.00 | 0.00 | |
| 1,800.0 | 15.14 | 149.94 | 1,756.1 | -305.0 | 176.5 | 352.3 | 0.00 | 0.00 | |
| 1,830.0 | 15.14 | 149.94 | 1,785.1 | -311.7 | 180.4 | 360.2 | 0.00 | 0.00 | |
| 1,860.0 | 15.14 | 149.94 | 1,814.1 | -318.5 | 184.3 | 368.0 | 0.00 | 0.00 | |
| 1,890.0 | 15.14 | 149.94 | 1,843.0 | -325.3 | 188.2 | 375.8 | 0.00 | 0.00 | |
| 1,920.0 | 15.14 | 149.94 | 1,872.0 | -332.1 | 192.2 | 383.7 | 0.00 | 0.00 | |
| 1,950.0 | 15.14 | 149.94 | 1,900.9 | -338.9 | 196.1 | 391.5 | 0.00 | 0.00 | |
| 1,980.0 | 15.14 | 149.94 | 1,929.9 | -345.6 | 200.0 | 399.3 | 0.00 | 0.00 | |
| 2,010.0 | 15.14 | 149.94 | 1,958.8 | -352.4 | 203.9 | 407.2 | 0.00 | 0.00 | |
| 2,040.0 | 15.14 | 149.94 | 1,987.8 | -359.2 | 207.9 | 415.0 | 0.00 | 0.00 | |
| 2,070.0 | 15.14 | 149.94 | 2,016.8 | -366.0 | 211.8 | 422.8 | 0.00 | 0.00 | |
| 2,100.0 | 15.14 | 149.94 | 2,045.7 | -372.8 | 215.7 | 430.7 | 0.00 | 0.00 | |
| 2,130.0 | 15.14 | 149.94 | 2,074.7 | -379.5 | 219.6 | 438.5 | 0.00 | 0.00 | |
| 2,160.0 | 15.14 | 149.94 | 2,103.6 | -386.3 | 223.6 | 446.4 | 0.00 | 0.00 | |
| 2,190.0 | 15.14 | 149.94 | 2,132.6 | -393.1 | 227.5 | 454.2 | 0.00 | 0.00 | |
| 2,220.0 | 15.14 | 149.94 | 2,161.6 | -399.9 | 231.4 | 462.0 | 0.00 | 0.00 | |
| 2,250.0 | 15.14 | 149.94 | 2,190.5 | -406.7 | 235.3 | 469.9 | 0.00 | 0.00 | |
| 2,280.0 | 15.14 | 149.94 | 2,219.5 | -413.5 | 239.3 | 477.7 | 0.00 | 0.00 | |
| 2,310.0 | 15.14 | 149.94 | 2,248.4 | -420.2 | 243.2 | 485.5 | 0.00 | 0.00 | |
| 2,340.0 | 15.14 | 149.94 | 2,277.4 | -427.0 | 247.1 | 493.4 | 0.00 | 0.00 | |
| 2,370.0 | 15.14 | 149.94 | 2,306.4 | -433.8 | 251.0 | 501.2 | 0.00 | 0.00 | |
| 2,400.0 | 15.14 | 149.94 | 2,335.3 | -440.6 | 255.0 | 509.0 | 0.00 | 0.00 | |
| 2,430.0 | 15.14 | 149.94 | 2,364.3 | -447.4 | 258.9 | 516.9 | 0.00 | 0.00 | |
| 2,460.0 | 15.14 | 149.94 | 2,393.2 | -454.1 | 262.8 | 524.7 | 0.00 | 0.00 | |
| 2,490.0 | 15.14 | 149.94 | 2,422.2 | -460.9 | 266.7 | 532.5 | 0.00 | 0.00 | |

Targets

| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
|--|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| HMU Federal 16-6C2 TC | 0.00 | 0.00 | 7,621.0 | -1,589.1 | 919.6 | 1,592,675.93 | 2,358,271.41 | 39.438618 | -107.772418 |
| - plan misses target center by 5359.7ft at 2490.0ft MD (2422.2 TVD, -460.9 N, 266.7 E) | | | | | | | | | |
| - Circle (radius 25.0) | | | | | | | | | |
| HMU Federal 16-6C2 Bf | 0.00 | 0.00 | 9,787.0 | -1,589.1 | 919.6 | 1,592,675.93 | 2,358,271.41 | 39.438618 | -107.772418 |
| - plan misses target center by 7479.3ft at 2490.0ft MD (2422.2 TVD, -460.9 N, 266.7 E) | | | | | | | | | |
| - Circle (radius 60.0) | | | | | | | | | |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Comments / Formations |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|-----------------------|
| 2,500.0 | 15.14 | 149.94 | 2,431.8 | -463.2 | 268.0 | 535.1 | 0.00 | 0.00 | |
| 2,600.0 | 15.14 | 149.94 | 2,528.4 | -485.8 | 281.1 | 561.3 | 0.00 | 0.00 | |
| 2,700.0 | 15.14 | 149.94 | 2,624.9 | -508.4 | 294.2 | 587.4 | 0.00 | 0.00 | |
| 2,800.0 | 15.14 | 149.94 | 2,721.4 | -531.0 | 307.3 | 613.5 | 0.00 | 0.00 | |
| 2,900.0 | 15.14 | 149.94 | 2,818.0 | -553.6 | 320.4 | 639.6 | 0.00 | 0.00 | |
| 3,000.0 | 15.14 | 149.94 | 2,914.5 | -576.2 | 333.4 | 665.7 | 0.00 | 0.00 | |
| 3,100.0 | 15.14 | 149.94 | 3,011.0 | -598.8 | 346.5 | 691.8 | 0.00 | 0.00 | |
| 3,200.0 | 15.14 | 149.94 | 3,107.6 | -621.4 | 359.6 | 717.9 | 0.00 | 0.00 | |
| 3,300.0 | 15.14 | 149.94 | 3,204.1 | -644.0 | 372.7 | 744.1 | 0.00 | 0.00 | |
| 3,400.0 | 15.14 | 149.94 | 3,300.6 | -666.6 | 385.8 | 770.2 | 0.00 | 0.00 | |
| 3,500.0 | 15.14 | 149.94 | 3,397.1 | -689.2 | 398.8 | 796.3 | 0.00 | 0.00 | |
| 3,600.0 | 15.14 | 149.94 | 3,493.7 | -711.8 | 411.9 | 822.4 | 0.00 | 0.00 | |
| 3,700.0 | 15.14 | 149.94 | 3,590.2 | -734.4 | 425.0 | 848.5 | 0.00 | 0.00 | |
| 3,705.0 | 15.14 | 149.94 | 3,595.0 | -735.5 | 425.6 | 849.8 | 0.00 | 0.00 | G Sand |
| 3,800.0 | 15.14 | 149.94 | 3,686.7 | -757.0 | 438.1 | 874.6 | 0.00 | 0.00 | |
| 3,900.0 | 15.14 | 149.94 | 3,783.3 | -779.6 | 451.2 | 900.8 | 0.00 | 0.00 | |
| 4,000.0 | 15.14 | 149.94 | 3,879.8 | -802.2 | 464.2 | 926.9 | 0.00 | 0.00 | |
| 4,100.0 | 15.14 | 149.94 | 3,976.3 | -824.8 | 477.3 | 953.0 | 0.00 | 0.00 | |
| 4,200.0 | 15.14 | 149.94 | 4,072.9 | -847.4 | 490.4 | 979.1 | 0.00 | 0.00 | |
| 4,300.0 | 15.14 | 149.94 | 4,169.4 | -870.0 | 503.5 | 1,005.2 | 0.00 | 0.00 | |
| 4,400.0 | 15.14 | 149.94 | 4,265.9 | -892.6 | 516.6 | 1,031.3 | 0.00 | 0.00 | |
| 4,500.0 | 15.14 | 149.94 | 4,362.4 | -915.2 | 529.6 | 1,057.4 | 0.00 | 0.00 | |
| 4,600.0 | 15.14 | 149.94 | 4,459.0 | -937.9 | 542.7 | 1,083.6 | 0.00 | 0.00 | |
| 4,700.0 | 15.14 | 149.94 | 4,555.5 | -960.5 | 555.8 | 1,109.7 | 0.00 | 0.00 | |
| 4,800.0 | 15.14 | 149.94 | 4,652.0 | -983.1 | 568.9 | 1,135.8 | 0.00 | 0.00 | |
| 4,900.0 | 15.14 | 149.94 | 4,748.6 | -1,005.7 | 582.0 | 1,161.9 | 0.00 | 0.00 | |
| 5,000.0 | 15.14 | 149.94 | 4,845.1 | -1,028.3 | 595.0 | 1,188.0 | 0.00 | 0.00 | |
| 5,100.0 | 15.14 | 149.94 | 4,941.6 | -1,050.9 | 608.1 | 1,214.1 | 0.00 | 0.00 | |
| 5,200.0 | 15.14 | 149.94 | 5,038.2 | -1,073.5 | 621.2 | 1,240.3 | 0.00 | 0.00 | |
| 5,300.0 | 15.14 | 149.94 | 5,134.7 | -1,096.1 | 634.3 | 1,266.4 | 0.00 | 0.00 | |
| 5,400.0 | 15.14 | 149.94 | 5,231.2 | -1,118.7 | 647.4 | 1,292.5 | 0.00 | 0.00 | |
| 5,500.0 | 15.14 | 149.94 | 5,327.7 | -1,141.3 | 660.4 | 1,318.6 | 0.00 | 0.00 | |
| 5,600.0 | 15.14 | 149.94 | 5,424.3 | -1,163.9 | 673.5 | 1,344.7 | 0.00 | 0.00 | |
| 5,700.0 | 15.14 | 149.94 | 5,520.8 | -1,186.5 | 686.6 | 1,370.8 | 0.00 | 0.00 | |
| 5,800.0 | 15.14 | 149.94 | 5,617.3 | -1,209.1 | 699.7 | 1,396.9 | 0.00 | 0.00 | |
| 5,828.7 | 15.14 | 149.94 | 5,645.0 | -1,215.6 | 703.4 | 1,404.4 | 0.00 | 0.00 | Ohio Creek |
| 5,900.0 | 15.14 | 149.94 | 5,713.9 | -1,231.7 | 712.8 | 1,423.1 | 0.00 | 0.00 | |
| 6,000.0 | 15.14 | 149.94 | 5,810.4 | -1,254.3 | 725.8 | 1,449.2 | 0.00 | 0.00 | |
| 6,100.0 | 15.14 | 149.94 | 5,906.9 | -1,276.9 | 738.9 | 1,475.3 | 0.00 | 0.00 | |
| 6,200.0 | 15.14 | 149.94 | 6,003.4 | -1,299.5 | 752.0 | 1,501.4 | 0.00 | 0.00 | |
| 6,285.5 | 15.14 | 149.94 | 6,086.0 | -1,318.8 | 763.2 | 1,523.7 | 0.00 | 0.00 | Mesa verde |
| 6,300.0 | 15.14 | 149.94 | 6,100.0 | -1,322.1 | 765.1 | 1,527.5 | 0.00 | 0.00 | |
| 6,400.0 | 15.14 | 149.94 | 6,196.5 | -1,344.7 | 778.2 | 1,553.6 | 0.00 | 0.00 | |
| 6,500.0 | 15.14 | 149.94 | 6,293.0 | -1,367.3 | 791.2 | 1,579.7 | 0.00 | 0.00 | |
| 6,600.0 | 15.14 | 149.94 | 6,389.6 | -1,389.9 | 804.3 | 1,605.9 | 0.00 | 0.00 | |
| 6,700.0 | 15.14 | 149.94 | 6,486.1 | -1,412.5 | 817.4 | 1,632.0 | 0.00 | 0.00 | |
| 6,800.0 | 15.14 | 149.94 | 6,582.6 | -1,435.1 | 830.5 | 1,658.1 | 0.00 | 0.00 | |
| 6,815.9 | 15.14 | 149.94 | 6,598.0 | -1,438.7 | 832.6 | 1,662.3 | 0.00 | 0.00 | Williams Fork |
| 6,900.0 | 15.14 | 149.94 | 6,679.2 | -1,457.7 | 843.6 | 1,684.2 | 0.00 | 0.00 | |
| 7,000.0 | 15.14 | 149.94 | 6,775.7 | -1,480.3 | 856.6 | 1,710.3 | 0.00 | 0.00 | |
| 7,100.0 | 15.14 | 149.94 | 6,872.2 | -1,502.9 | 869.7 | 1,736.4 | 0.00 | 0.00 | |
| 7,100.7 | 15.14 | 149.94 | 6,872.9 | -1,503.1 | 869.8 | 1,736.6 | 0.00 | 0.00 | Start Drop -2.00 |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

| Planned Survey | | | | | | | | | |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|--|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Comments / Formations |
| 7,200.0 | 13.15 | 149.94 | 6,969.2 | -1,524.1 | 882.0 | 1,760.9 | 2.00 | -2.00 | |
| 7,300.0 | 11.15 | 149.94 | 7,066.9 | -1,542.3 | 892.5 | 1,781.9 | 2.00 | -2.00 | |
| 7,400.0 | 9.15 | 149.94 | 7,165.4 | -1,557.6 | 901.3 | 1,799.6 | 2.00 | -2.00 | |
| 7,500.0 | 7.15 | 149.94 | 7,264.3 | -1,569.8 | 908.4 | 1,813.7 | 2.00 | -2.00 | |
| 7,600.0 | 5.15 | 149.94 | 7,363.8 | -1,579.1 | 913.8 | 1,824.5 | 2.00 | -2.00 | |
| 7,700.0 | 3.15 | 149.94 | 7,463.5 | -1,585.4 | 917.4 | 1,831.7 | 2.00 | -2.00 | |
| 7,800.0 | 1.15 | 149.94 | 7,563.4 | -1,588.6 | 919.3 | 1,835.4 | 2.00 | -2.00 | |
| 7,857.6 | 0.00 | 0.00 | 7,621.0 | -1,589.1 | 919.6 | 1,836.0 | 2.00 | -2.00 | EOD; Inc=0° - Top of Gas - HMU Federal 16-6C |
| 7,900.0 | 0.00 | 0.00 | 7,663.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,000.0 | 0.00 | 0.00 | 7,763.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,100.0 | 0.00 | 0.00 | 7,863.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,200.0 | 0.00 | 0.00 | 7,963.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,300.0 | 0.00 | 0.00 | 8,063.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,400.0 | 0.00 | 0.00 | 8,163.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,500.0 | 0.00 | 0.00 | 8,263.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,600.0 | 0.00 | 0.00 | 8,363.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,700.0 | 0.00 | 0.00 | 8,463.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,800.0 | 0.00 | 0.00 | 8,563.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 8,900.0 | 0.00 | 0.00 | 8,663.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,000.0 | 0.00 | 0.00 | 8,763.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,073.6 | 0.00 | 0.00 | 8,837.0 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | Coal Ridge |
| 9,100.0 | 0.00 | 0.00 | 8,863.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,200.0 | 0.00 | 0.00 | 8,963.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,300.0 | 0.00 | 0.00 | 9,063.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,400.0 | 0.00 | 0.00 | 9,163.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,500.0 | 0.00 | 0.00 | 9,263.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,600.0 | 0.00 | 0.00 | 9,363.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,700.0 | 0.00 | 0.00 | 9,463.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,737.6 | 0.00 | 0.00 | 9,501.0 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | Base Cameo A Coal |
| 9,800.0 | 0.00 | 0.00 | 9,563.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 9,873.6 | 0.00 | 0.00 | 9,637.0 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | Rollins |
| 9,900.0 | 0.00 | 0.00 | 9,663.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 10,000.0 | 0.00 | 0.00 | 9,763.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 10,023.6 | 0.00 | 0.00 | 9,787.0 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | TD @ 10023.6' MD - HMU Federal 16-6C2 BHL |
| 10,100.0 | 0.00 | 0.00 | 9,863.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 10,200.0 | 0.00 | 0.00 | 9,963.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 10,300.0 | 0.00 | 0.00 | 10,063.4 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | |
| 10,323.6 | 0.00 | 0.00 | 10,087.0 | -1,589.1 | 919.6 | 1,836.0 | 0.00 | 0.00 | Permit TD @ 10323.6' MD |

| Targets | | | | | | | | | |
|--|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
| HMU Federal 16-6C2 TC - plan hits target center - Circle (radius 25.0) | 0.00 | 0.00 | 7,621.0 | -1,589.1 | 919.6 | 1,592,675.93 | 2,358,271.41 | 39.438618 | -107.772418 |
| HMU Federal 16-6C2 Bf - plan hits target center - Circle (radius 60.0) | 0.00 | 0.00 | 9,787.0 | -1,589.1 | 919.6 | 1,592,675.93 | 2,358,271.41 | 39.438618 | -107.772418 |

Cathedral Energy Services

Planning Report

| | | | |
|------------------|------------------------------|-------------------------------------|-------------------------------------|
| Database: | EDM 5000.1 US Multi Users DB | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Company: | EnCana Oil & Gas (USA) Inc | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Project: | Mamm Creek | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site: | (J16W) | North Reference: | True |
| Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | DD | | |
| Design: | Plan #1 | | |

| Casing Points | | | | |
|---------------------|---------------------|----------------|----------------------|--------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) |
| 1,513.0 | 1,479.1 | Surface casing | 5.500 | 6.000 |

| Formations | | | | | |
|---------------------|---------------------|-------------------|-----------|---------|-------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
| 3,705.0 | 3,595.0 | G Sand | | 0.00 | |
| 5,828.7 | 5,645.0 | Ohio Creek | | 0.00 | |
| 6,285.5 | 6,086.0 | Mesa verde | | 0.00 | |
| 6,815.9 | 6,598.0 | Williams Fork | | 0.00 | |
| 7,857.6 | 7,621.0 | Top of Gas | | 0.00 | |
| 9,073.6 | 8,837.0 | Coal Ridge | | 0.00 | |
| 9,737.6 | 9,501.0 | Base Cameo A Coal | | 0.00 | |
| 9,873.6 | 9,637.0 | Rollins | | 0.00 | |

| Plan Annotations | | | | |
|---------------------|---------------------|-------------------|------------|-------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
| | | +N/-S (ft) | +E/-W (ft) | |
| 200.0 | 200.0 | 0.0 | 0.0 | KOP @ 200' MD |
| 704.6 | 698.8 | -57.4 | 33.2 | EOB; Inc=15.14° |
| 7,100.7 | 6,872.9 | -1,503.1 | 869.8 | Start Drop -2.00 |
| 7,857.6 | 7,621.0 | -1,589.1 | 919.6 | EOD; Inc=0° |
| 10,023.6 | 9,787.0 | -1,589.1 | 919.6 | TD @ 10023.6' MD |
| 10,323.6 | 10,087.0 | -1,589.1 | 919.6 | Permit TD @ 10323.6' MD |

EnCana Oil & Gas (USA) Inc

Mamm Creek

(J16W)

HMU Federal 16-6C2

DD

Plan #1

Anticollision Report

01 November, 2010

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Reference | Plan #1 | | |
|------------------------------|---|----------------|---------------------|
| Filter type: | GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference | | |
| Interpolation Method: | MD Interval 100.0ft | Error Model: | Systematic Ellipse |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 1,232.4ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

| | | | | |
|----------------------------|----------------|--------------------------|------------------|--------------------|
| Survey Tool Program | Date | 11/1/2010 | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.0 | 10,323.6 | Plan #1 (DD) | MWD | Geolink MWD |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

Summary

| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
|--|--|-------------------------------------|--|---|----------------------|---------|
| Offset Well - Wellbore - Design | | | | | | |
| (J16W) | | | | | | |
| Existing 16-11 - DD - DD | 0.0 | 0.0 | 145.1 | | | |
| Existing 16-11 - DD - DD | 100.0 | 99.6 | 145.3 | 145.0 | 496.571 | ES |
| Existing 16-11 - DD - DD | 800.0 | 775.7 | 193.0 | 189.7 | 57.316 | SF |
| Existing 16-16 - DD - DD | 1,881.2 | 1,895.6 | 141.5 | 134.0 | 18.989 | CC, ES |
| Existing 16-16 - DD - DD | 5,500.0 | 5,494.3 | 398.4 | 355.5 | 9.289 | SF |
| Existing 16-9 - DD - DD | 582.9 | 590.0 | 131.5 | 129.3 | 58.373 | CC |
| Existing 16-9 - DD - DD | 600.0 | 607.2 | 131.5 | 129.2 | 56.322 | ES |
| Existing 16-9 - DD - DD | 1,000.0 | 1,002.7 | 159.4 | 155.4 | 39.474 | SF |
| HMU Federal 16-10A - DD - Plan #1 | 200.0 | 200.0 | 85.3 | 84.6 | 137.222 | CC, ES |
| HMU Federal 16-10A - DD - Plan #1 | 600.0 | 591.8 | 123.8 | 121.7 | 60.094 | SF |
| HMU Federal 16-11B - DD - Plan #1 | 200.0 | 200.0 | 94.0 | 93.4 | 151.260 | CC, ES |
| HMU Federal 16-11B - DD - Plan #1 | 600.0 | 579.6 | 154.1 | 152.0 | 71.303 | SF |
| HMU Federal 16-11D - DD - Plan #1 | 200.0 | 200.0 | 77.2 | 76.6 | 124.280 | CC, ES |
| HMU Federal 16-11D - DD - Plan #1 | 600.0 | 597.0 | 114.7 | 112.6 | 53.776 | SF |
| HMU Federal 16-14A - DD - Plan #1 | 100.0 | 100.0 | 60.1 | 59.9 | 220.887 | CC |
| HMU Federal 16-14A - DD - Plan #1 | 200.0 | 200.0 | 60.1 | 59.5 | 96.793 | ES |
| HMU Federal 16-14A - DD - Plan #1 | 600.0 | 600.4 | 88.7 | 86.4 | 38.611 | SF |
| HMU Federal 16-14D - DD - Plan #1 | 200.0 | 200.0 | 43.5 | 42.9 | 70.049 | CC, ES |
| HMU Federal 16-14D - DD - Plan #1 | 5,100.0 | 4,948.7 | 1,227.7 | 1,195.9 | 38.661 | SF |
| HMU Federal 16-14D2 - DD - Plan #1 | 200.0 | 200.0 | 26.8 | 26.1 | 43.082 | CC, ES |
| HMU Federal 16-14D2 - DD - Plan #1 | 400.0 | 399.6 | 36.8 | 35.5 | 27.945 | SF |
| HMU Federal 16-14D3 - DD - Plan #1 | 200.0 | 200.0 | 11.7 | 11.1 | 18.826 | CC, ES |
| HMU Federal 16-14D3 - DD - Plan #1 | 300.0 | 300.0 | 14.3 | 13.3 | 14.736 | SF |
| HMU Federal 16-16B - DD - Plan #1 | 100.0 | 100.0 | 34.0 | 33.8 | 125.017 | CC |
| HMU Federal 16-16B - DD - Plan #1 | 200.0 | 200.0 | 34.0 | 33.4 | 54.783 | ES |
| HMU Federal 16-16B - DD - Plan #1 | 700.0 | 701.5 | 59.7 | 56.6 | 19.226 | SF |
| HMU Federal 16-6C - DD - Plan #1 | 200.0 | 200.0 | 17.2 | 16.6 | 27.687 | CC, ES |
| HMU Federal 16-6C - DD - Plan #1 | 10,251.4 | 10,199.1 | 312.4 | 259.6 | 5.919 | SF |
| HMU Federal 16-9C - DD - Plan #1 | 200.0 | 200.0 | 50.5 | 49.9 | 81.310 | CC, ES |
| HMU Federal 16-9C - DD - Plan #1 | 700.0 | 696.8 | 102.8 | 100.1 | 37.323 | SF |
| HMU Federal 21-1B - DD - Plan #1 | 489.1 | 488.1 | 10.4 | 8.6 | 5.742 | CC |
| HMU Federal 21-1B - DD - Plan #1 | 500.0 | 499.0 | 10.4 | 8.6 | 5.578 | ES |
| HMU Federal 21-1B - DD - Plan #1 | 1,200.0 | 1,199.8 | 20.7 | 12.6 | 2.545 | SF |
| HMU Federal 21-3A - DD - Plan #1 | 200.0 | 200.0 | 11.6 | 11.0 | 18.711 | CC, ES |
| HMU Federal 21-3A - DD - Plan #1 | 300.0 | 299.4 | 13.5 | 12.6 | 13.814 | SF |
| HMU Fee 16-8D - DD - Plan #1 | 200.0 | 200.0 | 68.1 | 67.4 | 109.528 | CC, ES |
| HMU Fee 16-8D - DD - Plan #1 | 600.0 | 580.8 | 130.2 | 127.9 | 57.506 | SF |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - Existing 16-11 - DD - DD | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|------------------------------|----------------------|---------|------------|--------------------|--------|
| Survey Program: 212-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Highside Toolface (°) | Distance | | Total Uncertainty Axis | Separation Factor | Warning | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -121.13 | -75.0 | -124.2 | 145.1 | | | | | |
| 100.0 | 100.0 | 99.6 | 99.6 | 0.1 | 0.2 | -121.01 | -74.8 | -124.5 | 145.3 | 145.0 | 0.29 | 496.571 ES | | |
| 200.0 | 200.0 | 199.2 | 199.2 | 0.3 | 0.3 | -120.66 | -74.3 | -125.3 | 145.6 | 145.0 | 0.62 | 233.627 | | |
| 300.0 | 300.0 | 299.3 | 299.3 | 0.5 | 0.5 | 91.10 | -73.0 | -126.6 | 146.2 | 145.2 | 0.98 | 148.522 | | |
| 400.0 | 399.6 | 399.3 | 399.3 | 0.7 | 0.7 | 95.32 | -70.4 | -128.2 | 146.9 | 145.5 | 1.39 | 105.886 | | |
| 500.0 | 498.8 | 496.4 | 496.2 | 1.0 | 0.9 | 101.53 | -67.2 | -130.5 | 149.8 | 147.9 | 1.84 | 81.190 | | |
| 600.0 | 597.1 | 591.3 | 591.0 | 1.4 | 1.0 | 109.10 | -63.8 | -134.0 | 157.5 | 155.1 | 2.35 | 66.889 | | |
| 700.0 | 694.3 | 684.3 | 683.8 | 1.8 | 1.2 | 117.07 | -60.3 | -139.0 | 172.0 | 169.1 | 2.89 | 59.518 | | |
| 800.0 | 790.8 | 775.7 | 774.9 | 2.3 | 1.4 | 124.59 | -57.1 | -145.4 | 193.0 | 189.7 | 3.37 | 57.316 SF | | |
| 900.0 | 887.4 | 865.0 | 863.8 | 2.8 | 1.7 | 130.62 | -53.3 | -153.4 | 218.9 | 215.1 | 3.80 | 57.593 | | |
| 1,000.0 | 983.9 | 952.9 | 951.0 | 3.2 | 1.9 | 135.23 | -49.5 | -163.3 | 248.9 | 244.7 | 4.20 | 59.267 | | |
| 1,100.0 | 1,080.4 | 1,039.0 | 1,036.2 | 3.7 | 2.1 | 138.63 | -45.9 | -175.4 | 282.6 | 278.0 | 4.59 | 61.620 | | |
| 1,200.0 | 1,177.0 | 1,121.9 | 1,117.9 | 4.2 | 2.4 | 141.12 | -42.4 | -189.4 | 319.7 | 314.7 | 4.97 | 64.336 | | |
| 1,300.0 | 1,273.5 | 1,204.7 | 1,199.0 | 4.7 | 2.7 | 143.07 | -38.3 | -205.3 | 359.6 | 354.2 | 5.35 | 67.194 | | |
| 1,400.0 | 1,370.0 | 1,289.4 | 1,281.7 | 5.2 | 3.1 | 144.70 | -33.3 | -223.1 | 401.6 | 395.9 | 5.74 | 70.026 | | |
| 1,500.0 | 1,466.5 | 1,376.0 | 1,365.9 | 5.7 | 3.4 | 146.01 | -28.1 | -242.3 | 444.9 | 438.7 | 6.13 | 72.606 | | |
| 1,600.0 | 1,563.1 | 1,462.4 | 1,449.9 | 6.2 | 3.8 | 147.05 | -23.0 | -262.1 | 488.8 | 482.3 | 6.53 | 74.909 | | |
| 1,700.0 | 1,659.6 | 1,551.9 | 1,536.8 | 6.6 | 4.2 | 147.94 | -17.6 | -282.9 | 533.2 | 526.3 | 6.93 | 76.915 | | |
| 1,800.0 | 1,756.1 | 1,640.5 | 1,622.8 | 7.1 | 4.6 | 148.72 | -12.0 | -303.2 | 577.7 | 570.4 | 7.34 | 78.713 | | |
| 1,900.0 | 1,852.7 | 1,731.8 | 1,711.5 | 7.6 | 5.0 | 149.47 | -5.7 | -324.0 | 622.3 | 614.5 | 7.75 | 80.310 | | |
| 2,000.0 | 1,949.2 | 1,826.5 | 1,803.6 | 8.1 | 5.4 | 150.15 | 0.6 | -344.9 | 666.4 | 658.2 | 8.16 | 81.626 | | |
| 2,100.0 | 2,045.7 | 1,915.3 | 1,890.1 | 8.6 | 5.8 | 150.74 | 6.5 | -364.0 | 710.0 | 701.5 | 8.57 | 82.838 | | |
| 2,200.0 | 2,142.3 | 2,006.1 | 1,978.6 | 9.1 | 6.1 | 151.27 | 12.7 | -383.8 | 754.0 | 745.1 | 8.98 | 83.942 | | |
| 2,300.0 | 2,238.8 | 2,093.8 | 2,064.1 | 9.6 | 6.5 | 151.76 | 18.9 | -402.4 | 797.8 | 788.4 | 9.39 | 84.982 | | |
| 2,400.0 | 2,335.3 | 2,175.5 | 2,143.5 | 10.1 | 6.9 | 152.15 | 24.8 | -420.4 | 842.3 | 832.5 | 9.79 | 86.030 | | |
| 2,500.0 | 2,431.8 | 2,259.6 | 2,225.1 | 10.6 | 7.3 | 152.46 | 30.7 | -440.0 | 887.7 | 877.5 | 10.21 | 86.980 | | |
| 2,600.0 | 2,528.4 | 2,349.4 | 2,312.2 | 11.1 | 7.7 | 152.75 | 36.7 | -461.0 | 933.0 | 922.3 | 10.63 | 87.744 | | |
| 2,700.0 | 2,624.9 | 2,424.3 | 2,384.7 | 11.6 | 8.1 | 152.95 | 42.0 | -479.1 | 979.1 | 968.0 | 11.04 | 88.699 | | |
| 2,800.0 | 2,721.4 | 2,517.7 | 2,474.9 | 12.0 | 8.5 | 153.18 | 48.7 | -502.0 | 1,025.6 | 1,014.1 | 11.48 | 89.364 | | |
| 2,900.0 | 2,818.0 | 2,613.0 | 2,567.3 | 12.5 | 9.0 | 153.40 | 55.3 | -524.9 | 1,071.5 | 1,059.5 | 11.92 | 89.891 | | |
| 3,000.0 | 2,914.5 | 2,699.2 | 2,650.8 | 13.0 | 9.4 | 153.58 | 61.1 | -545.4 | 1,117.2 | 1,104.8 | 12.35 | 90.486 | | |
| 3,100.0 | 3,011.0 | 2,785.5 | 2,734.3 | 13.5 | 9.8 | 153.73 | 67.0 | -566.4 | 1,163.3 | 1,150.5 | 12.78 | 91.011 | | |
| 3,200.0 | 3,107.6 | 2,880.7 | 2,826.4 | 14.0 | 10.2 | 153.87 | 73.0 | -589.7 | 1,209.3 | 1,196.0 | 13.23 | 91.373 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - Existing 16-16 - DD - DD | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|------------------------------|----------------------|---------|---------------|--------------------|--------|
| Survey Program: 212-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Highside Toolface (°) | Distance | | Total Uncertainty Axis | Separation Factor | Warning | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -127.14 | -95.3 | -125.8 | 157.8 | | | | | |
| 100.0 | 100.0 | 98.5 | 98.5 | 0.1 | 0.2 | -127.17 | -95.6 | -126.1 | 158.3 | 158.0 | 0.29 | 542.560 | | |
| 200.0 | 200.0 | 197.0 | 197.0 | 0.3 | 0.3 | -127.28 | -96.7 | -127.1 | 159.7 | 159.1 | 0.62 | 256.842 | | |
| 300.0 | 300.0 | 297.3 | 297.2 | 0.5 | 0.5 | 83.47 | -98.3 | -128.2 | 161.3 | 160.3 | 0.97 | 165.442 | | |
| 400.0 | 399.6 | 397.3 | 397.3 | 0.7 | 0.7 | 85.79 | -100.2 | -128.8 | 162.1 | 160.7 | 1.37 | 118.113 | | |
| 500.0 | 498.8 | 496.9 | 496.8 | 1.0 | 0.9 | 89.34 | -103.3 | -128.4 | 162.9 | 161.1 | 1.84 | 88.614 | | |
| 600.0 | 597.1 | 597.9 | 597.7 | 1.4 | 1.0 | 94.20 | -107.5 | -126.8 | 164.0 | 161.6 | 2.39 | 68.616 | | |
| 700.0 | 694.3 | 698.0 | 697.7 | 1.8 | 1.2 | 100.38 | -112.0 | -123.6 | 165.8 | 162.8 | 3.02 | 54.876 | | |
| 800.0 | 790.8 | 799.1 | 798.5 | 2.3 | 1.4 | 107.06 | -117.1 | -118.7 | 168.9 | 165.3 | 3.65 | 46.336 | | |
| 900.0 | 887.4 | 902.6 | 901.5 | 2.8 | 1.7 | 113.15 | -123.4 | -110.9 | 171.6 | 167.4 | 4.25 | 40.402 | | |
| 1,000.0 | 983.9 | 1,007.4 | 1,005.4 | 3.2 | 1.9 | 118.45 | -131.5 | -99.6 | 172.9 | 168.1 | 4.82 | 35.854 | | |
| 1,100.0 | 1,080.4 | 1,114.3 | 1,110.5 | 3.7 | 2.3 | 123.11 | -141.8 | -83.5 | 171.1 | 165.7 | 5.37 | 31.863 | | |
| 1,200.0 | 1,177.0 | 1,217.2 | 1,211.0 | 4.2 | 2.7 | 127.25 | -153.3 | -64.3 | 166.6 | 160.7 | 5.87 | 28.395 | | |
| 1,300.0 | 1,273.5 | 1,318.0 | 1,309.1 | 4.7 | 3.1 | 131.28 | -165.5 | -44.5 | 161.7 | 155.4 | 6.30 | 25.667 | | |
| 1,400.0 | 1,370.0 | 1,418.3 | 1,406.4 | 5.2 | 3.5 | 135.27 | -178.5 | -24.1 | 156.8 | 150.1 | 6.67 | 23.507 | | |
| 1,500.0 | 1,466.5 | 1,518.1 | 1,503.2 | 5.7 | 3.9 | 139.42 | -191.7 | -3.4 | 152.3 | 145.3 | 6.96 | 21.880 | | |
| 1,600.0 | 1,563.1 | 1,618.6 | 1,600.3 | 6.2 | 4.4 | 143.90 | -205.2 | 18.4 | 147.5 | 140.4 | 7.16 | 20.606 | | |
| 1,700.0 | 1,659.6 | 1,717.0 | 1,695.5 | 6.6 | 4.8 | 148.54 | -218.3 | 39.5 | 144.0 | 136.8 | 7.29 | 19.755 | | |
| 1,800.0 | 1,756.1 | 1,815.6 | 1,791.0 | 7.1 | 5.3 | 153.32 | -231.3 | 60.2 | 142.0 | 134.6 | 7.38 | 19.235 | | |
| 1,881.2 | 1,834.5 | 1,895.6 | 1,868.6 | 7.5 | 5.7 | 157.27 | -241.7 | 76.7 | 141.5 | 134.0 | 7.45 | 18.989 CC, ES | | |
| 1,900.0 | 1,852.7 | 1,914.1 | 1,886.6 | 7.6 | 5.7 | 158.19 | -244.0 | 80.5 | 141.5 | 134.0 | 7.47 | 18.948 | | |
| 2,000.0 | 1,949.2 | 2,013.6 | 1,983.2 | 8.1 | 6.2 | 163.07 | -256.8 | 100.7 | 142.4 | 134.8 | 7.59 | 18.746 | | |
| 2,100.0 | 2,045.7 | 2,112.3 | 2,078.9 | 8.6 | 6.6 | 167.62 | -269.9 | 120.5 | 144.0 | 136.2 | 7.81 | 18.441 | | |
| 2,200.0 | 2,142.3 | 2,213.0 | 2,176.8 | 9.1 | 7.1 | 171.89 | -283.5 | 140.2 | 146.8 | 138.7 | 8.13 | 18.055 | | |
| 2,300.0 | 2,238.8 | 2,312.2 | 2,273.0 | 9.6 | 7.5 | 175.73 | -298.0 | 159.6 | 149.4 | 140.8 | 8.56 | 17.447 | | |
| 2,400.0 | 2,335.3 | 2,412.0 | 2,369.8 | 10.1 | 8.0 | 179.37 | -312.4 | 178.9 | 153.0 | 143.9 | 9.10 | 16.803 | | |
| 2,500.0 | 2,431.8 | 2,513.7 | 2,468.4 | 10.6 | 8.5 | -177.31 | -328.1 | 198.4 | 156.3 | 146.5 | 9.75 | 16.033 | | |
| 2,600.0 | 2,528.4 | 2,612.5 | 2,564.0 | 11.1 | 8.9 | -174.35 | -344.1 | 217.3 | 159.5 | 149.0 | 10.46 | 15.252 | | |
| 2,700.0 | 2,624.9 | 2,711.5 | 2,660.0 | 11.6 | 9.4 | -171.65 | -359.7 | 235.6 | 163.6 | 152.4 | 11.23 | 14.570 | | |
| 2,800.0 | 2,721.4 | 2,810.6 | 2,756.2 | 12.0 | 9.8 | -169.11 | -375.1 | 253.8 | 168.4 | 156.4 | 12.06 | 13.966 | | |
| 2,900.0 | 2,818.0 | 2,912.0 | 2,854.5 | 12.5 | 10.3 | -166.43 | -391.1 | 273.2 | 173.1 | 160.1 | 13.02 | 13.294 | | |
| 3,000.0 | 2,914.5 | 3,011.1 | 2,950.4 | 13.0 | 10.8 | -163.79 | -406.8 | 292.7 | 177.9 | 163.9 | 14.05 | 12.663 | | |
| 3,100.0 | 3,011.0 | 3,111.5 | 3,047.3 | 13.5 | 11.3 | -160.92 | -422.6 | 313.5 | 182.8 | 167.6 | 15.23 | 12.003 | | |
| 3,200.0 | 3,107.6 | 3,210.4 | 3,142.7 | 14.0 | 11.8 | -158.08 | -438.2 | 334.6 | 188.2 | 171.7 | 16.48 | 11.420 | | |
| 3,300.0 | 3,204.1 | 3,309.0 | 3,237.8 | 14.5 | 12.3 | -155.47 | -453.5 | 355.4 | 194.3 | 176.6 | 17.74 | 10.954 | | |
| 3,400.0 | 3,300.6 | 3,406.6 | 3,332.1 | 15.0 | 12.8 | -152.95 | -467.8 | 376.3 | 201.5 | 182.5 | 19.03 | 10.591 | | |
| 3,500.0 | 3,397.1 | 3,504.9 | 3,427.1 | 15.5 | 13.2 | -150.54 | -481.6 | 397.4 | 209.8 | 189.4 | 20.34 | 10.313 | | |
| 3,600.0 | 3,493.7 | 3,603.0 | 3,522.0 | 16.0 | 13.7 | -148.34 | -494.9 | 418.5 | 218.8 | 197.2 | 21.63 | 10.118 | | |
| 3,700.0 | 3,590.2 | 3,700.8 | 3,616.7 | 16.5 | 14.2 | -146.42 | -507.6 | 439.2 | 228.8 | 205.9 | 22.86 | 10.007 | | |
| 3,800.0 | 3,686.7 | 3,800.4 | 3,713.4 | 17.0 | 14.6 | -144.69 | -520.0 | 460.0 | 239.5 | 215.4 | 24.07 | 9.948 | | |
| 3,900.0 | 3,783.3 | 3,903.4 | 3,813.1 | 17.4 | 15.1 | -143.09 | -534.0 | 481.2 | 249.3 | 224.0 | 25.28 | 9.861 | | |
| 4,000.0 | 3,879.8 | 4,004.4 | 3,910.9 | 17.9 | 15.6 | -141.64 | -548.9 | 501.9 | 258.0 | 231.5 | 26.45 | 9.753 | | |
| 4,100.0 | 3,976.3 | 4,103.7 | 4,007.0 | 18.4 | 16.1 | -140.36 | -563.7 | 522.0 | 266.7 | 239.1 | 27.58 | 9.669 | | |
| 4,200.0 | 4,072.9 | 4,203.1 | 4,103.2 | 18.9 | 16.5 | -139.15 | -578.4 | 542.2 | 275.6 | 246.9 | 28.71 | 9.601 | | |
| 4,300.0 | 4,169.4 | 4,302.7 | 4,199.6 | 19.4 | 17.0 | -138.08 | -593.1 | 562.0 | 284.7 | 254.9 | 29.80 | 9.552 | | |
| 4,400.0 | 4,265.9 | 4,401.4 | 4,295.3 | 19.9 | 17.5 | -137.14 | -607.6 | 581.5 | 293.8 | 263.0 | 30.85 | 9.523 | | |
| 4,500.0 | 4,362.4 | 4,500.4 | 4,391.4 | 20.4 | 17.9 | -136.32 | -621.8 | 600.7 | 303.3 | 271.4 | 31.88 | 9.515 | | |
| 4,600.0 | 4,459.0 | 4,599.6 | 4,487.7 | 20.9 | 18.4 | -135.61 | -635.9 | 619.7 | 313.0 | 280.1 | 32.88 | 9.520 | | |
| 4,700.0 | 4,555.5 | 4,699.4 | 4,584.8 | 21.4 | 18.8 | -134.99 | -650.0 | 638.5 | 322.7 | 288.8 | 33.85 | 9.532 | | |
| 4,800.0 | 4,652.0 | 4,801.0 | 4,683.3 | 21.9 | 19.3 | -134.26 | -664.8 | 658.3 | 332.0 | 297.1 | 34.90 | 9.513 | | |
| 4,900.0 | 4,748.6 | 4,900.5 | 4,779.4 | 22.4 | 19.8 | -133.36 | -680.1 | 678.9 | 341.1 | 305.1 | 36.02 | 9.471 | | |
| 5,000.0 | 4,845.1 | 4,999.9 | 4,875.4 | 22.9 | 20.3 | -132.47 | -695.3 | 699.6 | 350.3 | 313.1 | 37.13 | 9.434 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - Existing 16-16 - DD - DD | | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|--|---------|----------------------|-----------------------|------------------------|-------------------|---------------------------|--|
| Survey Program: 212-MWD | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) +E/-W (ft) | | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 5,100.0 | 4,941.6 | 5,098.6 | 4,970.7 | 23.3 | 20.8 | -131.62 | -710.4 | 720.4 | 359.7 | 321.4 | 38.24 | 9.404 | | |
| 5,200.0 | 5,038.2 | 5,198.5 | 5,067.1 | 23.8 | 21.3 | -130.71 | -725.8 | 741.8 | 369.1 | 329.7 | 39.40 | 9.369 | | |
| 5,300.0 | 5,134.7 | 5,297.2 | 5,162.2 | 24.3 | 21.8 | -129.78 | -741.2 | 763.6 | 378.7 | 338.1 | 40.56 | 9.336 | | |
| 5,400.0 | 5,231.2 | 5,396.6 | 5,257.8 | 24.8 | 22.3 | -128.84 | -756.7 | 785.8 | 388.4 | 346.7 | 41.75 | 9.304 | | |
| 5,500.0 | 5,327.7 | 5,494.3 | 5,351.8 | 25.3 | 22.8 | -127.97 | -771.8 | 807.6 | 398.4 | 355.5 | 42.89 | 9.289 SF | | |
| 5,600.0 | 5,424.3 | 5,591.2 | 5,445.2 | 25.8 | 23.3 | -127.23 | -786.0 | 829.0 | 409.1 | 365.1 | 43.99 | 9.301 | | |
| 5,700.0 | 5,520.8 | 5,689.7 | 5,540.6 | 26.3 | 23.7 | -126.71 | -799.7 | 849.4 | 420.2 | 375.2 | 45.00 | 9.338 | | |
| 5,800.0 | 5,617.3 | 5,787.6 | 5,635.9 | 26.8 | 24.2 | -126.50 | -812.2 | 868.2 | 431.6 | 385.7 | 45.88 | 9.407 | | |
| 5,900.0 | 5,713.9 | 5,887.9 | 5,734.0 | 27.3 | 24.6 | -126.57 | -824.2 | 885.4 | 443.0 | 396.4 | 46.66 | 9.496 | | |
| 6,000.0 | 5,810.4 | 5,987.2 | 5,831.1 | 27.8 | 25.0 | -126.67 | -836.2 | 902.1 | 454.2 | 406.8 | 47.43 | 9.577 | | |
| 6,100.0 | 5,906.9 | 6,083.5 | 5,925.3 | 28.3 | 25.4 | -126.74 | -847.5 | 918.6 | 465.9 | 417.7 | 48.20 | 9.666 | | |
| 6,200.0 | 6,003.4 | 6,184.2 | 6,023.8 | 28.8 | 25.8 | -126.80 | -859.0 | 936.2 | 477.9 | 428.9 | 49.00 | 9.755 | | |
| 6,300.0 | 6,100.0 | 6,288.8 | 6,126.0 | 29.2 | 26.2 | -126.81 | -872.0 | 954.4 | 489.0 | 439.2 | 49.82 | 9.816 | | |
| 6,400.0 | 6,196.5 | 6,388.8 | 6,223.7 | 29.7 | 26.6 | -126.85 | -884.9 | 971.3 | 499.5 | 448.8 | 50.61 | 9.868 | | |
| 6,500.0 | 6,293.0 | 6,486.8 | 6,319.5 | 30.2 | 27.0 | -126.94 | -897.2 | 987.5 | 510.1 | 458.7 | 51.36 | 9.931 | | |
| 6,600.0 | 6,389.6 | 6,582.1 | 6,413.1 | 30.7 | 27.3 | -127.22 | -908.1 | 1,001.8 | 521.2 | 469.2 | 52.00 | 10.024 | | |
| 6,700.0 | 6,486.1 | 6,677.3 | 6,507.1 | 31.2 | 27.6 | -127.75 | -917.4 | 1,014.2 | 533.2 | 480.7 | 52.50 | 10.157 | | |
| 6,800.0 | 6,582.6 | 6,774.1 | 6,602.9 | 31.7 | 27.9 | -128.46 | -925.7 | 1,025.4 | 545.8 | 492.9 | 52.90 | 10.318 | | |
| 6,900.0 | 6,679.2 | 6,872.3 | 6,700.3 | 32.2 | 28.2 | -129.31 | -933.3 | 1,035.4 | 558.8 | 505.6 | 53.22 | 10.500 | | |
| 7,000.0 | 6,775.7 | 6,966.8 | 6,794.1 | 32.7 | 28.4 | -130.24 | -939.8 | 1,043.6 | 572.3 | 518.8 | 53.45 | 10.707 | | |
| 7,100.0 | 6,872.2 | 7,062.0 | 6,889.0 | 33.2 | 28.6 | -131.24 | -945.3 | 1,051.2 | 586.6 | 533.0 | 53.62 | 10.941 | | |
| 7,200.0 | 6,969.2 | 7,157.6 | 6,984.1 | 33.6 | 28.8 | -132.35 | -950.2 | 1,058.3 | 600.5 | 546.8 | 53.73 | 11.177 | | |
| 7,300.0 | 7,066.9 | 7,251.2 | 7,077.5 | 34.0 | 29.0 | -133.38 | -953.8 | 1,063.0 | 612.8 | 559.1 | 53.74 | 11.404 | | |
| 7,400.0 | 7,165.4 | 7,347.1 | 7,173.4 | 34.3 | 29.1 | -134.40 | -955.9 | 1,065.5 | 623.7 | 570.0 | 53.68 | 11.620 | | |
| 7,500.0 | 7,264.3 | 7,438.9 | 7,265.1 | 34.6 | 29.2 | -135.17 | -957.2 | 1,067.5 | 633.0 | 579.3 | 53.66 | 11.796 | | |
| 7,600.0 | 7,363.8 | 7,534.3 | 7,360.5 | 34.8 | 29.3 | -135.77 | -957.4 | 1,069.3 | 640.9 | 587.3 | 53.66 | 11.944 | | |
| 7,700.0 | 7,463.5 | 7,634.6 | 7,460.8 | 34.9 | 29.4 | -136.20 | -957.1 | 1,070.4 | 646.6 | 593.0 | 53.69 | 12.043 | | |
| 7,800.0 | 7,563.4 | 7,735.8 | 7,562.0 | 35.0 | 29.5 | -136.37 | -957.1 | 1,071.7 | 649.7 | 595.9 | 53.81 | 12.073 | | |
| 7,900.0 | 7,663.4 | 7,834.9 | 7,661.1 | 35.1 | 29.5 | 13.62 | -957.1 | 1,072.8 | 650.4 | 596.3 | 54.01 | 12.042 | | |
| 8,000.0 | 7,763.4 | 7,939.9 | 7,766.1 | 35.2 | 29.6 | 13.70 | -957.3 | 1,073.6 | 650.4 | 596.1 | 54.24 | 11.990 | | |
| 8,100.0 | 7,863.4 | 8,042.8 | 7,868.9 | 35.3 | 29.7 | 13.72 | -958.0 | 1,073.7 | 649.7 | 595.3 | 54.43 | 11.937 | | |
| 8,200.0 | 7,963.4 | 8,142.9 | 7,969.1 | 35.3 | 29.8 | 13.70 | -958.7 | 1,073.2 | 648.9 | 594.3 | 54.60 | 11.885 | | |
| 8,300.0 | 8,063.4 | 8,245.9 | 8,072.1 | 35.4 | 29.9 | 13.65 | -959.7 | 1,072.5 | 647.8 | 593.0 | 54.75 | 11.831 | | |
| 8,400.0 | 8,163.4 | 8,347.9 | 8,174.0 | 35.5 | 30.0 | 13.61 | -961.1 | 1,071.6 | 646.2 | 591.3 | 54.91 | 11.770 | | |
| 8,500.0 | 8,263.4 | 8,447.8 | 8,274.0 | 35.5 | 30.1 | 13.56 | -962.6 | 1,070.7 | 644.6 | 589.5 | 55.06 | 11.707 | | |
| 8,600.0 | 8,363.4 | 8,547.1 | 8,373.2 | 35.6 | 30.2 | 13.50 | -964.0 | 1,069.7 | 643.0 | 587.8 | 55.21 | 11.646 | | |
| 8,700.0 | 8,463.4 | 8,646.2 | 8,472.3 | 35.7 | 30.2 | 13.48 | -965.3 | 1,069.1 | 641.6 | 586.2 | 55.39 | 11.583 | | |
| 8,800.0 | 8,563.4 | 8,746.2 | 8,572.3 | 35.8 | 30.3 | 13.48 | -966.6 | 1,068.8 | 640.2 | 584.6 | 55.58 | 11.518 | | |
| 8,900.0 | 8,663.4 | 8,846.8 | 8,672.9 | 35.8 | 30.4 | 13.48 | -968.1 | 1,068.5 | 638.8 | 583.0 | 55.78 | 11.452 | | |
| 9,000.0 | 8,763.4 | 8,945.9 | 8,772.0 | 35.9 | 30.5 | 13.49 | -969.5 | 1,068.2 | 637.3 | 581.3 | 55.97 | 11.385 | | |
| 9,100.0 | 8,863.4 | 9,043.5 | 8,869.6 | 36.0 | 30.6 | 13.51 | -970.6 | 1,068.2 | 636.1 | 579.9 | 56.18 | 11.323 | | |
| 9,200.0 | 8,963.4 | 9,143.5 | 8,969.5 | 36.1 | 30.7 | 13.53 | -971.6 | 1,068.2 | 635.2 | 578.8 | 56.39 | 11.265 | | |
| 9,300.0 | 9,063.4 | 9,246.3 | 9,072.3 | 36.1 | 30.8 | 13.54 | -972.7 | 1,068.0 | 634.1 | 577.5 | 56.60 | 11.203 | | |
| 9,400.0 | 9,163.4 | 9,350.7 | 9,176.7 | 36.2 | 30.9 | 13.56 | -974.5 | 1,067.8 | 632.3 | 575.5 | 56.82 | 11.130 | | |
| 9,500.0 | 9,263.4 | 9,454.2 | 9,280.2 | 36.3 | 31.1 | 13.62 | -977.1 | 1,067.9 | 629.9 | 572.9 | 57.06 | 11.039 | | |
| 9,600.0 | 9,363.4 | 9,552.0 | 9,378.0 | 36.4 | 31.2 | 13.73 | -979.8 | 1,068.4 | 627.4 | 570.1 | 57.33 | 10.943 | | |
| 9,700.0 | 9,463.4 | 9,650.7 | 9,476.6 | 36.5 | 31.3 | 13.82 | -982.2 | 1,069.0 | 625.2 | 567.6 | 57.60 | 10.855 | | |
| 9,800.0 | 9,563.4 | 9,749.6 | 9,575.5 | 36.5 | 31.4 | 13.90 | -984.3 | 1,069.3 | 623.2 | 565.3 | 57.85 | 10.773 | | |
| 9,900.0 | 9,663.4 | 9,847.7 | 9,673.6 | 36.6 | 31.5 | 13.96 | -986.1 | 1,069.5 | 621.4 | 563.3 | 58.09 | 10.698 | | |
| 9,917.5 | 9,680.9 | 9,855.0 | 9,680.9 | 36.6 | 31.5 | 13.96 | -986.3 | 1,069.5 | 621.2 | 563.1 | 58.12 | 10.690 | | |
| 10,000.0 | 9,763.4 | 9,855.0 | 9,680.9 | 36.7 | 31.5 | 13.96 | -986.3 | 1,069.5 | 626.7 | 568.5 | 58.20 | 10.767 | | |
| 10,100.0 | 9,863.4 | 9,855.0 | 9,680.9 | 36.8 | 31.5 | 13.96 | -986.3 | 1,069.5 | 647.5 | 589.2 | 58.31 | 11.104 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - Existing 16-16 - DD - DD | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|------------------------|------------------------|------------------------|-------------------|----------------|-----------------------------|---|---------------|----------------------------|-----------------------------|------------------------------|----------------------|---------------------------|--------|
| Survey Program: 212-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 10,200.0 | 9,963.4 | 9,855.0 | 9,680.9 | 36.9 | 31.5 | 13.96 | -986.3 | 1,069.5 | 682.4 | 624.0 | 58.42 | 11.682 | | |
| 10,300.0 | 10,063.4 | 9,855.0 | 9,680.9 | 37.0 | 31.5 | 13.96 | -986.3 | 1,069.5 | 729.5 | 671.0 | 58.53 | 12.465 | | |
| 10,323.6 | 10,087.0 | 9,855.0 | 9,680.9 | 37.0 | 31.5 | 13.96 | -986.3 | 1,069.5 | 742.2 | 683.6 | 58.55 | 12.675 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - Existing 16-9 - DD - DD | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|------------------------------|----------------------|---------|-----------|--------------------|--------|
| Survey Program: 195-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Highside Toolface (°) | Distance | | Total Uncertainty Axis | Separation Factor | Warning | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -114.21 | -54.8 | -121.9 | 133.6 | | | | | |
| 100.0 | 100.0 | 100.1 | 100.1 | 0.1 | 0.2 | -114.13 | -54.6 | -121.9 | 133.6 | 133.3 | 0.29 | 458.415 | | |
| 200.0 | 200.0 | 200.2 | 200.2 | 0.3 | 0.3 | -113.91 | -54.1 | -122.1 | 133.5 | 132.9 | 0.62 | 214.537 | | |
| 300.0 | 300.0 | 301.0 | 301.0 | 0.5 | 0.5 | 97.33 | -53.8 | -121.8 | 133.4 | 132.5 | 0.98 | 136.047 | | |
| 400.0 | 399.6 | 403.3 | 403.3 | 0.7 | 0.7 | 100.25 | -54.3 | -119.6 | 132.8 | 131.5 | 1.38 | 96.360 | | |
| 500.0 | 498.8 | 505.4 | 505.2 | 1.0 | 0.9 | 105.08 | -55.0 | -115.4 | 132.0 | 130.2 | 1.83 | 72.052 | | |
| 582.9 | 580.4 | 590.0 | 589.7 | 1.3 | 1.0 | 110.89 | -54.9 | -110.2 | 131.5 | 129.3 | 2.25 | 58.373 CC | | |
| 600.0 | 597.1 | 607.2 | 606.9 | 1.4 | 1.1 | 112.30 | -54.7 | -108.9 | 131.5 | 129.2 | 2.34 | 56.322 ES | | |
| 700.0 | 694.3 | 708.2 | 707.5 | 1.8 | 1.3 | 121.95 | -52.8 | -100.4 | 133.7 | 130.8 | 2.85 | 46.850 | | |
| 800.0 | 790.8 | 808.3 | 806.8 | 2.3 | 1.5 | 132.76 | -49.3 | -89.0 | 138.8 | 135.5 | 3.30 | 42.078 | | |
| 900.0 | 887.4 | 905.6 | 903.2 | 2.8 | 1.8 | 143.15 | -44.2 | -75.7 | 147.0 | 143.3 | 3.68 | 39.913 | | |
| 1,000.0 | 983.9 | 1,002.7 | 998.9 | 3.2 | 2.1 | 152.91 | -37.7 | -61.3 | 159.4 | 155.4 | 4.04 | 39.474 SF | | |
| 1,100.0 | 1,080.4 | 1,099.0 | 1,093.7 | 3.7 | 2.4 | 161.49 | -30.6 | -45.6 | 175.2 | 170.8 | 4.40 | 39.809 | | |
| 1,200.0 | 1,177.0 | 1,193.7 | 1,186.8 | 4.2 | 2.8 | 168.56 | -23.5 | -30.0 | 194.3 | 189.5 | 4.79 | 40.603 | | |
| 1,300.0 | 1,273.5 | 1,290.1 | 1,281.7 | 4.7 | 3.1 | 174.38 | -16.4 | -14.3 | 215.9 | 210.7 | 5.23 | 41.296 | | |
| 1,400.0 | 1,370.0 | 1,384.0 | 1,373.9 | 5.2 | 3.4 | 179.19 | -9.1 | 1.5 | 239.3 | 233.6 | 5.72 | 41.847 | | |
| 1,500.0 | 1,466.5 | 1,478.4 | 1,466.6 | 5.7 | 3.8 | -176.69 | -1.1 | 17.6 | 264.6 | 258.4 | 6.27 | 42.237 | | |
| 1,600.0 | 1,563.1 | 1,575.0 | 1,561.3 | 6.2 | 4.1 | -173.08 | 7.3 | 34.8 | 291.0 | 284.1 | 6.87 | 42.382 | | |
| 1,700.0 | 1,659.6 | 1,668.7 | 1,653.1 | 6.6 | 4.5 | -170.15 | 15.4 | 51.5 | 318.2 | 310.7 | 7.47 | 42.571 | | |
| 1,800.0 | 1,756.1 | 1,765.1 | 1,747.8 | 7.1 | 4.8 | -167.74 | 23.5 | 67.9 | 346.0 | 337.9 | 8.09 | 42.741 | | |
| 1,900.0 | 1,852.7 | 1,861.7 | 1,842.7 | 7.6 | 5.2 | -165.77 | 31.0 | 84.0 | 373.9 | 365.2 | 8.72 | 42.886 | | |
| 2,000.0 | 1,949.2 | 1,962.3 | 1,941.6 | 8.1 | 5.6 | -164.00 | 38.0 | 101.0 | 401.3 | 392.0 | 9.37 | 42.820 | | |
| 2,100.0 | 2,045.7 | 2,058.1 | 2,035.8 | 8.6 | 5.9 | -162.49 | 44.2 | 117.7 | 428.5 | 418.4 | 10.02 | 42.761 | | |
| 2,200.0 | 2,142.3 | 2,153.4 | 2,129.3 | 9.1 | 6.3 | -161.10 | 50.5 | 134.8 | 455.9 | 445.2 | 10.68 | 42.680 | | |
| 2,300.0 | 2,238.8 | 2,249.0 | 2,223.1 | 9.6 | 6.6 | -159.85 | 56.9 | 152.0 | 483.5 | 472.2 | 11.34 | 42.635 | | |
| 2,400.0 | 2,335.3 | 2,346.5 | 2,318.9 | 10.1 | 7.0 | -158.75 | 63.1 | 169.2 | 511.2 | 499.2 | 12.01 | 42.571 | | |
| 2,500.0 | 2,431.8 | 2,443.3 | 2,413.9 | 10.6 | 7.4 | -157.72 | 69.1 | 186.9 | 538.7 | 526.0 | 12.69 | 42.456 | | |
| 2,600.0 | 2,528.4 | 2,537.1 | 2,505.8 | 11.1 | 7.7 | -156.79 | 75.0 | 204.2 | 566.5 | 553.1 | 13.36 | 42.409 | | |
| 2,700.0 | 2,624.9 | 2,633.7 | 2,600.5 | 11.6 | 8.1 | -155.85 | 81.3 | 222.8 | 594.5 | 580.4 | 14.06 | 42.267 | | |
| 2,800.0 | 2,721.4 | 2,729.2 | 2,694.0 | 12.0 | 8.5 | -154.98 | 87.3 | 241.4 | 622.4 | 607.7 | 14.76 | 42.157 | | |
| 2,900.0 | 2,818.0 | 2,820.7 | 2,783.3 | 12.5 | 8.9 | -154.16 | 93.6 | 259.8 | 650.9 | 635.5 | 15.47 | 42.082 | | |
| 3,000.0 | 2,914.5 | 2,915.3 | 2,875.7 | 13.0 | 9.3 | -153.36 | 100.4 | 278.9 | 679.9 | 663.7 | 16.18 | 42.020 | | |
| 3,100.0 | 3,011.0 | 3,010.6 | 2,968.9 | 13.5 | 9.7 | -152.67 | 107.2 | 297.7 | 709.0 | 692.1 | 16.88 | 41.994 | | |
| 3,200.0 | 3,107.6 | 3,105.8 | 3,062.1 | 14.0 | 10.0 | -152.06 | 114.1 | 316.1 | 738.2 | 720.6 | 17.58 | 42.000 | | |
| 3,300.0 | 3,204.1 | 3,202.1 | 3,156.4 | 14.5 | 10.4 | -151.53 | 120.9 | 334.3 | 767.4 | 749.1 | 18.26 | 42.014 | | |
| 3,400.0 | 3,300.6 | 3,298.9 | 3,251.3 | 15.0 | 10.8 | -151.06 | 127.7 | 352.3 | 796.5 | 777.6 | 18.95 | 42.043 | | |
| 3,500.0 | 3,397.1 | 3,396.5 | 3,347.1 | 15.5 | 11.2 | -150.66 | 134.2 | 369.8 | 825.5 | 805.9 | 19.62 | 42.074 | | |
| 3,600.0 | 3,493.7 | 3,493.0 | 3,441.7 | 16.0 | 11.6 | -150.22 | 140.6 | 388.1 | 854.3 | 834.0 | 20.32 | 42.046 | | |
| 3,700.0 | 3,590.2 | 3,589.1 | 3,535.7 | 16.5 | 11.9 | -149.81 | 146.8 | 406.4 | 883.1 | 862.1 | 21.00 | 42.045 | | |
| 3,800.0 | 3,686.7 | 3,687.8 | 3,632.5 | 17.0 | 12.3 | -149.46 | 152.9 | 424.5 | 911.7 | 890.0 | 21.69 | 42.033 | | |
| 3,900.0 | 3,783.3 | 3,779.6 | 3,722.6 | 17.4 | 12.7 | -149.14 | 158.7 | 441.6 | 940.4 | 918.0 | 22.36 | 42.059 | | |
| 4,000.0 | 3,879.8 | 3,871.2 | 3,812.2 | 17.9 | 13.0 | -148.81 | 164.9 | 459.1 | 969.5 | 946.5 | 23.03 | 42.093 | | |
| 4,100.0 | 3,976.3 | 3,966.1 | 3,905.2 | 18.4 | 13.4 | -148.49 | 171.6 | 477.2 | 998.9 | 975.2 | 23.72 | 42.119 | | |
| 4,200.0 | 4,072.9 | 4,063.8 | 4,001.0 | 18.9 | 13.8 | -148.22 | 178.4 | 495.1 | 1,028.3 | 1,003.9 | 24.39 | 42.159 | | |
| 4,300.0 | 4,169.4 | 4,164.1 | 4,099.4 | 19.4 | 14.2 | -147.99 | 184.8 | 513.1 | 1,057.2 | 1,032.1 | 25.07 | 42.163 | | |
| 4,400.0 | 4,265.9 | 4,251.9 | 4,185.6 | 19.9 | 14.5 | -147.78 | 190.7 | 529.0 | 1,086.4 | 1,060.7 | 25.71 | 42.253 | | |
| 4,500.0 | 4,362.4 | 4,349.4 | 4,281.2 | 20.4 | 14.9 | -147.57 | 197.5 | 546.6 | 1,115.9 | 1,089.5 | 26.38 | 42.297 | | |
| 4,600.0 | 4,459.0 | 4,448.6 | 4,378.6 | 20.9 | 15.3 | -147.38 | 204.2 | 564.3 | 1,145.1 | 1,118.0 | 27.05 | 42.328 | | |
| 4,700.0 | 4,555.5 | 4,545.5 | 4,473.9 | 21.4 | 15.6 | -147.22 | 210.5 | 581.1 | 1,174.1 | 1,146.4 | 27.71 | 42.369 | | |
| 4,800.0 | 4,652.0 | 4,640.5 | 4,567.1 | 21.9 | 16.0 | -147.04 | 216.7 | 598.3 | 1,203.1 | 1,174.7 | 28.38 | 42.393 | | |
| 4,900.0 | 4,748.6 | 4,739.9 | 4,664.6 | 22.4 | 16.4 | -146.84 | 223.0 | 616.6 | 1,232.0 | 1,203.0 | 29.07 | 42.387 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-10A - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|----------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total | Separation | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.51 | 84.9 | 8.2 | 85.3 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 5.51 | 84.9 | 8.2 | 85.3 | 85.0 | 0.27 | 313.147 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 5.51 | 84.9 | 8.2 | 85.3 | 84.6 | 0.62 | 137.222 CC, ES | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -145.39 | 84.9 | 8.2 | 87.4 | 86.4 | 0.97 | 89.869 | | |
| 400.0 | 399.6 | 399.6 | 399.6 | 0.7 | 0.7 | -148.00 | 84.9 | 8.2 | 94.0 | 92.6 | 1.33 | 70.552 | | |
| 500.0 | 498.8 | 498.8 | 498.8 | 1.0 | 0.8 | -151.60 | 84.9 | 8.2 | 105.3 | 103.6 | 1.70 | 61.986 | | |
| 600.0 | 597.1 | 591.8 | 591.7 | 1.4 | 1.0 | -154.79 | 86.9 | 8.9 | 123.8 | 121.7 | 2.06 | 60.094 SF | | |
| 700.0 | 694.3 | 681.9 | 681.6 | 1.8 | 1.2 | -156.92 | 93.0 | 11.2 | 151.4 | 149.0 | 2.43 | 62.419 | | |
| 800.0 | 790.8 | 771.8 | 771.0 | 2.3 | 1.4 | -158.34 | 102.7 | 14.7 | 185.3 | 182.5 | 2.80 | 66.088 | | |
| 900.0 | 887.4 | 865.6 | 864.0 | 2.8 | 1.6 | -159.28 | 113.5 | 18.6 | 220.0 | 216.8 | 3.19 | 68.870 | | |
| 1,000.0 | 983.9 | 959.3 | 957.0 | 3.2 | 1.8 | -159.96 | 124.4 | 22.6 | 254.8 | 251.2 | 3.59 | 71.000 | | |
| 1,100.0 | 1,080.4 | 1,053.0 | 1,050.0 | 3.7 | 2.1 | -160.48 | 135.2 | 26.5 | 289.6 | 285.6 | 3.98 | 72.673 | | |
| 1,200.0 | 1,177.0 | 1,146.8 | 1,143.0 | 4.2 | 2.3 | -160.89 | 146.1 | 30.5 | 324.4 | 320.0 | 4.38 | 74.017 | | |
| 1,300.0 | 1,273.5 | 1,240.5 | 1,236.0 | 4.7 | 2.6 | -161.22 | 156.9 | 34.4 | 359.2 | 354.4 | 4.78 | 75.119 | | |
| 1,400.0 | 1,370.0 | 1,334.2 | 1,329.1 | 5.2 | 2.8 | -161.49 | 167.8 | 38.4 | 394.0 | 388.8 | 5.18 | 76.036 | | |
| 1,500.0 | 1,466.5 | 1,428.0 | 1,422.1 | 5.7 | 3.1 | -161.71 | 178.6 | 42.3 | 428.8 | 423.2 | 5.58 | 76.812 | | |
| 1,600.0 | 1,563.1 | 1,521.7 | 1,515.1 | 6.2 | 3.3 | -161.91 | 189.5 | 46.3 | 463.6 | 457.6 | 5.98 | 77.475 | | |
| 1,700.0 | 1,659.6 | 1,615.4 | 1,608.1 | 6.6 | 3.6 | -162.07 | 200.3 | 50.2 | 498.5 | 492.1 | 6.39 | 78.048 | | |
| 1,800.0 | 1,756.1 | 1,709.1 | 1,701.1 | 7.1 | 3.8 | -162.22 | 211.2 | 54.2 | 533.3 | 526.5 | 6.79 | 78.548 | | |
| 1,900.0 | 1,852.7 | 1,802.9 | 1,794.1 | 7.6 | 4.1 | -162.34 | 222.0 | 58.1 | 568.1 | 560.9 | 7.19 | 78.988 | | |
| 2,000.0 | 1,949.2 | 1,896.6 | 1,887.2 | 8.1 | 4.3 | -162.45 | 232.9 | 62.1 | 603.0 | 595.4 | 7.60 | 79.379 | | |
| 2,100.0 | 2,045.7 | 1,990.3 | 1,980.2 | 8.6 | 4.6 | -162.55 | 243.7 | 66.0 | 637.8 | 629.8 | 8.00 | 79.727 | | |
| 2,200.0 | 2,142.3 | 2,084.1 | 2,073.2 | 9.1 | 4.9 | -162.64 | 254.6 | 70.0 | 672.6 | 664.2 | 8.40 | 80.039 | | |
| 2,300.0 | 2,238.8 | 2,177.8 | 2,166.2 | 9.6 | 5.1 | -162.72 | 265.4 | 73.9 | 707.5 | 698.7 | 8.81 | 80.321 | | |
| 2,400.0 | 2,335.3 | 2,271.5 | 2,259.2 | 10.1 | 5.4 | -162.80 | 276.3 | 77.9 | 742.3 | 733.1 | 9.21 | 80.577 | | |
| 2,500.0 | 2,431.8 | 2,365.2 | 2,352.2 | 10.6 | 5.6 | -162.86 | 287.1 | 81.8 | 777.2 | 767.5 | 9.62 | 80.810 | | |
| 2,600.0 | 2,528.4 | 2,459.0 | 2,445.3 | 11.1 | 5.9 | -162.92 | 298.0 | 85.8 | 812.0 | 802.0 | 10.02 | 81.023 | | |
| 2,700.0 | 2,624.9 | 2,552.7 | 2,538.3 | 11.6 | 6.1 | -162.98 | 308.8 | 89.7 | 846.9 | 836.4 | 10.43 | 81.219 | | |
| 2,800.0 | 2,721.4 | 2,646.4 | 2,631.3 | 12.0 | 6.4 | -163.03 | 319.7 | 93.7 | 881.7 | 870.9 | 10.83 | 81.399 | | |
| 2,900.0 | 2,818.0 | 2,740.2 | 2,724.3 | 12.5 | 6.7 | -163.08 | 330.5 | 97.6 | 916.5 | 905.3 | 11.24 | 81.565 | | |
| 3,000.0 | 2,914.5 | 2,833.9 | 2,817.3 | 13.0 | 6.9 | -163.12 | 341.4 | 101.6 | 951.4 | 939.8 | 11.64 | 81.720 | | |
| 3,100.0 | 3,011.0 | 2,927.6 | 2,910.3 | 13.5 | 7.2 | -163.16 | 352.2 | 105.5 | 986.2 | 974.2 | 12.05 | 81.863 | | |
| 3,200.0 | 3,107.6 | 3,021.4 | 3,003.3 | 14.0 | 7.4 | -163.20 | 363.1 | 109.5 | 1,021.1 | 1,008.6 | 12.45 | 81.997 | | |
| 3,300.0 | 3,204.1 | 3,115.1 | 3,096.4 | 14.5 | 7.7 | -163.24 | 373.9 | 113.4 | 1,055.9 | 1,043.1 | 12.86 | 82.122 | | |
| 3,400.0 | 3,300.6 | 3,208.8 | 3,189.4 | 15.0 | 7.9 | -163.27 | 384.8 | 117.4 | 1,090.8 | 1,077.5 | 13.26 | 82.238 | | |
| 3,500.0 | 3,397.1 | 3,302.5 | 3,282.4 | 15.5 | 8.2 | -163.30 | 395.6 | 121.3 | 1,125.6 | 1,112.0 | 13.67 | 82.348 | | |
| 3,600.0 | 3,493.7 | 3,396.3 | 3,375.4 | 16.0 | 8.5 | -163.33 | 406.5 | 125.3 | 1,160.5 | 1,146.4 | 14.07 | 82.451 | | |
| 3,700.0 | 3,590.2 | 3,490.0 | 3,468.4 | 16.5 | 8.7 | -163.36 | 417.3 | 129.2 | 1,195.3 | 1,180.9 | 14.48 | 82.548 | | |
| 3,800.0 | 3,686.7 | 3,583.7 | 3,561.4 | 17.0 | 9.0 | -163.38 | 428.2 | 133.2 | 1,230.2 | 1,215.3 | 14.89 | 82.639 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-11B - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|----------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total | Separation | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.69 | 94.0 | 1.1 | 94.0 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 0.69 | 94.0 | 1.1 | 94.0 | 93.7 | 0.27 | 345.184 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 0.69 | 94.0 | 1.1 | 94.0 | 93.4 | 0.62 | 151.260 CC, ES | | |
| 300.0 | 300.0 | 298.2 | 298.2 | 0.5 | 0.5 | -151.40 | 94.8 | -1.3 | 97.1 | 96.1 | 0.98 | 99.514 | | |
| 400.0 | 399.6 | 395.1 | 394.7 | 0.7 | 0.7 | -156.96 | 97.3 | -8.3 | 107.3 | 105.9 | 1.36 | 78.970 | | |
| 500.0 | 498.8 | 489.2 | 488.1 | 1.0 | 1.0 | -163.98 | 101.2 | -19.5 | 125.9 | 124.2 | 1.76 | 71.498 | | |
| 600.0 | 597.1 | 579.6 | 577.1 | 1.4 | 1.3 | -170.69 | 106.4 | -34.4 | 154.1 | 152.0 | 2.16 | 71.303 SF | | |
| 700.0 | 694.3 | 666.5 | 661.9 | 1.8 | 1.6 | -176.33 | 112.6 | -52.3 | 191.8 | 189.3 | 2.53 | 75.727 | | |
| 800.0 | 790.8 | 755.8 | 748.8 | 2.3 | 2.0 | 179.36 | 119.5 | -71.9 | 234.4 | 231.5 | 2.92 | 80.227 | | |
| 900.0 | 887.4 | 845.1 | 835.7 | 2.8 | 2.4 | 176.36 | 126.3 | -91.4 | 277.7 | 274.4 | 3.31 | 83.826 | | |
| 1,000.0 | 983.9 | 934.5 | 922.6 | 3.2 | 2.8 | 174.16 | 133.1 | -111.0 | 321.5 | 317.8 | 3.71 | 86.678 | | |
| 1,100.0 | 1,080.4 | 1,023.8 | 1,009.4 | 3.7 | 3.2 | 172.49 | 139.9 | -130.5 | 365.6 | 361.4 | 4.11 | 88.952 | | |
| 1,200.0 | 1,177.0 | 1,113.1 | 1,096.3 | 4.2 | 3.6 | 171.17 | 146.8 | -150.1 | 409.8 | 405.3 | 4.51 | 90.786 | | |
| 1,300.0 | 1,273.5 | 1,202.4 | 1,183.2 | 4.7 | 4.0 | 170.11 | 153.6 | -169.6 | 454.2 | 449.3 | 4.92 | 92.285 | | |
| 1,400.0 | 1,370.0 | 1,291.7 | 1,270.1 | 5.2 | 4.4 | 169.24 | 160.4 | -189.1 | 498.8 | 493.4 | 5.33 | 93.526 | | |
| 1,500.0 | 1,466.5 | 1,381.0 | 1,356.9 | 5.7 | 4.8 | 168.51 | 167.3 | -208.7 | 543.3 | 537.6 | 5.75 | 94.567 | | |
| 1,600.0 | 1,563.1 | 1,470.3 | 1,443.8 | 6.2 | 5.2 | 167.89 | 174.1 | -228.2 | 588.0 | 581.8 | 6.16 | 95.452 | | |
| 1,700.0 | 1,659.6 | 1,559.6 | 1,530.7 | 6.6 | 5.6 | 167.36 | 180.9 | -247.8 | 632.7 | 626.1 | 6.58 | 96.211 | | |
| 1,800.0 | 1,756.1 | 1,648.9 | 1,617.5 | 7.1 | 6.0 | 166.89 | 187.7 | -267.3 | 677.4 | 670.4 | 6.99 | 96.868 | | |
| 1,900.0 | 1,852.7 | 1,738.2 | 1,704.4 | 7.6 | 6.4 | 166.49 | 194.6 | -286.9 | 722.2 | 714.8 | 7.41 | 97.442 | | |
| 2,000.0 | 1,949.2 | 1,827.5 | 1,791.3 | 8.1 | 6.8 | 166.13 | 201.4 | -306.4 | 767.0 | 759.2 | 7.83 | 97.947 | | |
| 2,100.0 | 2,045.7 | 1,916.8 | 1,878.2 | 8.6 | 7.2 | 165.81 | 208.2 | -326.0 | 811.8 | 803.6 | 8.25 | 98.396 | | |
| 2,200.0 | 2,142.3 | 2,006.2 | 1,965.0 | 9.1 | 7.6 | 165.53 | 215.0 | -345.5 | 856.7 | 848.0 | 8.67 | 98.795 | | |
| 2,300.0 | 2,238.8 | 2,095.5 | 2,051.9 | 9.6 | 8.0 | 165.27 | 221.9 | -365.1 | 901.5 | 892.4 | 9.09 | 99.154 | | |
| 2,400.0 | 2,335.3 | 2,184.8 | 2,138.8 | 10.1 | 8.4 | 165.04 | 228.7 | -384.6 | 946.4 | 936.9 | 9.51 | 99.477 | | |
| 2,500.0 | 2,431.8 | 2,274.1 | 2,225.7 | 10.6 | 8.8 | 164.83 | 235.5 | -404.2 | 991.2 | 981.3 | 9.94 | 99.770 | | |
| 2,600.0 | 2,528.4 | 2,363.4 | 2,312.5 | 11.1 | 9.2 | 164.63 | 242.3 | -423.7 | 1,036.1 | 1,025.8 | 10.36 | 100.037 | | |
| 2,700.0 | 2,624.9 | 2,452.7 | 2,399.4 | 11.6 | 9.6 | 164.45 | 249.2 | -443.3 | 1,081.0 | 1,070.2 | 10.78 | 100.280 | | |
| 2,800.0 | 2,721.4 | 2,542.0 | 2,486.3 | 12.0 | 10.0 | 164.29 | 256.0 | -462.8 | 1,125.9 | 1,114.7 | 11.20 | 100.504 | | |
| 2,900.0 | 2,818.0 | 2,631.3 | 2,573.2 | 12.5 | 10.4 | 164.14 | 262.8 | -482.4 | 1,170.8 | 1,159.2 | 11.63 | 100.710 | | |
| 3,000.0 | 2,914.5 | 2,720.6 | 2,660.0 | 13.0 | 10.8 | 164.00 | 269.7 | -501.9 | 1,215.8 | 1,203.7 | 12.05 | 100.900 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-11D - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total | Separation | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.42 | 77.2 | -0.6 | 77.2 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -0.42 | 77.2 | -0.6 | 77.2 | 76.9 | 0.27 | 283.613 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -0.42 | 77.2 | -0.6 | 77.2 | 76.6 | 0.62 | 124.280 | CC, ES | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -151.26 | 77.2 | -0.6 | 79.5 | 78.5 | 0.97 | 81.820 | | |
| 400.0 | 399.6 | 400.7 | 400.6 | 0.7 | 0.7 | -155.42 | 76.4 | -3.1 | 85.9 | 84.5 | 1.33 | 64.386 | | |
| 500.0 | 498.8 | 500.0 | 499.6 | 1.0 | 0.9 | -163.06 | 74.0 | -10.5 | 96.9 | 95.2 | 1.72 | 56.426 | | |
| 600.0 | 597.1 | 597.0 | 595.8 | 1.4 | 1.1 | -171.97 | 70.1 | -22.5 | 114.7 | 112.6 | 2.13 | 53.776 | SF | |
| 700.0 | 694.3 | 691.8 | 689.3 | 1.8 | 1.4 | -179.99 | 65.1 | -37.6 | 140.4 | 137.8 | 2.56 | 54.889 | | |
| 800.0 | 790.8 | 786.0 | 782.1 | 2.3 | 1.7 | 174.43 | 60.1 | -53.0 | 170.7 | 167.7 | 3.02 | 56.594 | | |
| 900.0 | 887.4 | 880.2 | 874.9 | 2.8 | 2.0 | 170.53 | 55.1 | -68.3 | 202.0 | 198.5 | 3.50 | 57.792 | | |
| 1,000.0 | 983.9 | 974.4 | 967.6 | 3.2 | 2.4 | 167.68 | 50.1 | -83.6 | 234.0 | 230.0 | 3.99 | 58.623 | | |
| 1,100.0 | 1,080.4 | 1,068.5 | 1,060.4 | 3.7 | 2.7 | 165.51 | 45.1 | -98.9 | 266.4 | 261.9 | 4.50 | 59.203 | | |
| 1,200.0 | 1,177.0 | 1,162.7 | 1,153.2 | 4.2 | 3.0 | 163.81 | 40.0 | -114.2 | 299.1 | 294.1 | 5.02 | 59.619 | | |
| 1,300.0 | 1,273.5 | 1,256.9 | 1,246.0 | 4.7 | 3.3 | 162.44 | 35.0 | -129.5 | 331.9 | 326.4 | 5.54 | 59.924 | | |
| 1,400.0 | 1,370.0 | 1,351.1 | 1,338.8 | 5.2 | 3.7 | 161.32 | 30.0 | -144.9 | 364.9 | 358.8 | 6.07 | 60.153 | | |
| 1,500.0 | 1,466.5 | 1,445.3 | 1,431.6 | 5.7 | 4.0 | 160.38 | 25.0 | -160.2 | 398.0 | 391.4 | 6.60 | 60.330 | | |
| 1,600.0 | 1,563.1 | 1,539.5 | 1,524.4 | 6.2 | 4.3 | 159.59 | 20.0 | -175.5 | 431.2 | 424.0 | 7.13 | 60.469 | | |
| 1,700.0 | 1,659.6 | 1,633.6 | 1,617.2 | 6.6 | 4.6 | 158.91 | 15.0 | -190.8 | 464.4 | 456.7 | 7.67 | 60.581 | | |
| 1,800.0 | 1,756.1 | 1,727.8 | 1,710.0 | 7.1 | 5.0 | 158.32 | 10.0 | -206.1 | 497.7 | 489.5 | 8.20 | 60.673 | | |
| 1,900.0 | 1,852.7 | 1,822.0 | 1,802.8 | 7.6 | 5.3 | 157.80 | 5.0 | -221.4 | 531.0 | 522.3 | 8.74 | 60.748 | | |
| 2,000.0 | 1,949.2 | 1,916.2 | 1,895.6 | 8.1 | 5.6 | 157.35 | 0.0 | -236.7 | 564.4 | 555.1 | 9.28 | 60.812 | | |
| 2,100.0 | 2,045.7 | 2,010.4 | 1,988.4 | 8.6 | 5.9 | 156.94 | -5.0 | -252.1 | 597.8 | 588.0 | 9.82 | 60.866 | | |
| 2,200.0 | 2,142.3 | 2,104.5 | 2,081.2 | 9.1 | 6.3 | 156.58 | -10.0 | -267.4 | 631.2 | 620.8 | 10.36 | 60.912 | | |
| 2,300.0 | 2,238.8 | 2,198.7 | 2,174.0 | 9.6 | 6.6 | 156.25 | -15.0 | -282.7 | 664.6 | 653.7 | 10.90 | 60.952 | | |
| 2,400.0 | 2,335.3 | 2,292.9 | 2,266.7 | 10.1 | 6.9 | 155.96 | -20.1 | -298.0 | 698.1 | 686.6 | 11.45 | 60.987 | | |
| 2,500.0 | 2,431.8 | 2,387.1 | 2,359.5 | 10.6 | 7.2 | 155.69 | -25.1 | -313.3 | 731.5 | 719.6 | 11.99 | 61.018 | | |
| 2,600.0 | 2,528.4 | 2,481.3 | 2,452.3 | 11.1 | 7.6 | 155.45 | -30.1 | -328.6 | 765.0 | 752.5 | 12.53 | 61.045 | | |
| 2,700.0 | 2,624.9 | 2,575.5 | 2,545.1 | 11.6 | 7.9 | 155.23 | -35.1 | -344.0 | 798.5 | 785.4 | 13.08 | 61.070 | | |
| 2,800.0 | 2,721.4 | 2,669.6 | 2,637.9 | 12.0 | 8.2 | 155.02 | -40.1 | -359.3 | 832.0 | 818.4 | 13.62 | 61.092 | | |
| 2,900.0 | 2,818.0 | 2,763.8 | 2,730.7 | 12.5 | 8.6 | 154.83 | -45.1 | -374.6 | 865.5 | 851.4 | 14.16 | 61.111 | | |
| 3,000.0 | 2,914.5 | 2,858.0 | 2,823.5 | 13.0 | 8.9 | 154.66 | -50.1 | -389.9 | 899.0 | 884.3 | 14.71 | 61.129 | | |
| 3,100.0 | 3,011.0 | 2,952.2 | 2,916.3 | 13.5 | 9.2 | 154.49 | -55.1 | -405.2 | 932.6 | 917.3 | 15.25 | 61.145 | | |
| 3,200.0 | 3,107.6 | 3,046.4 | 3,009.1 | 14.0 | 9.5 | 154.34 | -60.1 | -420.5 | 966.1 | 950.3 | 15.80 | 61.160 | | |
| 3,300.0 | 3,204.1 | 3,140.5 | 3,101.9 | 14.5 | 9.9 | 154.20 | -65.1 | -435.8 | 999.6 | 983.3 | 16.34 | 61.174 | | |
| 3,400.0 | 3,300.6 | 3,234.7 | 3,194.7 | 15.0 | 10.2 | 154.07 | -70.1 | -451.2 | 1,033.2 | 1,016.3 | 16.89 | 61.186 | | |
| 3,500.0 | 3,397.1 | 3,328.9 | 3,287.5 | 15.5 | 10.5 | 153.94 | -75.1 | -466.5 | 1,066.7 | 1,049.3 | 17.43 | 61.198 | | |
| 3,600.0 | 3,493.7 | 3,423.1 | 3,380.3 | 16.0 | 10.9 | 153.83 | -80.2 | -481.8 | 1,100.3 | 1,082.3 | 17.98 | 61.209 | | |
| 3,700.0 | 3,590.2 | 3,517.3 | 3,473.1 | 16.5 | 11.2 | 153.72 | -85.2 | -497.1 | 1,133.8 | 1,115.3 | 18.52 | 61.219 | | |
| 3,800.0 | 3,686.7 | 3,611.4 | 3,565.8 | 17.0 | 11.5 | 153.62 | -90.2 | -512.4 | 1,167.4 | 1,148.3 | 19.07 | 61.228 | | |
| 3,900.0 | 3,783.3 | 3,705.6 | 3,658.6 | 17.4 | 11.8 | 153.52 | -95.2 | -527.7 | 1,200.9 | 1,181.3 | 19.61 | 61.237 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-14A - DD - Plan #1 | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|-------------------|---------|--------------------|--------|
| Survey Program: O-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Separation Factor | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -2.15 | 60.1 | -2.3 | 60.1 | | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -2.15 | 60.1 | -2.3 | 60.1 | 59.9 | 0.27 | 220.887 CC | | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -2.15 | 60.1 | -2.3 | 60.1 | 59.5 | 0.62 | 96.793 ES | | | |
| 300.0 | 300.0 | 301.9 | 301.8 | 0.5 | 0.5 | -155.28 | 58.4 | -4.3 | 60.9 | 59.9 | 0.98 | 62.095 | | | |
| 400.0 | 399.6 | 403.0 | 402.6 | 0.7 | 0.7 | -164.14 | 53.2 | -10.5 | 64.3 | 62.9 | 1.37 | 46.804 | | | |
| 500.0 | 498.8 | 502.8 | 501.5 | 1.0 | 1.0 | -176.38 | 44.7 | -20.6 | 72.7 | 70.9 | 1.82 | 39.910 | | | |
| 600.0 | 597.1 | 600.4 | 597.8 | 1.4 | 1.3 | 172.74 | 34.5 | -32.7 | 88.7 | 86.4 | 2.30 | 38.611 SF | | | |
| 700.0 | 694.3 | 697.0 | 693.1 | 1.8 | 1.6 | 165.84 | 24.5 | -44.6 | 111.8 | 109.0 | 2.79 | 40.006 | | | |
| 800.0 | 790.8 | 793.0 | 787.9 | 2.3 | 1.9 | 161.78 | 14.5 | -56.5 | 138.5 | 135.2 | 3.33 | 41.548 | | | |
| 900.0 | 887.4 | 888.9 | 882.6 | 2.8 | 2.2 | 159.04 | 4.5 | -68.4 | 165.6 | 161.7 | 3.89 | 42.554 | | | |
| 1,000.0 | 983.9 | 984.9 | 977.3 | 3.2 | 2.6 | 157.07 | -5.5 | -80.3 | 193.0 | 188.6 | 4.46 | 43.243 | | | |
| 1,100.0 | 1,080.4 | 1,080.9 | 1,072.0 | 3.7 | 2.9 | 155.59 | -15.5 | -92.2 | 220.6 | 215.6 | 5.04 | 43.736 | | | |
| 1,200.0 | 1,177.0 | 1,176.9 | 1,166.8 | 4.2 | 3.2 | 154.44 | -25.5 | -104.1 | 248.3 | 242.6 | 5.63 | 44.101 | | | |
| 1,300.0 | 1,273.5 | 1,272.9 | 1,261.5 | 4.7 | 3.5 | 153.52 | -35.5 | -116.0 | 276.0 | 269.8 | 6.22 | 44.381 | | | |
| 1,400.0 | 1,370.0 | 1,368.9 | 1,356.2 | 5.2 | 3.8 | 152.77 | -45.5 | -127.9 | 303.8 | 297.0 | 6.81 | 44.600 | | | |
| 1,500.0 | 1,466.5 | 1,464.9 | 1,450.9 | 5.7 | 4.1 | 152.15 | -55.5 | -139.8 | 331.6 | 324.2 | 7.41 | 44.776 | | | |
| 1,600.0 | 1,563.1 | 1,560.9 | 1,545.6 | 6.2 | 4.5 | 151.62 | -65.5 | -151.7 | 359.5 | 351.5 | 8.00 | 44.920 | | | |
| 1,700.0 | 1,659.6 | 1,656.9 | 1,640.4 | 6.6 | 4.8 | 151.16 | -75.5 | -163.6 | 387.4 | 378.8 | 8.60 | 45.040 | | | |
| 1,800.0 | 1,756.1 | 1,752.9 | 1,735.1 | 7.1 | 5.1 | 150.77 | -85.5 | -175.5 | 415.3 | 406.1 | 9.20 | 45.142 | | | |
| 1,900.0 | 1,852.7 | 1,848.8 | 1,829.8 | 7.6 | 5.4 | 150.43 | -95.5 | -187.4 | 443.2 | 433.4 | 9.80 | 45.228 | | | |
| 2,000.0 | 1,949.2 | 1,944.8 | 1,924.5 | 8.1 | 5.7 | 150.13 | -105.5 | -199.3 | 471.2 | 460.8 | 10.40 | 45.303 | | | |
| 2,100.0 | 2,045.7 | 2,040.8 | 2,019.3 | 8.6 | 6.1 | 149.86 | -115.5 | -211.2 | 499.1 | 488.1 | 11.00 | 45.368 | | | |
| 2,200.0 | 2,142.3 | 2,136.8 | 2,114.0 | 9.1 | 6.4 | 149.62 | -125.5 | -223.1 | 527.1 | 515.5 | 11.60 | 45.425 | | | |
| 2,300.0 | 2,238.8 | 2,232.8 | 2,208.7 | 9.6 | 6.7 | 149.40 | -135.5 | -235.0 | 555.1 | 542.8 | 12.21 | 45.476 | | | |
| 2,400.0 | 2,335.3 | 2,328.8 | 2,303.4 | 10.1 | 7.0 | 149.21 | -145.5 | -246.9 | 583.0 | 570.2 | 12.81 | 45.521 | | | |
| 2,500.0 | 2,431.8 | 2,424.8 | 2,398.2 | 10.6 | 7.3 | 149.03 | -155.5 | -258.8 | 611.0 | 597.6 | 13.41 | 45.561 | | | |
| 2,600.0 | 2,528.4 | 2,520.8 | 2,492.9 | 11.1 | 7.7 | 148.87 | -165.5 | -270.7 | 639.0 | 625.0 | 14.01 | 45.598 | | | |
| 2,700.0 | 2,624.9 | 2,616.8 | 2,587.6 | 11.6 | 8.0 | 148.72 | -175.5 | -282.6 | 667.0 | 652.4 | 14.62 | 45.631 | | | |
| 2,800.0 | 2,721.4 | 2,712.8 | 2,682.3 | 12.0 | 8.3 | 148.58 | -185.5 | -294.5 | 695.0 | 679.7 | 15.22 | 45.661 | | | |
| 2,900.0 | 2,818.0 | 2,808.7 | 2,777.1 | 12.5 | 8.6 | 148.46 | -195.5 | -306.4 | 723.0 | 707.1 | 15.82 | 45.688 | | | |
| 3,000.0 | 2,914.5 | 2,904.7 | 2,871.8 | 13.0 | 8.9 | 148.34 | -205.5 | -318.3 | 751.0 | 734.5 | 16.43 | 45.714 | | | |
| 3,100.0 | 3,011.0 | 3,000.7 | 2,966.5 | 13.5 | 9.3 | 148.23 | -215.5 | -330.2 | 779.0 | 761.9 | 17.03 | 45.737 | | | |
| 3,200.0 | 3,107.6 | 3,096.7 | 3,061.2 | 14.0 | 9.6 | 148.13 | -225.5 | -342.1 | 807.0 | 789.3 | 17.64 | 45.758 | | | |
| 3,300.0 | 3,204.1 | 3,192.7 | 3,156.0 | 14.5 | 9.9 | 148.04 | -235.5 | -353.9 | 835.0 | 816.7 | 18.24 | 45.778 | | | |
| 3,400.0 | 3,300.6 | 3,288.7 | 3,250.7 | 15.0 | 10.2 | 147.95 | -245.5 | -365.8 | 863.0 | 844.1 | 18.84 | 45.797 | | | |
| 3,500.0 | 3,397.1 | 3,384.7 | 3,345.4 | 15.5 | 10.5 | 147.87 | -255.5 | -377.7 | 891.0 | 871.5 | 19.45 | 45.814 | | | |
| 3,600.0 | 3,493.7 | 3,480.7 | 3,440.1 | 16.0 | 10.9 | 147.79 | -265.5 | -389.6 | 919.0 | 898.9 | 20.05 | 45.830 | | | |
| 3,700.0 | 3,590.2 | 3,576.7 | 3,534.8 | 16.5 | 11.2 | 147.72 | -275.5 | -401.5 | 947.0 | 926.4 | 20.66 | 45.845 | | | |
| 3,800.0 | 3,686.7 | 3,672.6 | 3,629.6 | 17.0 | 11.5 | 147.65 | -285.5 | -413.4 | 975.0 | 953.8 | 21.26 | 45.859 | | | |
| 3,900.0 | 3,783.3 | 3,768.6 | 3,724.3 | 17.4 | 11.8 | 147.59 | -295.5 | -425.3 | 1,003.0 | 981.2 | 21.87 | 45.872 | | | |
| 4,000.0 | 3,879.8 | 3,864.6 | 3,819.0 | 17.9 | 12.1 | 147.52 | -305.5 | -437.2 | 1,031.0 | 1,008.6 | 22.47 | 45.884 | | | |
| 4,100.0 | 3,976.3 | 3,960.6 | 3,913.7 | 18.4 | 12.5 | 147.47 | -315.5 | -449.1 | 1,059.1 | 1,036.0 | 23.08 | 45.896 | | | |
| 4,200.0 | 4,072.9 | 4,056.6 | 4,008.5 | 18.9 | 12.8 | 147.41 | -325.5 | -461.0 | 1,087.1 | 1,063.4 | 23.68 | 45.907 | | | |
| 4,300.0 | 4,169.4 | 4,152.6 | 4,103.2 | 19.4 | 13.1 | 147.36 | -335.5 | -472.9 | 1,115.1 | 1,090.8 | 24.28 | 45.917 | | | |
| 4,400.0 | 4,265.9 | 4,248.6 | 4,197.9 | 19.9 | 13.4 | 147.31 | -345.5 | -484.8 | 1,143.1 | 1,118.2 | 24.89 | 45.927 | | | |
| 4,500.0 | 4,362.4 | 4,344.6 | 4,292.6 | 20.4 | 13.7 | 147.26 | -355.5 | -496.7 | 1,171.1 | 1,145.6 | 25.49 | 45.937 | | | |
| 4,600.0 | 4,459.0 | 4,440.6 | 4,387.4 | 20.9 | 14.1 | 147.22 | -365.5 | -508.6 | 1,199.2 | 1,173.1 | 26.10 | 45.946 | | | |
| 4,700.0 | 4,555.5 | 4,536.6 | 4,482.1 | 21.4 | 14.4 | 147.18 | -375.5 | -520.5 | 1,227.2 | 1,200.5 | 26.70 | 45.954 | | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-14D - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|---------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -5.21 | 43.3 | -4.0 | 43.5 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -5.21 | 43.3 | -4.0 | 43.5 | 43.3 | 0.27 | 159.855 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -5.21 | 43.3 | -4.0 | 43.5 | 42.9 | 0.62 | 70.049 CC, ES | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -156.50 | 43.3 | -4.0 | 45.9 | 44.9 | 0.97 | 47.282 | | |
| 400.0 | 399.6 | 399.6 | 399.6 | 0.7 | 0.7 | -159.79 | 43.3 | -4.0 | 53.2 | 51.9 | 1.32 | 40.234 | | |
| 500.0 | 498.8 | 498.8 | 498.8 | 1.0 | 0.8 | -163.62 | 43.3 | -4.0 | 65.6 | 63.9 | 1.67 | 39.256 | | |
| 600.0 | 597.1 | 597.1 | 597.1 | 1.4 | 1.0 | -167.04 | 43.3 | -4.0 | 83.3 | 81.3 | 2.01 | 41.353 | | |
| 700.0 | 694.3 | 694.3 | 694.3 | 1.8 | 1.2 | -169.74 | 43.3 | -4.0 | 106.2 | 103.8 | 2.35 | 45.237 | | |
| 800.0 | 790.8 | 790.8 | 790.8 | 2.3 | 1.3 | -171.75 | 43.3 | -4.0 | 132.0 | 129.3 | 2.69 | 49.106 | | |
| 900.0 | 887.4 | 887.4 | 887.4 | 2.8 | 1.5 | -173.11 | 43.3 | -4.0 | 157.9 | 154.8 | 3.03 | 52.140 | | |
| 1,000.0 | 983.9 | 983.9 | 983.9 | 3.2 | 1.7 | -174.09 | 43.3 | -4.0 | 183.8 | 180.5 | 3.37 | 54.585 | | |
| 1,100.0 | 1,080.4 | 1,084.3 | 1,084.3 | 3.7 | 1.9 | -175.32 | 41.9 | -5.1 | 209.1 | 205.4 | 3.71 | 56.334 | | |
| 1,200.0 | 1,177.0 | 1,185.9 | 1,185.6 | 4.2 | 2.0 | -177.52 | 36.4 | -9.8 | 232.4 | 228.4 | 4.06 | 57.234 | | |
| 1,300.0 | 1,273.5 | 1,287.4 | 1,286.3 | 4.7 | 2.3 | 179.54 | 26.8 | -17.8 | 254.2 | 249.8 | 4.44 | 57.211 | | |
| 1,400.0 | 1,370.0 | 1,388.3 | 1,385.7 | 5.2 | 2.5 | 176.02 | 13.2 | -29.2 | 275.0 | 270.1 | 4.90 | 56.120 | | |
| 1,500.0 | 1,466.5 | 1,485.5 | 1,480.6 | 5.7 | 2.8 | 172.42 | -2.6 | -42.5 | 295.8 | 290.4 | 5.43 | 54.477 | | |
| 1,600.0 | 1,563.1 | 1,581.7 | 1,574.6 | 6.2 | 3.2 | 169.31 | -18.4 | -55.8 | 317.6 | 311.5 | 6.02 | 52.772 | | |
| 1,700.0 | 1,659.6 | 1,677.9 | 1,668.5 | 6.6 | 3.5 | 166.58 | -34.2 | -69.0 | 340.1 | 333.5 | 6.65 | 51.142 | | |
| 1,800.0 | 1,756.1 | 1,774.1 | 1,762.5 | 7.1 | 3.8 | 164.20 | -49.9 | -82.2 | 363.3 | 356.0 | 7.32 | 49.657 | | |
| 1,900.0 | 1,852.7 | 1,870.3 | 1,856.5 | 7.6 | 4.2 | 162.09 | -65.7 | -95.5 | 387.1 | 379.0 | 8.01 | 48.342 | | |
| 2,000.0 | 1,949.2 | 1,966.5 | 1,950.4 | 8.1 | 4.6 | 160.23 | -81.5 | -108.7 | 411.2 | 402.5 | 8.71 | 47.192 | | |
| 2,100.0 | 2,045.7 | 2,062.7 | 2,044.4 | 8.6 | 4.9 | 158.58 | -97.3 | -121.9 | 435.8 | 426.3 | 9.43 | 46.195 | | |
| 2,200.0 | 2,142.3 | 2,158.9 | 2,138.4 | 9.1 | 5.3 | 157.09 | -113.0 | -135.2 | 460.6 | 450.5 | 10.16 | 45.330 | | |
| 2,300.0 | 2,238.8 | 2,255.1 | 2,232.4 | 9.6 | 5.7 | 155.76 | -128.8 | -148.4 | 485.8 | 474.9 | 10.90 | 44.579 | | |
| 2,400.0 | 2,335.3 | 2,351.3 | 2,326.3 | 10.1 | 6.1 | 154.56 | -144.6 | -161.6 | 511.1 | 499.5 | 11.64 | 43.926 | | |
| 2,500.0 | 2,431.8 | 2,447.5 | 2,420.3 | 10.6 | 6.4 | 153.47 | -160.4 | -174.9 | 536.7 | 524.3 | 12.38 | 43.356 | | |
| 2,600.0 | 2,528.4 | 2,543.7 | 2,514.3 | 11.1 | 6.8 | 152.48 | -176.1 | -188.1 | 562.4 | 549.2 | 13.12 | 42.855 | | |
| 2,700.0 | 2,624.9 | 2,639.9 | 2,608.2 | 11.6 | 7.2 | 151.58 | -191.9 | -201.3 | 588.2 | 574.3 | 13.87 | 42.415 | | |
| 2,800.0 | 2,721.4 | 2,736.1 | 2,702.2 | 12.0 | 7.6 | 150.75 | -207.7 | -214.6 | 614.2 | 599.6 | 14.61 | 42.025 | | |
| 2,900.0 | 2,818.0 | 2,832.3 | 2,796.2 | 12.5 | 8.0 | 149.99 | -223.5 | -227.8 | 640.3 | 624.9 | 15.36 | 41.679 | | |
| 3,000.0 | 2,914.5 | 2,928.5 | 2,890.1 | 13.0 | 8.4 | 149.29 | -239.2 | -241.0 | 666.5 | 650.3 | 16.11 | 41.371 | | |
| 3,100.0 | 3,011.0 | 3,024.7 | 2,984.1 | 13.5 | 8.8 | 148.64 | -255.0 | -254.3 | 692.7 | 675.9 | 16.86 | 41.094 | | |
| 3,200.0 | 3,107.6 | 3,120.9 | 3,078.1 | 14.0 | 9.2 | 148.04 | -270.8 | -267.5 | 719.1 | 701.5 | 17.60 | 40.846 | | |
| 3,300.0 | 3,204.1 | 3,217.1 | 3,172.1 | 14.5 | 9.6 | 147.48 | -286.5 | -280.7 | 745.5 | 727.1 | 18.35 | 40.622 | | |
| 3,400.0 | 3,300.6 | 3,313.3 | 3,266.0 | 15.0 | 10.0 | 146.96 | -302.3 | -294.0 | 772.0 | 752.9 | 19.10 | 40.419 | | |
| 3,500.0 | 3,397.1 | 3,409.5 | 3,360.0 | 15.5 | 10.3 | 146.47 | -318.1 | -307.2 | 798.5 | 778.7 | 19.85 | 40.234 | | |
| 3,600.0 | 3,493.7 | 3,505.7 | 3,454.0 | 16.0 | 10.7 | 146.01 | -333.9 | -320.5 | 825.1 | 804.5 | 20.59 | 40.067 | | |
| 3,700.0 | 3,590.2 | 3,601.9 | 3,547.9 | 16.5 | 11.1 | 145.59 | -349.6 | -333.7 | 851.7 | 830.4 | 21.34 | 39.913 | | |
| 3,800.0 | 3,686.7 | 3,698.1 | 3,641.9 | 17.0 | 11.5 | 145.19 | -365.4 | -346.9 | 878.4 | 856.3 | 22.09 | 39.773 | | |
| 3,900.0 | 3,783.3 | 3,794.3 | 3,735.9 | 17.4 | 11.9 | 144.81 | -381.2 | -360.2 | 905.1 | 882.3 | 22.83 | 39.643 | | |
| 4,000.0 | 3,879.8 | 3,890.5 | 3,829.8 | 17.9 | 12.3 | 144.45 | -397.0 | -373.4 | 931.9 | 908.3 | 23.58 | 39.525 | | |
| 4,100.0 | 3,976.3 | 3,986.7 | 3,923.8 | 18.4 | 12.7 | 144.12 | -412.7 | -386.6 | 958.6 | 934.3 | 24.32 | 39.415 | | |
| 4,200.0 | 4,072.9 | 4,082.9 | 4,017.8 | 18.9 | 13.1 | 143.80 | -428.5 | -399.9 | 985.4 | 960.4 | 25.07 | 39.313 | | |
| 4,300.0 | 4,169.4 | 4,179.1 | 4,111.8 | 19.4 | 13.5 | 143.50 | -444.3 | -413.1 | 1,012.3 | 986.5 | 25.81 | 39.219 | | |
| 4,400.0 | 4,265.9 | 4,275.3 | 4,205.7 | 19.9 | 13.9 | 143.21 | -460.1 | -426.3 | 1,039.1 | 1,012.6 | 26.55 | 39.131 | | |
| 4,500.0 | 4,362.4 | 4,371.5 | 4,299.7 | 20.4 | 14.3 | 142.94 | -475.8 | -439.6 | 1,066.0 | 1,038.7 | 27.30 | 39.050 | | |
| 4,600.0 | 4,459.0 | 4,467.7 | 4,393.7 | 20.9 | 14.7 | 142.68 | -491.6 | -452.8 | 1,092.9 | 1,064.9 | 28.04 | 38.974 | | |
| 4,700.0 | 4,555.5 | 4,563.9 | 4,487.6 | 21.4 | 15.1 | 142.43 | -507.4 | -466.0 | 1,119.8 | 1,091.0 | 28.79 | 38.903 | | |
| 4,800.0 | 4,652.0 | 4,660.1 | 4,581.6 | 21.9 | 15.5 | 142.20 | -523.2 | -479.3 | 1,146.8 | 1,117.2 | 29.53 | 38.836 | | |
| 4,900.0 | 4,748.6 | 4,756.3 | 4,675.6 | 22.4 | 15.9 | 141.98 | -538.9 | -492.5 | 1,173.7 | 1,143.5 | 30.27 | 38.774 | | |
| 5,000.0 | 4,845.1 | 4,852.5 | 4,769.5 | 22.9 | 16.3 | 141.76 | -554.7 | -505.7 | 1,200.7 | 1,169.7 | 31.01 | 38.716 | | |
| 5,100.0 | 4,941.6 | 4,948.7 | 4,863.5 | 23.3 | 16.7 | 141.56 | -570.5 | -519.0 | 1,227.7 | 1,195.9 | 31.76 | 38.661 SF | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-14D2 - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|---------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -11.56 | 26.2 | -5.4 | 26.8 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -11.56 | 26.2 | -5.4 | 26.8 | 26.5 | 0.27 | 98.314 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -11.56 | 26.2 | -5.4 | 26.8 | 26.1 | 0.62 | 43.082 CC, ES | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -163.11 | 26.2 | -5.4 | 29.3 | 28.3 | 0.97 | 30.157 | | |
| 400.0 | 399.6 | 399.6 | 399.6 | 0.7 | 0.7 | -166.60 | 26.2 | -5.4 | 36.8 | 35.5 | 1.32 | 27.945 SF | | |
| 500.0 | 498.8 | 498.8 | 498.8 | 1.0 | 0.8 | -170.03 | 26.2 | -5.4 | 49.6 | 48.0 | 1.66 | 29.863 | | |
| 600.0 | 597.1 | 597.1 | 597.1 | 1.4 | 1.0 | -172.63 | 26.2 | -5.4 | 67.7 | 65.7 | 2.00 | 33.846 | | |
| 700.0 | 694.3 | 694.3 | 694.3 | 1.8 | 1.2 | -174.45 | 26.2 | -5.4 | 90.9 | 88.5 | 2.33 | 39.025 | | |
| 800.0 | 790.8 | 790.8 | 790.8 | 2.3 | 1.3 | -175.68 | 26.2 | -5.4 | 116.9 | 114.2 | 2.67 | 43.804 | | |
| 900.0 | 887.4 | 887.4 | 887.4 | 2.8 | 1.5 | -176.47 | 26.2 | -5.4 | 142.9 | 139.9 | 3.01 | 47.501 | | |
| 1,000.0 | 983.9 | 983.9 | 983.9 | 3.2 | 1.7 | -177.02 | 26.2 | -5.4 | 169.0 | 165.7 | 3.35 | 50.453 | | |
| 1,100.0 | 1,080.4 | 1,084.7 | 1,084.7 | 3.7 | 1.9 | -177.93 | 24.6 | -6.4 | 194.2 | 190.5 | 3.70 | 52.528 | | |
| 1,200.0 | 1,177.0 | 1,187.2 | 1,186.9 | 4.2 | 2.0 | -179.90 | 18.5 | -10.3 | 217.0 | 213.0 | 4.06 | 53.502 | | |
| 1,300.0 | 1,273.5 | 1,289.9 | 1,288.8 | 4.7 | 2.3 | 177.30 | 7.7 | -17.1 | 237.7 | 233.3 | 4.45 | 53.375 | | |
| 1,400.0 | 1,370.0 | 1,392.3 | 1,389.6 | 5.2 | 2.6 | 173.84 | -7.7 | -26.9 | 256.9 | 251.9 | 4.93 | 52.070 | | |
| 1,500.0 | 1,466.5 | 1,493.9 | 1,488.4 | 5.7 | 2.9 | 169.83 | -27.4 | -39.4 | 275.1 | 269.5 | 5.54 | 49.666 | | |
| 1,600.0 | 1,563.1 | 1,590.3 | 1,581.6 | 6.2 | 3.3 | 166.02 | -48.2 | -52.6 | 293.7 | 287.4 | 6.23 | 47.174 | | |
| 1,700.0 | 1,659.6 | 1,686.7 | 1,674.8 | 6.6 | 3.6 | 162.66 | -69.0 | -65.7 | 313.4 | 306.5 | 6.98 | 44.926 | | |
| 1,800.0 | 1,756.1 | 1,783.1 | 1,768.0 | 7.1 | 4.1 | 159.70 | -89.8 | -78.9 | 334.1 | 326.4 | 7.77 | 42.987 | | |
| 1,900.0 | 1,852.7 | 1,879.5 | 1,861.2 | 7.6 | 4.5 | 157.08 | -110.6 | -92.1 | 355.6 | 347.0 | 8.60 | 41.352 | | |
| 2,000.0 | 1,949.2 | 1,975.9 | 1,954.4 | 8.1 | 4.9 | 154.76 | -131.4 | -105.3 | 377.7 | 368.3 | 9.45 | 39.989 | | |
| 2,100.0 | 2,045.7 | 2,072.4 | 2,047.7 | 8.6 | 5.3 | 152.69 | -152.3 | -118.5 | 400.4 | 390.1 | 10.31 | 38.854 | | |
| 2,200.0 | 2,142.3 | 2,168.8 | 2,140.9 | 9.1 | 5.8 | 150.84 | -173.1 | -131.7 | 423.5 | 412.3 | 11.17 | 37.908 | | |
| 2,300.0 | 2,238.8 | 2,265.2 | 2,234.1 | 9.6 | 6.2 | 149.18 | -193.9 | -144.9 | 447.0 | 435.0 | 12.04 | 37.117 | | |
| 2,400.0 | 2,335.3 | 2,361.6 | 2,327.3 | 10.1 | 6.6 | 147.69 | -214.7 | -158.1 | 470.8 | 457.9 | 12.92 | 36.452 | | |
| 2,500.0 | 2,431.8 | 2,458.0 | 2,420.5 | 10.6 | 7.1 | 146.34 | -235.5 | -171.3 | 494.9 | 481.1 | 13.79 | 35.889 | | |
| 2,600.0 | 2,528.4 | 2,554.4 | 2,513.7 | 11.1 | 7.5 | 145.11 | -256.3 | -184.5 | 519.3 | 504.6 | 14.66 | 35.410 | | |
| 2,700.0 | 2,624.9 | 2,650.8 | 2,606.9 | 11.6 | 8.0 | 143.99 | -277.1 | -197.6 | 543.8 | 528.3 | 15.54 | 35.001 | | |
| 2,800.0 | 2,721.4 | 2,747.2 | 2,700.2 | 12.0 | 8.4 | 142.97 | -297.9 | -210.8 | 568.5 | 552.1 | 16.41 | 34.648 | | |
| 2,900.0 | 2,818.0 | 2,843.7 | 2,793.4 | 12.5 | 8.9 | 142.03 | -318.7 | -224.0 | 593.4 | 576.1 | 17.28 | 34.344 | | |
| 3,000.0 | 2,914.5 | 2,940.1 | 2,886.6 | 13.0 | 9.4 | 141.17 | -339.5 | -237.2 | 618.4 | 600.3 | 18.15 | 34.079 | | |
| 3,100.0 | 3,011.0 | 3,036.5 | 2,979.8 | 13.5 | 9.8 | 140.37 | -360.3 | -250.4 | 643.5 | 624.5 | 19.01 | 33.848 | | |
| 3,200.0 | 3,107.6 | 3,132.9 | 3,073.0 | 14.0 | 10.3 | 139.64 | -381.2 | -263.6 | 668.8 | 648.9 | 19.88 | 33.646 | | |
| 3,300.0 | 3,204.1 | 3,229.3 | 3,166.2 | 14.5 | 10.7 | 138.95 | -402.0 | -276.8 | 694.1 | 673.4 | 20.74 | 33.467 | | |
| 3,400.0 | 3,300.6 | 3,325.7 | 3,259.4 | 15.0 | 11.2 | 138.32 | -422.8 | -290.0 | 719.6 | 698.0 | 21.60 | 33.310 | | |
| 3,500.0 | 3,397.1 | 3,422.1 | 3,352.6 | 15.5 | 11.6 | 137.73 | -443.6 | -303.2 | 745.1 | 722.6 | 22.46 | 33.170 | | |
| 3,600.0 | 3,493.7 | 3,518.6 | 3,445.9 | 16.0 | 12.1 | 137.17 | -464.4 | -316.4 | 770.6 | 747.3 | 23.32 | 33.045 | | |
| 3,700.0 | 3,590.2 | 3,615.0 | 3,539.1 | 16.5 | 12.6 | 136.66 | -485.2 | -329.5 | 796.3 | 772.1 | 24.18 | 32.934 | | |
| 3,800.0 | 3,686.7 | 3,711.4 | 3,632.3 | 17.0 | 13.0 | 136.17 | -506.0 | -342.7 | 822.0 | 796.9 | 25.03 | 32.835 | | |
| 3,900.0 | 3,783.3 | 3,807.8 | 3,725.5 | 17.4 | 13.5 | 135.71 | -526.8 | -355.9 | 847.7 | 821.8 | 25.89 | 32.746 | | |
| 4,000.0 | 3,879.8 | 3,904.2 | 3,818.7 | 17.9 | 13.9 | 135.28 | -547.6 | -369.1 | 873.5 | 846.8 | 26.74 | 32.665 | | |
| 4,100.0 | 3,976.3 | 4,000.6 | 3,911.9 | 18.4 | 14.4 | 134.88 | -568.4 | -382.3 | 899.4 | 871.8 | 27.59 | 32.593 | | |
| 4,200.0 | 4,072.9 | 4,097.0 | 4,005.1 | 18.9 | 14.9 | 134.50 | -589.2 | -395.5 | 925.2 | 896.8 | 28.44 | 32.527 | | |
| 4,300.0 | 4,169.4 | 4,193.5 | 4,098.3 | 19.4 | 15.3 | 134.14 | -610.0 | -408.7 | 951.1 | 921.8 | 29.30 | 32.468 | | |
| 4,400.0 | 4,265.9 | 4,289.9 | 4,191.6 | 19.9 | 15.8 | 133.79 | -630.9 | -421.9 | 977.1 | 946.9 | 30.14 | 32.414 | | |
| 4,500.0 | 4,362.4 | 4,386.3 | 4,284.8 | 20.4 | 16.2 | 133.47 | -651.7 | -435.1 | 1,003.1 | 972.1 | 30.99 | 32.364 | | |
| 4,600.0 | 4,459.0 | 4,482.7 | 4,378.0 | 20.9 | 16.7 | 133.16 | -672.5 | -448.3 | 1,029.1 | 997.2 | 31.84 | 32.320 | | |
| 4,700.0 | 4,555.5 | 4,579.1 | 4,471.2 | 21.4 | 17.2 | 132.87 | -693.3 | -461.4 | 1,055.1 | 1,022.4 | 32.69 | 32.279 | | |
| 4,800.0 | 4,652.0 | 4,675.5 | 4,564.4 | 21.9 | 17.6 | 132.59 | -714.1 | -474.6 | 1,081.2 | 1,047.6 | 33.53 | 32.241 | | |
| 4,900.0 | 4,748.6 | 4,771.9 | 4,657.6 | 22.4 | 18.1 | 132.32 | -734.9 | -487.8 | 1,107.3 | 1,072.9 | 34.38 | 32.207 | | |
| 5,000.0 | 4,845.1 | 4,868.4 | 4,750.8 | 22.9 | 18.6 | 132.07 | -755.7 | -501.0 | 1,133.4 | 1,098.1 | 35.22 | 32.175 | | |
| 5,100.0 | 4,941.6 | 4,964.8 | 4,844.1 | 23.3 | 19.0 | 131.83 | -776.5 | -514.2 | 1,159.5 | 1,123.4 | 36.07 | 32.146 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| | | | | | | | | | | | | | | |
|--|------------------------|------------------------|------------------------|-------------------|----------------|--------------------------|---|---------------|-------------------------|--------------------------|---------------------------|-------------------|---------------------------|--------|
| Offset Design (J16W) - HMU Federal 16-14D2 - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,038.2 | 5,061.2 | 4,937.3 | 23.8 | 19.5 | 131.59 | -797.3 | -527.4 | 1,185.6 | 1,148.7 | 36.91 | 32.120 | | |
| 5,300.0 | 5,134.7 | 5,157.6 | 5,030.5 | 24.3 | 20.0 | 131.37 | -818.1 | -540.6 | 1,211.8 | 1,174.0 | 37.76 | 32.095 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-14D3 - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|------------------------------|----------------------|---------|---------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Highside Toolface (°) | Distance | | Total Uncertainty Axis | Separation Factor | Warning | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -38.88 | 9.1 | -7.3 | 11.7 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -38.88 | 9.1 | -7.3 | 11.7 | 11.4 | 0.27 | 42.963 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -38.88 | 9.1 | -7.3 | 11.7 | 11.1 | 0.62 | 18.826 CC, ES | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 172.78 | 9.1 | -7.3 | 14.3 | 13.3 | 0.97 | 14.736 SF | | |
| 400.0 | 399.6 | 399.6 | 399.6 | 0.7 | 0.7 | 175.32 | 9.1 | -7.3 | 22.1 | 20.8 | 1.32 | 16.796 | | |
| 500.0 | 498.8 | 498.8 | 498.8 | 1.0 | 0.8 | 177.03 | 9.1 | -7.3 | 35.1 | 33.5 | 1.66 | 21.197 | | |
| 600.0 | 597.1 | 598.4 | 598.4 | 1.4 | 1.0 | 175.61 | 6.8 | -8.5 | 52.1 | 50.1 | 2.00 | 26.041 | | |
| 700.0 | 694.3 | 697.8 | 697.4 | 1.8 | 1.2 | 171.50 | 0.0 | -12.0 | 71.9 | 69.5 | 2.37 | 30.332 | | |
| 800.0 | 790.8 | 797.0 | 795.8 | 2.3 | 1.5 | 166.56 | -11.4 | -17.8 | 92.8 | 89.9 | 2.83 | 32.780 | | |
| 900.0 | 887.4 | 896.0 | 893.2 | 2.8 | 1.8 | 160.92 | -27.4 | -25.9 | 112.7 | 109.3 | 3.42 | 32.936 | | |
| 1,000.0 | 983.9 | 994.5 | 989.0 | 3.2 | 2.2 | 154.83 | -47.6 | -36.2 | 132.5 | 128.3 | 4.18 | 31.701 | | |
| 1,100.0 | 1,080.4 | 1,091.7 | 1,082.4 | 3.7 | 2.6 | 148.70 | -71.6 | -48.3 | 153.0 | 147.9 | 5.07 | 30.177 | | |
| 1,200.0 | 1,177.0 | 1,188.3 | 1,175.0 | 4.2 | 3.1 | 143.79 | -96.0 | -60.8 | 174.9 | 168.9 | 6.00 | 29.142 | | |
| 1,300.0 | 1,273.5 | 1,284.9 | 1,267.6 | 4.7 | 3.6 | 139.97 | -120.5 | -73.2 | 197.7 | 190.8 | 6.94 | 28.495 | | |
| 1,400.0 | 1,370.0 | 1,381.5 | 1,360.2 | 5.2 | 4.0 | 136.95 | -144.9 | -85.6 | 221.2 | 213.4 | 7.88 | 28.092 | | |
| 1,500.0 | 1,466.5 | 1,478.1 | 1,452.9 | 5.7 | 4.5 | 134.50 | -169.4 | -98.1 | 245.2 | 236.4 | 8.81 | 27.843 | | |
| 1,600.0 | 1,563.1 | 1,574.7 | 1,545.5 | 6.2 | 5.0 | 132.49 | -193.8 | -110.5 | 269.6 | 259.8 | 9.73 | 27.691 | | |
| 1,700.0 | 1,659.6 | 1,671.3 | 1,638.1 | 6.6 | 5.5 | 130.82 | -218.3 | -122.9 | 294.2 | 283.5 | 10.66 | 27.604 | | |
| 1,800.0 | 1,756.1 | 1,767.8 | 1,730.7 | 7.1 | 6.0 | 129.40 | -242.8 | -135.3 | 319.0 | 307.4 | 11.57 | 27.558 | | |
| 1,900.0 | 1,852.7 | 1,864.4 | 1,823.3 | 7.6 | 6.5 | 128.18 | -267.2 | -147.8 | 343.9 | 331.4 | 12.49 | 27.540 | | |
| 2,000.0 | 1,949.2 | 1,961.0 | 1,916.0 | 8.1 | 7.0 | 127.13 | -291.7 | -160.2 | 369.0 | 355.6 | 13.40 | 27.541 | | |
| 2,100.0 | 2,045.7 | 2,057.6 | 2,008.6 | 8.6 | 7.5 | 126.22 | -316.1 | -172.6 | 394.2 | 379.9 | 14.31 | 27.554 | | |
| 2,200.0 | 2,142.3 | 2,154.2 | 2,101.2 | 9.1 | 8.0 | 125.41 | -340.6 | -185.1 | 419.5 | 404.3 | 15.21 | 27.575 | | |
| 2,300.0 | 2,238.8 | 2,250.8 | 2,193.8 | 9.6 | 8.6 | 124.69 | -365.0 | -197.5 | 444.8 | 428.7 | 16.12 | 27.601 | | |
| 2,400.0 | 2,335.3 | 2,347.4 | 2,286.4 | 10.1 | 9.1 | 124.06 | -389.5 | -209.9 | 470.2 | 453.2 | 17.02 | 27.631 | | |
| 2,500.0 | 2,431.8 | 2,444.0 | 2,379.0 | 10.6 | 9.6 | 123.48 | -414.0 | -222.3 | 495.7 | 477.7 | 17.92 | 27.664 | | |
| 2,600.0 | 2,528.4 | 2,540.6 | 2,471.7 | 11.1 | 10.1 | 122.96 | -438.4 | -234.8 | 521.1 | 502.3 | 18.82 | 27.697 | | |
| 2,700.0 | 2,624.9 | 2,637.2 | 2,564.3 | 11.6 | 10.6 | 122.50 | -462.9 | -247.2 | 546.7 | 527.0 | 19.71 | 27.730 | | |
| 2,800.0 | 2,721.4 | 2,733.8 | 2,656.9 | 12.0 | 11.1 | 122.07 | -487.3 | -259.6 | 572.2 | 551.6 | 20.61 | 27.764 | | |
| 2,900.0 | 2,818.0 | 2,830.4 | 2,749.5 | 12.5 | 11.6 | 121.68 | -511.8 | -272.1 | 597.8 | 576.3 | 21.51 | 27.797 | | |
| 3,000.0 | 2,914.5 | 2,927.0 | 2,842.1 | 13.0 | 12.1 | 121.32 | -536.2 | -284.5 | 623.4 | 601.0 | 22.40 | 27.830 | | |
| 3,100.0 | 3,011.0 | 3,023.6 | 2,934.7 | 13.5 | 12.6 | 120.99 | -560.7 | -296.9 | 649.0 | 625.8 | 23.30 | 27.862 | | |
| 3,200.0 | 3,107.6 | 3,120.2 | 3,027.4 | 14.0 | 13.1 | 120.68 | -585.2 | -309.3 | 674.7 | 650.5 | 24.19 | 27.893 | | |
| 3,300.0 | 3,204.1 | 3,216.8 | 3,120.0 | 14.5 | 13.6 | 120.40 | -609.6 | -321.8 | 700.4 | 675.3 | 25.08 | 27.923 | | |
| 3,400.0 | 3,300.6 | 3,313.4 | 3,212.6 | 15.0 | 14.1 | 120.14 | -634.1 | -334.2 | 726.0 | 700.1 | 25.97 | 27.952 | | |
| 3,500.0 | 3,397.1 | 3,410.0 | 3,305.2 | 15.5 | 14.7 | 119.89 | -658.5 | -346.6 | 751.7 | 724.9 | 26.87 | 27.980 | | |
| 3,600.0 | 3,493.7 | 3,506.6 | 3,397.8 | 16.0 | 15.2 | 119.66 | -683.0 | -359.1 | 777.4 | 749.7 | 27.76 | 28.007 | | |
| 3,700.0 | 3,590.2 | 3,603.2 | 3,490.4 | 16.5 | 15.7 | 119.45 | -707.4 | -371.5 | 803.1 | 774.5 | 28.65 | 28.034 | | |
| 3,800.0 | 3,686.7 | 3,699.7 | 3,583.1 | 17.0 | 16.2 | 119.25 | -731.9 | -383.9 | 828.9 | 799.3 | 29.54 | 28.059 | | |
| 3,900.0 | 3,783.3 | 3,796.3 | 3,675.7 | 17.4 | 16.7 | 119.06 | -756.3 | -396.3 | 854.6 | 824.2 | 30.43 | 28.083 | | |
| 4,000.0 | 3,879.8 | 3,892.9 | 3,768.3 | 17.9 | 17.2 | 118.88 | -780.8 | -408.8 | 880.3 | 849.0 | 31.32 | 28.107 | | |
| 4,100.0 | 3,976.3 | 3,989.5 | 3,860.9 | 18.4 | 17.7 | 118.71 | -805.3 | -421.2 | 906.1 | 873.9 | 32.21 | 28.130 | | |
| 4,200.0 | 4,072.9 | 4,086.1 | 3,953.5 | 18.9 | 18.2 | 118.55 | -829.7 | -433.6 | 931.9 | 898.8 | 33.10 | 28.151 | | |
| 4,300.0 | 4,169.4 | 4,182.7 | 4,046.2 | 19.4 | 18.7 | 118.40 | -854.2 | -446.0 | 957.6 | 923.6 | 33.99 | 28.173 | | |
| 4,400.0 | 4,265.9 | 4,279.3 | 4,138.8 | 19.9 | 19.2 | 118.26 | -878.6 | -458.5 | 983.4 | 948.5 | 34.88 | 28.193 | | |
| 4,500.0 | 4,362.4 | 4,375.9 | 4,231.4 | 20.4 | 19.8 | 118.13 | -903.1 | -470.9 | 1,009.2 | 973.4 | 35.77 | 28.213 | | |
| 4,600.0 | 4,459.0 | 4,472.5 | 4,324.0 | 20.9 | 20.3 | 118.00 | -927.5 | -483.3 | 1,034.9 | 998.3 | 36.66 | 28.232 | | |
| 4,700.0 | 4,555.5 | 4,569.1 | 4,416.6 | 21.4 | 20.8 | 117.88 | -952.0 | -495.8 | 1,060.7 | 1,023.2 | 37.55 | 28.250 | | |
| 4,800.0 | 4,652.0 | 4,665.7 | 4,509.2 | 21.9 | 21.3 | 117.76 | -976.5 | -508.2 | 1,086.5 | 1,048.1 | 38.44 | 28.268 | | |
| 4,900.0 | 4,748.6 | 4,762.3 | 4,601.9 | 22.4 | 21.8 | 117.65 | -1,000.9 | -520.6 | 1,112.3 | 1,073.0 | 39.33 | 28.285 | | |
| 5,000.0 | 4,845.1 | 4,858.9 | 4,694.5 | 22.9 | 22.3 | 117.54 | -1,025.4 | -533.0 | 1,138.1 | 1,097.9 | 40.21 | 28.301 | | |
| 5,100.0 | 4,941.6 | 4,955.5 | 4,787.1 | 23.3 | 22.8 | 117.44 | -1,049.8 | -545.5 | 1,163.9 | 1,122.8 | 41.10 | 28.317 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| | | | | | | | | | | | | | | |
|--|----------------|----------------|----------------|-----------------|--------|-------------------|------------------------------|--------|-----------------|------------------|------------------------|-------------------|---------------------------|--------|
| Offset Design (J16W) - HMU Federal 16-14D3 - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre +N/-S | +E/-W | Between Centres | Between Ellipses | Total Uncertainty Axis | Separation Factor | Warning | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | (ft) | (ft) | (ft) | (ft) | | | | |
| 5,200.0 | 5,038.2 | 5,052.1 | 4,879.7 | 23.8 | 23.3 | 117.35 | -1,074.3 | -557.9 | 1,189.7 | 1,147.7 | 41.99 | 28.333 | | |
| 5,300.0 | 5,134.7 | 5,148.7 | 4,972.3 | 24.3 | 23.8 | 117.25 | -1,098.7 | -570.3 | 1,215.5 | 1,172.6 | 42.88 | 28.348 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-16B - DD - Plan #1 | | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|----------------------------|-----------------------------|------------------------------|----------------------|---------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total Uncertainty Axis | Separation Factor | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.71 | 33.9 | 3.4 | 34.0 | | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 5.71 | 33.9 | 3.4 | 34.0 | 33.8 | 0.27 | 125.017 CC | | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 5.71 | 33.9 | 3.4 | 34.0 | 33.4 | 0.62 | 54.783 ES | | | |
| 300.0 | 300.0 | 300.9 | 300.8 | 0.5 | 0.5 | -142.97 | 32.3 | 5.5 | 34.8 | 33.9 | 0.98 | 35.498 | | | |
| 400.0 | 399.6 | 401.7 | 401.3 | 0.7 | 0.7 | -139.52 | 27.6 | 12.0 | 37.3 | 35.9 | 1.39 | 26.847 | | | |
| 500.0 | 498.8 | 502.4 | 501.1 | 1.0 | 1.0 | -134.71 | 19.8 | 22.7 | 41.7 | 39.8 | 1.91 | 21.893 | | | |
| 600.0 | 597.1 | 602.1 | 599.6 | 1.4 | 1.3 | -132.25 | 10.5 | 35.6 | 48.9 | 46.5 | 2.50 | 19.617 | | | |
| 700.0 | 694.3 | 701.5 | 697.7 | 1.8 | 1.6 | -134.13 | 1.2 | 48.5 | 59.7 | 56.6 | 3.11 | 19.226 SF | | | |
| 800.0 | 790.8 | 800.6 | 795.5 | 2.3 | 2.0 | -137.17 | -8.1 | 61.3 | 72.7 | 69.0 | 3.69 | 19.676 | | | |
| 900.0 | 887.4 | 899.7 | 893.4 | 2.8 | 2.3 | -139.30 | -17.4 | 74.1 | 85.7 | 81.4 | 4.27 | 20.062 | | | |
| 1,000.0 | 983.9 | 998.8 | 991.2 | 3.2 | 2.6 | -140.87 | -26.7 | 86.9 | 98.9 | 94.0 | 4.85 | 20.390 | | | |
| 1,100.0 | 1,080.4 | 1,097.9 | 1,089.0 | 3.7 | 2.9 | -142.07 | -36.0 | 99.7 | 112.1 | 106.6 | 5.42 | 20.669 | | | |
| 1,200.0 | 1,177.0 | 1,197.0 | 1,186.8 | 4.2 | 3.2 | -143.01 | -45.3 | 112.5 | 125.3 | 119.3 | 5.99 | 20.909 | | | |
| 1,300.0 | 1,273.5 | 1,296.1 | 1,284.7 | 4.7 | 3.6 | -143.78 | -54.6 | 125.3 | 138.6 | 132.0 | 6.56 | 21.115 | | | |
| 1,400.0 | 1,370.0 | 1,395.2 | 1,382.5 | 5.2 | 3.9 | -144.41 | -63.9 | 138.2 | 151.8 | 144.7 | 7.13 | 21.295 | | | |
| 1,500.0 | 1,466.5 | 1,494.3 | 1,480.3 | 5.7 | 4.2 | -144.94 | -73.2 | 151.0 | 165.1 | 157.4 | 7.70 | 21.453 | | | |
| 1,600.0 | 1,563.1 | 1,593.4 | 1,578.2 | 6.2 | 4.5 | -145.39 | -82.5 | 163.8 | 178.4 | 170.2 | 8.26 | 21.592 | | | |
| 1,700.0 | 1,659.6 | 1,692.5 | 1,676.0 | 6.6 | 4.9 | -145.78 | -91.8 | 176.6 | 191.8 | 182.9 | 8.83 | 21.716 | | | |
| 1,800.0 | 1,756.1 | 1,791.6 | 1,773.8 | 7.1 | 5.2 | -146.11 | -101.0 | 189.4 | 205.1 | 195.7 | 9.40 | 21.827 | | | |
| 1,900.0 | 1,852.7 | 1,890.7 | 1,871.6 | 7.6 | 5.5 | -146.41 | -110.3 | 202.2 | 218.4 | 208.5 | 9.96 | 21.927 | | | |
| 2,000.0 | 1,949.2 | 1,989.8 | 1,969.5 | 8.1 | 5.9 | -146.67 | -119.6 | 215.0 | 231.8 | 221.2 | 10.53 | 22.017 | | | |
| 2,100.0 | 2,045.7 | 2,088.9 | 2,067.3 | 8.6 | 6.2 | -146.91 | -128.9 | 227.8 | 245.1 | 234.0 | 11.09 | 22.098 | | | |
| 2,200.0 | 2,142.3 | 2,188.0 | 2,165.1 | 9.1 | 6.5 | -147.12 | -138.2 | 240.6 | 258.4 | 246.8 | 11.66 | 22.173 | | | |
| 2,300.0 | 2,238.8 | 2,287.1 | 2,263.0 | 9.6 | 6.8 | -147.31 | -147.5 | 253.5 | 271.8 | 259.6 | 12.22 | 22.241 | | | |
| 2,400.0 | 2,335.3 | 2,386.2 | 2,360.8 | 10.1 | 7.2 | -147.48 | -156.8 | 266.3 | 285.1 | 272.4 | 12.78 | 22.304 | | | |
| 2,500.0 | 2,431.8 | 2,485.3 | 2,458.6 | 10.6 | 7.5 | -147.63 | -166.1 | 279.1 | 298.5 | 285.2 | 13.35 | 22.362 | | | |
| 2,600.0 | 2,528.4 | 2,584.4 | 2,556.4 | 11.1 | 7.8 | -147.78 | -175.4 | 291.9 | 311.9 | 297.9 | 13.91 | 22.416 | | | |
| 2,700.0 | 2,624.9 | 2,683.5 | 2,654.3 | 11.6 | 8.1 | -147.91 | -184.7 | 304.7 | 325.2 | 310.7 | 14.48 | 22.465 | | | |
| 2,800.0 | 2,721.4 | 2,782.6 | 2,752.1 | 12.0 | 8.5 | -148.03 | -194.0 | 317.5 | 338.6 | 323.5 | 15.04 | 22.511 | | | |
| 2,900.0 | 2,818.0 | 2,881.7 | 2,849.9 | 12.5 | 8.8 | -148.14 | -203.3 | 330.3 | 351.9 | 336.3 | 15.60 | 22.554 | | | |
| 3,000.0 | 2,914.5 | 2,980.8 | 2,947.8 | 13.0 | 9.1 | -148.24 | -212.6 | 343.1 | 365.3 | 349.1 | 16.17 | 22.595 | | | |
| 3,100.0 | 3,011.0 | 3,079.9 | 3,045.6 | 13.5 | 9.5 | -148.34 | -221.8 | 356.0 | 378.7 | 361.9 | 16.73 | 22.632 | | | |
| 3,200.0 | 3,107.6 | 3,179.0 | 3,143.4 | 14.0 | 9.8 | -148.43 | -231.1 | 368.8 | 392.0 | 374.7 | 17.29 | 22.668 | | | |
| 3,300.0 | 3,204.1 | 3,278.1 | 3,241.3 | 14.5 | 10.1 | -148.51 | -240.4 | 381.6 | 405.4 | 387.5 | 17.86 | 22.701 | | | |
| 3,400.0 | 3,300.6 | 3,377.2 | 3,339.1 | 15.0 | 10.4 | -148.59 | -249.7 | 394.4 | 418.7 | 400.3 | 18.42 | 22.732 | | | |
| 3,500.0 | 3,397.1 | 3,476.3 | 3,436.9 | 15.5 | 10.8 | -148.66 | -259.0 | 407.2 | 432.1 | 413.1 | 18.98 | 22.762 | | | |
| 3,600.0 | 3,493.7 | 3,575.4 | 3,534.7 | 16.0 | 11.1 | -148.73 | -268.3 | 420.0 | 445.5 | 425.9 | 19.55 | 22.790 | | | |
| 3,700.0 | 3,590.2 | 3,674.5 | 3,632.6 | 16.5 | 11.4 | -148.80 | -277.6 | 432.8 | 458.8 | 438.7 | 20.11 | 22.816 | | | |
| 3,800.0 | 3,686.7 | 3,773.6 | 3,730.4 | 17.0 | 11.7 | -148.86 | -286.9 | 445.6 | 472.2 | 451.5 | 20.67 | 22.841 | | | |
| 3,900.0 | 3,783.3 | 3,872.7 | 3,828.2 | 17.4 | 12.1 | -148.92 | -296.2 | 458.5 | 485.6 | 464.3 | 21.24 | 22.865 | | | |
| 4,000.0 | 3,879.8 | 3,971.9 | 3,926.1 | 17.9 | 12.4 | -148.97 | -305.5 | 471.3 | 499.0 | 477.2 | 21.80 | 22.887 | | | |
| 4,100.0 | 3,976.3 | 4,071.0 | 4,023.9 | 18.4 | 12.7 | -149.02 | -314.8 | 484.1 | 512.3 | 490.0 | 22.36 | 22.909 | | | |
| 4,200.0 | 4,072.9 | 4,170.1 | 4,121.7 | 18.9 | 13.1 | -149.07 | -324.1 | 496.9 | 525.7 | 502.8 | 22.93 | 22.929 | | | |
| 4,300.0 | 4,169.4 | 4,269.2 | 4,219.5 | 19.4 | 13.4 | -149.12 | -333.4 | 509.7 | 539.1 | 515.6 | 23.49 | 22.949 | | | |
| 4,400.0 | 4,265.9 | 4,368.3 | 4,317.4 | 19.9 | 13.7 | -149.16 | -342.6 | 522.5 | 552.4 | 528.4 | 24.05 | 22.968 | | | |
| 4,500.0 | 4,362.4 | 4,467.4 | 4,415.2 | 20.4 | 14.0 | -149.21 | -351.9 | 535.3 | 565.8 | 541.2 | 24.62 | 22.986 | | | |
| 4,600.0 | 4,459.0 | 4,566.5 | 4,513.0 | 20.9 | 14.4 | -149.25 | -361.2 | 548.1 | 579.2 | 554.0 | 25.18 | 23.003 | | | |
| 4,700.0 | 4,555.5 | 4,665.6 | 4,610.9 | 21.4 | 14.7 | -149.28 | -370.5 | 561.0 | 592.5 | 566.8 | 25.74 | 23.019 | | | |
| 4,800.0 | 4,652.0 | 4,764.7 | 4,708.7 | 21.9 | 15.0 | -149.32 | -379.8 | 573.8 | 605.9 | 579.6 | 26.30 | 23.035 | | | |
| 4,900.0 | 4,748.6 | 4,863.8 | 4,806.5 | 22.4 | 15.4 | -149.36 | -389.1 | 586.6 | 619.3 | 592.4 | 26.87 | 23.050 | | | |
| 5,000.0 | 4,845.1 | 4,962.9 | 4,904.3 | 22.9 | 15.7 | -149.39 | -398.4 | 599.4 | 632.7 | 605.2 | 27.43 | 23.064 | | | |
| 5,100.0 | 4,941.6 | 5,062.0 | 5,002.2 | 23.3 | 16.0 | -149.42 | -407.7 | 612.2 | 646.0 | 618.0 | 27.99 | 23.078 | | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-16B - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | | |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|-------------------|---------------------------|---------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | | | |
| 5,200.0 | 5,038.2 | 5,161.1 | 5,100.0 | 23.8 | 16.3 | -149.45 | -417.0 | 625.0 | 659.4 | 630.8 | 28.56 | 23.091 | | | | |
| 5,300.0 | 5,134.7 | 5,260.2 | 5,197.8 | 24.3 | 16.7 | -149.48 | -426.3 | 637.8 | 672.8 | 643.7 | 29.12 | 23.104 | | | | |
| 5,400.0 | 5,231.2 | 5,359.3 | 5,295.7 | 24.8 | 17.0 | -149.51 | -435.6 | 650.6 | 686.1 | 656.5 | 29.68 | 23.117 | | | | |
| 5,500.0 | 5,327.7 | 5,458.4 | 5,393.5 | 25.3 | 17.3 | -149.54 | -444.9 | 663.4 | 699.5 | 669.3 | 30.24 | 23.129 | | | | |
| 5,600.0 | 5,424.3 | 5,557.5 | 5,491.3 | 25.8 | 17.6 | -149.57 | -454.2 | 676.3 | 712.9 | 682.1 | 30.81 | 23.140 | | | | |
| 5,700.0 | 5,520.8 | 5,656.6 | 5,589.2 | 26.3 | 18.0 | -149.59 | -463.5 | 689.1 | 726.3 | 694.9 | 31.37 | 23.151 | | | | |
| 5,800.0 | 5,617.3 | 5,755.7 | 5,687.0 | 26.8 | 18.3 | -149.62 | -472.7 | 701.9 | 739.6 | 707.7 | 31.93 | 23.162 | | | | |
| 5,900.0 | 5,713.9 | 5,854.8 | 5,784.8 | 27.3 | 18.6 | -149.64 | -482.0 | 714.7 | 753.0 | 720.5 | 32.50 | 23.172 | | | | |
| 6,000.0 | 5,810.4 | 5,953.9 | 5,882.6 | 27.8 | 19.0 | -149.66 | -491.3 | 727.5 | 766.4 | 733.3 | 33.06 | 23.182 | | | | |
| 6,100.0 | 5,906.9 | 6,053.0 | 5,980.5 | 28.3 | 19.3 | -149.69 | -500.6 | 740.3 | 779.8 | 746.1 | 33.62 | 23.192 | | | | |
| 6,200.0 | 6,003.4 | 6,152.1 | 6,078.3 | 28.8 | 19.6 | -149.71 | -509.9 | 753.1 | 793.1 | 758.9 | 34.18 | 23.201 | | | | |
| 6,300.0 | 6,100.0 | 6,251.2 | 6,176.1 | 29.2 | 19.9 | -149.73 | -519.2 | 765.9 | 806.5 | 771.8 | 34.75 | 23.210 | | | | |
| 6,400.0 | 6,196.5 | 6,350.3 | 6,274.0 | 29.7 | 20.3 | -149.75 | -528.5 | 778.8 | 819.9 | 784.6 | 35.31 | 23.219 | | | | |
| 6,500.0 | 6,293.0 | 6,449.4 | 6,371.8 | 30.2 | 20.6 | -149.77 | -537.8 | 791.6 | 833.3 | 797.4 | 35.87 | 23.228 | | | | |
| 6,600.0 | 6,389.6 | 6,548.5 | 6,469.6 | 30.7 | 20.9 | -149.79 | -547.1 | 804.4 | 846.6 | 810.2 | 36.44 | 23.236 | | | | |
| 6,700.0 | 6,486.1 | 6,647.6 | 6,567.4 | 31.2 | 21.3 | -149.81 | -556.4 | 817.2 | 860.0 | 823.0 | 37.00 | 23.244 | | | | |
| 6,800.0 | 6,582.6 | 6,746.7 | 6,665.3 | 31.7 | 21.6 | -149.82 | -565.7 | 830.0 | 873.4 | 835.8 | 37.56 | 23.252 | | | | |
| 6,900.0 | 6,679.2 | 6,845.8 | 6,763.1 | 32.2 | 21.9 | -149.84 | -575.0 | 842.8 | 886.7 | 848.6 | 38.12 | 23.259 | | | | |
| 7,000.0 | 6,775.7 | 6,944.9 | 6,860.9 | 32.7 | 22.2 | -149.86 | -584.3 | 855.6 | 900.1 | 861.4 | 38.69 | 23.267 | | | | |
| 7,100.0 | 6,872.2 | 7,044.0 | 6,958.8 | 33.2 | 22.6 | -149.87 | -593.5 | 868.4 | 913.5 | 874.2 | 39.25 | 23.274 | | | | |
| 7,200.0 | 6,969.2 | 7,143.3 | 7,056.8 | 33.6 | 22.9 | -149.95 | -602.9 | 881.3 | 925.4 | 885.6 | 39.82 | 23.240 | | | | |
| 7,300.0 | 7,066.9 | 7,242.8 | 7,155.1 | 34.0 | 23.2 | -149.90 | -612.2 | 894.2 | 934.3 | 893.9 | 40.42 | 23.113 | | | | |
| 7,400.0 | 7,165.4 | 7,327.0 | 7,238.3 | 34.3 | 23.5 | -149.81 | -619.4 | 904.1 | 941.0 | 900.0 | 40.93 | 22.988 | | | | |
| 7,500.0 | 7,264.3 | 7,410.7 | 7,321.4 | 34.6 | 23.7 | -149.75 | -625.2 | 912.1 | 946.4 | 905.0 | 41.37 | 22.878 | | | | |
| 7,600.0 | 7,363.8 | 7,500.0 | 7,410.4 | 34.8 | 23.8 | -149.69 | -629.8 | 918.4 | 950.5 | 908.8 | 41.74 | 22.774 | | | | |
| 7,700.0 | 7,463.5 | 7,578.0 | 7,488.3 | 34.9 | 24.0 | -149.67 | -632.4 | 922.1 | 953.3 | 911.3 | 42.00 | 22.698 | | | | |
| 7,800.0 | 7,563.4 | 7,661.8 | 7,572.0 | 35.0 | 24.1 | -149.66 | -633.9 | 924.1 | 954.8 | 912.6 | 42.20 | 22.625 | | | | |
| 7,900.0 | 7,663.4 | 7,753.2 | 7,663.4 | 35.1 | 24.1 | 0.29 | -634.1 | 924.4 | 955.0 | 912.6 | 42.39 | 22.531 | | | | |
| 8,000.0 | 7,763.4 | 7,853.2 | 7,763.4 | 35.2 | 24.2 | 0.29 | -634.1 | 924.4 | 955.0 | 912.4 | 42.61 | 22.412 | | | | |
| 8,100.0 | 7,863.4 | 7,953.2 | 7,863.4 | 35.3 | 24.3 | 0.29 | -634.1 | 924.4 | 955.0 | 912.2 | 42.84 | 22.294 | | | | |
| 8,200.0 | 7,963.4 | 8,053.2 | 7,963.4 | 35.3 | 24.4 | 0.29 | -634.1 | 924.4 | 955.0 | 912.0 | 43.07 | 22.175 | | | | |
| 8,300.0 | 8,063.4 | 8,153.2 | 8,063.4 | 35.4 | 24.5 | 0.29 | -634.1 | 924.4 | 955.0 | 911.7 | 43.30 | 22.058 | | | | |
| 8,400.0 | 8,163.4 | 8,253.2 | 8,163.4 | 35.5 | 24.6 | 0.29 | -634.1 | 924.4 | 955.0 | 911.5 | 43.53 | 21.940 | | | | |
| 8,500.0 | 8,263.4 | 8,353.2 | 8,263.4 | 35.5 | 24.7 | 0.29 | -634.1 | 924.4 | 955.0 | 911.3 | 43.76 | 21.823 | | | | |
| 8,600.0 | 8,363.4 | 8,453.2 | 8,363.4 | 35.6 | 24.9 | 0.29 | -634.1 | 924.4 | 955.0 | 911.0 | 44.00 | 21.707 | | | | |
| 8,700.0 | 8,463.4 | 8,553.2 | 8,463.4 | 35.7 | 25.0 | 0.29 | -634.1 | 924.4 | 955.0 | 910.8 | 44.23 | 21.591 | | | | |
| 8,800.0 | 8,563.4 | 8,653.2 | 8,563.4 | 35.8 | 25.1 | 0.29 | -634.1 | 924.4 | 955.0 | 910.6 | 44.47 | 21.475 | | | | |
| 8,900.0 | 8,663.4 | 8,753.2 | 8,663.4 | 35.8 | 25.2 | 0.29 | -634.1 | 924.4 | 955.0 | 910.3 | 44.71 | 21.360 | | | | |
| 9,000.0 | 8,763.4 | 8,853.2 | 8,763.4 | 35.9 | 25.3 | 0.29 | -634.1 | 924.4 | 955.0 | 910.1 | 44.95 | 21.246 | | | | |
| 9,100.0 | 8,863.4 | 8,953.2 | 8,863.4 | 36.0 | 25.4 | 0.29 | -634.1 | 924.4 | 955.0 | 909.8 | 45.19 | 21.132 | | | | |
| 9,200.0 | 8,963.4 | 9,053.2 | 8,963.4 | 36.1 | 25.5 | 0.29 | -634.1 | 924.4 | 955.0 | 909.6 | 45.44 | 21.019 | | | | |
| 9,300.0 | 9,063.4 | 9,153.2 | 9,063.4 | 36.1 | 25.6 | 0.29 | -634.1 | 924.4 | 955.0 | 909.4 | 45.68 | 20.906 | | | | |
| 9,400.0 | 9,163.4 | 9,253.2 | 9,163.4 | 36.2 | 25.7 | 0.29 | -634.1 | 924.4 | 955.0 | 909.1 | 45.93 | 20.794 | | | | |
| 9,500.0 | 9,263.4 | 9,353.2 | 9,263.4 | 36.3 | 25.8 | 0.29 | -634.1 | 924.4 | 955.0 | 908.9 | 46.18 | 20.683 | | | | |
| 9,600.0 | 9,363.4 | 9,453.2 | 9,363.4 | 36.4 | 25.9 | 0.29 | -634.1 | 924.4 | 955.0 | 908.6 | 46.42 | 20.572 | | | | |
| 9,700.0 | 9,463.4 | 9,553.2 | 9,463.4 | 36.5 | 26.0 | 0.29 | -634.1 | 924.4 | 955.0 | 908.4 | 46.67 | 20.462 | | | | |
| 9,800.0 | 9,563.4 | 9,653.2 | 9,563.4 | 36.5 | 26.1 | 0.29 | -634.1 | 924.4 | 955.0 | 908.1 | 46.93 | 20.352 | | | | |
| 9,900.0 | 9,663.4 | 9,753.2 | 9,663.4 | 36.6 | 26.3 | 0.29 | -634.1 | 924.4 | 955.0 | 907.9 | 47.18 | 20.243 | | | | |
| 10,000.0 | 9,763.4 | 9,853.2 | 9,763.4 | 36.7 | 26.4 | 0.29 | -634.1 | 924.4 | 955.0 | 907.6 | 47.43 | 20.135 | | | | |
| 10,100.0 | 9,863.4 | 9,953.2 | 9,863.4 | 36.8 | 26.5 | 0.29 | -634.1 | 924.4 | 955.0 | 907.3 | 47.69 | 20.027 | | | | |
| 10,200.0 | 9,963.4 | 10,053.2 | 9,963.4 | 36.9 | 26.6 | 0.29 | -634.1 | 924.4 | 955.0 | 907.1 | 47.94 | 19.920 | | | | |
| 10,251.4 | 10,014.8 | 10,104.6 | 10,014.8 | 36.9 | 26.7 | 0.29 | -634.1 | 924.4 | 955.0 | 907.0 | 48.08 | 19.865 | | | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-16B - DD - Plan #1 | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|--------------------|-------------------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | | Separation Factor |
| 10,300.0 | 10,063.4 | 10,121.8 | 10,032.0 | 37.0 | 26.7 | 0.29 | -634.1 | 924.4 | 955.6 | 907.4 | 48.16 | | 19.841 |
| 10,323.6 | 10,087.0 | 10,121.8 | 10,032.0 | 37.0 | 26.7 | 0.29 | -634.1 | 924.4 | 956.6 | 908.4 | 48.19 | 19.851 | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-6C - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|--|-------|----------------------|-----------------------|------------------------|-------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) +E/-W (ft) | | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.65 | 17.1 | 1.7 | 17.2 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 5.65 | 17.1 | 1.7 | 17.2 | 16.9 | 0.27 | 63.182 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 5.65 | 17.1 | 1.7 | 17.2 | 16.6 | 0.62 | 27.687 | CC, ES | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -148.77 | 17.1 | 1.7 | 19.4 | 18.4 | 0.97 | 19.946 | | |
| 400.0 | 399.6 | 400.8 | 400.7 | 0.7 | 0.7 | -154.62 | 15.0 | 3.3 | 24.1 | 22.8 | 1.33 | 18.150 | | |
| 500.0 | 498.8 | 501.8 | 501.5 | 1.0 | 0.9 | -157.42 | 8.5 | 8.0 | 29.3 | 27.6 | 1.70 | 17.199 | | |
| 600.0 | 597.1 | 603.2 | 601.9 | 1.4 | 1.2 | -158.44 | -2.2 | 16.0 | 34.6 | 32.5 | 2.10 | 16.505 | | |
| 700.0 | 694.3 | 704.8 | 701.8 | 1.8 | 1.5 | -158.36 | -17.3 | 27.1 | 40.1 | 37.6 | 2.53 | 15.838 | | |
| 800.0 | 790.8 | 805.5 | 799.8 | 2.3 | 1.9 | -157.04 | -35.7 | 40.7 | 44.4 | 41.4 | 3.03 | 14.649 | | |
| 900.0 | 887.4 | 905.4 | 897.0 | 2.8 | 2.3 | -155.68 | -54.4 | 54.4 | 48.3 | 44.8 | 3.57 | 13.558 | | |
| 1,000.0 | 983.9 | 1,005.3 | 994.2 | 3.2 | 2.8 | -154.53 | -73.0 | 68.2 | 52.3 | 48.2 | 4.12 | 12.681 | | |
| 1,100.0 | 1,080.4 | 1,105.3 | 1,091.4 | 3.7 | 3.2 | -153.54 | -91.7 | 82.0 | 56.2 | 51.5 | 4.70 | 11.968 | | |
| 1,200.0 | 1,177.0 | 1,205.2 | 1,188.6 | 4.2 | 3.6 | -152.68 | -110.3 | 95.7 | 60.2 | 54.9 | 5.29 | 11.380 | | |
| 1,300.0 | 1,273.5 | 1,305.1 | 1,285.8 | 4.7 | 4.1 | -151.93 | -129.0 | 109.5 | 64.2 | 58.3 | 5.89 | 10.890 | | |
| 1,400.0 | 1,370.0 | 1,405.0 | 1,383.0 | 5.2 | 4.5 | -151.27 | -147.6 | 123.3 | 68.2 | 61.7 | 6.51 | 10.477 | | |
| 1,500.0 | 1,466.5 | 1,504.9 | 1,480.2 | 5.7 | 4.9 | -150.68 | -166.3 | 137.0 | 72.2 | 65.0 | 7.13 | 10.124 | | |
| 1,600.0 | 1,563.1 | 1,604.8 | 1,577.4 | 6.2 | 5.4 | -150.15 | -184.9 | 150.8 | 76.2 | 68.4 | 7.76 | 9.821 | | |
| 1,700.0 | 1,659.6 | 1,704.8 | 1,674.6 | 6.6 | 5.8 | -149.67 | -203.6 | 164.6 | 80.2 | 71.8 | 8.39 | 9.557 | | |
| 1,800.0 | 1,756.1 | 1,804.7 | 1,771.8 | 7.1 | 6.3 | -149.24 | -222.2 | 178.3 | 84.2 | 75.2 | 9.03 | 9.325 | | |
| 1,900.0 | 1,852.7 | 1,904.6 | 1,868.9 | 7.6 | 6.7 | -148.85 | -240.9 | 192.1 | 88.2 | 78.6 | 9.67 | 9.121 | | |
| 2,000.0 | 1,949.2 | 2,004.5 | 1,966.1 | 8.1 | 7.1 | -148.49 | -259.5 | 205.8 | 92.3 | 81.9 | 10.32 | 8.940 | | |
| 2,100.0 | 2,045.7 | 2,104.4 | 2,063.3 | 8.6 | 7.6 | -148.17 | -278.2 | 219.6 | 96.3 | 85.3 | 10.97 | 8.778 | | |
| 2,200.0 | 2,142.3 | 2,204.4 | 2,160.5 | 9.1 | 8.0 | -147.86 | -296.8 | 233.4 | 100.3 | 88.7 | 11.62 | 8.632 | | |
| 2,300.0 | 2,238.8 | 2,304.3 | 2,257.7 | 9.6 | 8.5 | -147.59 | -315.5 | 247.1 | 104.4 | 92.1 | 12.28 | 8.501 | | |
| 2,400.0 | 2,335.3 | 2,404.2 | 2,354.9 | 10.1 | 8.9 | -147.33 | -334.1 | 260.9 | 108.4 | 95.5 | 12.93 | 8.382 | | |
| 2,500.0 | 2,431.8 | 2,504.1 | 2,452.1 | 10.6 | 9.4 | -147.09 | -352.8 | 274.7 | 112.4 | 98.8 | 13.59 | 8.273 | | |
| 2,600.0 | 2,528.4 | 2,604.0 | 2,549.3 | 11.1 | 9.8 | -146.87 | -371.4 | 288.4 | 116.5 | 102.2 | 14.25 | 8.173 | | |
| 2,700.0 | 2,624.9 | 2,703.9 | 2,646.5 | 11.6 | 10.2 | -146.66 | -390.1 | 302.2 | 120.5 | 105.6 | 14.91 | 8.082 | | |
| 2,800.0 | 2,721.4 | 2,803.9 | 2,743.7 | 12.0 | 10.7 | -146.47 | -408.8 | 316.0 | 124.5 | 109.0 | 15.57 | 7.998 | | |
| 2,900.0 | 2,818.0 | 2,903.8 | 2,840.9 | 12.5 | 11.1 | -146.29 | -427.4 | 329.7 | 128.6 | 112.4 | 16.24 | 7.920 | | |
| 3,000.0 | 2,914.5 | 3,003.7 | 2,938.0 | 13.0 | 11.6 | -146.12 | -446.1 | 343.5 | 132.6 | 115.7 | 16.90 | 7.848 | | |
| 3,100.0 | 3,011.0 | 3,103.6 | 3,035.2 | 13.5 | 12.0 | -145.96 | -464.7 | 357.3 | 136.7 | 119.1 | 17.57 | 7.781 | | |
| 3,200.0 | 3,107.6 | 3,203.5 | 3,132.4 | 14.0 | 12.5 | -145.80 | -483.4 | 371.0 | 140.7 | 122.5 | 18.23 | 7.719 | | |
| 3,300.0 | 3,204.1 | 3,303.4 | 3,229.6 | 14.5 | 12.9 | -145.66 | -502.0 | 384.8 | 144.8 | 125.9 | 18.90 | 7.660 | | |
| 3,400.0 | 3,300.6 | 3,403.4 | 3,326.8 | 15.0 | 13.3 | -145.53 | -520.7 | 398.5 | 148.8 | 129.3 | 19.57 | 7.606 | | |
| 3,500.0 | 3,397.1 | 3,503.3 | 3,424.0 | 15.5 | 13.8 | -145.40 | -539.3 | 412.3 | 152.9 | 132.6 | 20.24 | 7.555 | | |
| 3,600.0 | 3,493.7 | 3,603.2 | 3,521.2 | 16.0 | 14.2 | -145.28 | -558.0 | 426.1 | 156.9 | 136.0 | 20.91 | 7.507 | | |
| 3,700.0 | 3,590.2 | 3,703.1 | 3,618.4 | 16.5 | 14.7 | -145.16 | -576.6 | 439.8 | 161.0 | 139.4 | 21.57 | 7.462 | | |
| 3,800.0 | 3,686.7 | 3,803.0 | 3,715.6 | 17.0 | 15.1 | -145.05 | -595.3 | 453.6 | 165.0 | 142.8 | 22.25 | 7.419 | | |
| 3,900.0 | 3,783.3 | 3,902.9 | 3,812.8 | 17.4 | 15.6 | -144.95 | -613.9 | 467.4 | 169.1 | 146.2 | 22.92 | 7.379 | | |
| 4,000.0 | 3,879.8 | 4,002.9 | 3,910.0 | 17.9 | 16.0 | -144.85 | -632.6 | 481.1 | 173.1 | 149.6 | 23.59 | 7.341 | | |
| 4,100.0 | 3,976.3 | 4,102.8 | 4,007.1 | 18.4 | 16.4 | -144.75 | -651.2 | 494.9 | 177.2 | 152.9 | 24.26 | 7.305 | | |
| 4,200.0 | 4,072.9 | 4,202.7 | 4,104.3 | 18.9 | 16.9 | -144.66 | -669.9 | 508.7 | 181.2 | 156.3 | 24.93 | 7.270 | | |
| 4,300.0 | 4,169.4 | 4,302.6 | 4,201.5 | 19.4 | 17.3 | -144.58 | -688.5 | 522.4 | 185.3 | 159.7 | 25.60 | 7.238 | | |
| 4,400.0 | 4,265.9 | 4,402.5 | 4,298.7 | 19.9 | 17.8 | -144.49 | -707.2 | 536.2 | 189.4 | 163.1 | 26.27 | 7.207 | | |
| 4,500.0 | 4,362.4 | 4,502.5 | 4,395.9 | 20.4 | 18.2 | -144.41 | -725.8 | 550.0 | 193.4 | 166.5 | 26.95 | 7.177 | | |
| 4,600.0 | 4,459.0 | 4,602.4 | 4,493.1 | 20.9 | 18.7 | -144.34 | -744.5 | 563.7 | 197.5 | 169.8 | 27.62 | 7.149 | | |
| 4,700.0 | 4,555.5 | 4,702.3 | 4,590.3 | 21.4 | 19.1 | -144.27 | -763.1 | 577.5 | 201.5 | 173.2 | 28.29 | 7.123 | | |
| 4,800.0 | 4,652.0 | 4,802.2 | 4,687.5 | 21.9 | 19.6 | -144.20 | -781.8 | 591.2 | 205.6 | 176.6 | 28.97 | 7.097 | | |
| 4,900.0 | 4,748.6 | 4,902.1 | 4,784.7 | 22.4 | 20.0 | -144.13 | -800.5 | 605.0 | 209.6 | 180.0 | 29.64 | 7.073 | | |
| 5,000.0 | 4,845.1 | 5,002.0 | 4,881.9 | 22.9 | 20.4 | -144.06 | -819.1 | 618.8 | 213.7 | 183.4 | 30.31 | 7.049 | | |
| 5,100.0 | 4,941.6 | 5,102.0 | 4,979.1 | 23.3 | 20.9 | -144.00 | -837.8 | 632.5 | 217.7 | 186.8 | 30.99 | 7.027 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-6C - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|-------------------|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 5,200.0 | 5,038.2 | 5,201.9 | 5,076.3 | 23.8 | 21.3 | -143.94 | -856.4 | 646.3 | 221.8 | 190.1 | 31.66 | 7.005 | | |
| 5,300.0 | 5,134.7 | 5,301.8 | 5,173.4 | 24.3 | 21.8 | -143.88 | -875.1 | 660.1 | 225.9 | 193.5 | 32.34 | 6.985 | | |
| 5,400.0 | 5,231.2 | 5,401.7 | 5,270.6 | 24.8 | 22.2 | -143.83 | -893.7 | 673.8 | 229.9 | 196.9 | 33.01 | 6.965 | | |
| 5,500.0 | 5,327.7 | 5,501.6 | 5,367.8 | 25.3 | 22.7 | -143.77 | -912.4 | 687.6 | 234.0 | 200.3 | 33.69 | 6.946 | | |
| 5,600.0 | 5,424.3 | 5,601.5 | 5,465.0 | 25.8 | 23.1 | -143.72 | -931.0 | 701.4 | 238.0 | 203.7 | 34.36 | 6.927 | | |
| 5,700.0 | 5,520.8 | 5,701.5 | 5,562.2 | 26.3 | 23.5 | -143.67 | -949.7 | 715.1 | 242.1 | 207.1 | 35.04 | 6.910 | | |
| 5,800.0 | 5,617.3 | 5,801.4 | 5,659.4 | 26.8 | 24.0 | -143.62 | -968.3 | 728.9 | 246.2 | 210.4 | 35.71 | 6.893 | | |
| 5,900.0 | 5,713.9 | 5,901.3 | 5,756.6 | 27.3 | 24.4 | -143.57 | -987.0 | 742.7 | 250.2 | 213.8 | 36.39 | 6.876 | | |
| 6,000.0 | 5,810.4 | 6,001.2 | 5,853.8 | 27.8 | 24.9 | -143.53 | -1,005.6 | 756.4 | 254.3 | 217.2 | 37.06 | 6.860 | | |
| 6,100.0 | 5,906.9 | 6,101.1 | 5,951.0 | 28.3 | 25.3 | -143.48 | -1,024.3 | 770.2 | 258.3 | 220.6 | 37.74 | 6.845 | | |
| 6,200.0 | 6,003.4 | 6,201.0 | 6,048.2 | 28.8 | 25.8 | -143.44 | -1,042.9 | 784.0 | 262.4 | 224.0 | 38.42 | 6.830 | | |
| 6,300.0 | 6,100.0 | 6,301.0 | 6,145.4 | 29.2 | 26.2 | -143.40 | -1,061.6 | 797.7 | 266.5 | 227.4 | 39.09 | 6.816 | | |
| 6,400.0 | 6,196.5 | 6,400.9 | 6,242.5 | 29.7 | 26.7 | -143.36 | -1,080.2 | 811.5 | 270.5 | 230.7 | 39.77 | 6.802 | | |
| 6,500.0 | 6,293.0 | 6,500.8 | 6,339.7 | 30.2 | 27.1 | -143.32 | -1,098.9 | 825.2 | 274.6 | 234.1 | 40.44 | 6.789 | | |
| 6,600.0 | 6,389.6 | 6,600.7 | 6,436.9 | 30.7 | 27.5 | -143.28 | -1,117.5 | 839.0 | 278.6 | 237.5 | 41.12 | 6.776 | | |
| 6,700.0 | 6,486.1 | 6,700.6 | 6,534.1 | 31.2 | 28.0 | -143.24 | -1,136.2 | 852.8 | 282.7 | 240.9 | 41.80 | 6.764 | | |
| 6,800.0 | 6,582.6 | 6,800.6 | 6,631.3 | 31.7 | 28.4 | -143.21 | -1,154.8 | 866.5 | 286.7 | 244.3 | 42.47 | 6.751 | | |
| 6,900.0 | 6,679.2 | 6,900.5 | 6,728.5 | 32.2 | 28.9 | -143.17 | -1,173.5 | 880.3 | 290.8 | 247.7 | 43.15 | 6.740 | | |
| 7,000.0 | 6,775.7 | 7,000.4 | 6,825.7 | 32.7 | 29.3 | -143.14 | -1,192.2 | 894.1 | 294.9 | 251.0 | 43.83 | 6.728 | | |
| 7,100.0 | 6,872.2 | 7,100.3 | 6,922.9 | 33.2 | 29.8 | -143.11 | -1,210.8 | 907.8 | 298.9 | 254.4 | 44.50 | 6.717 | | |
| 7,200.0 | 6,969.2 | 7,195.2 | 7,015.4 | 33.6 | 30.2 | -143.03 | -1,227.9 | 920.5 | 302.2 | 257.0 | 45.17 | 6.691 | | |
| 7,300.0 | 7,066.9 | 7,288.0 | 7,106.4 | 34.0 | 30.5 | -142.95 | -1,242.4 | 931.1 | 305.0 | 259.2 | 45.75 | 6.666 | | |
| 7,400.0 | 7,165.4 | 7,380.8 | 7,197.9 | 34.3 | 30.8 | -142.90 | -1,254.5 | 940.1 | 307.3 | 261.0 | 46.25 | 6.644 | | |
| 7,500.0 | 7,264.3 | 7,473.5 | 7,289.9 | 34.6 | 31.0 | -142.85 | -1,264.2 | 947.2 | 309.2 | 262.5 | 46.67 | 6.624 | | |
| 7,600.0 | 7,363.8 | 7,566.2 | 7,382.2 | 34.8 | 31.2 | -142.83 | -1,271.5 | 952.6 | 310.6 | 263.6 | 47.01 | 6.607 | | |
| 7,700.0 | 7,463.5 | 7,658.9 | 7,474.6 | 34.9 | 31.3 | -142.82 | -1,276.4 | 956.2 | 311.6 | 264.4 | 47.27 | 6.592 | | |
| 7,800.0 | 7,563.4 | 7,751.6 | 7,567.3 | 35.0 | 31.4 | -142.82 | -1,278.8 | 958.0 | 312.2 | 264.8 | 47.46 | 6.579 | | |
| 7,900.0 | 7,663.4 | 7,847.7 | 7,663.4 | 35.1 | 31.5 | 7.11 | -1,279.2 | 958.3 | 312.4 | 264.7 | 47.62 | 6.560 | | |
| 8,000.0 | 7,763.4 | 7,947.7 | 7,763.4 | 35.2 | 31.6 | 7.11 | -1,279.2 | 958.3 | 312.4 | 264.5 | 47.82 | 6.532 | | |
| 8,100.0 | 7,863.4 | 8,047.7 | 7,863.4 | 35.3 | 31.6 | 7.11 | -1,279.2 | 958.3 | 312.4 | 264.3 | 48.02 | 6.504 | | |
| 8,200.0 | 7,963.4 | 8,147.7 | 7,963.4 | 35.3 | 31.7 | 7.11 | -1,279.2 | 958.3 | 312.4 | 264.1 | 48.23 | 6.477 | | |
| 8,300.0 | 8,063.4 | 8,247.7 | 8,063.4 | 35.4 | 31.8 | 7.11 | -1,279.2 | 958.3 | 312.4 | 263.9 | 48.44 | 6.449 | | |
| 8,400.0 | 8,163.4 | 8,347.7 | 8,163.4 | 35.5 | 31.9 | 7.11 | -1,279.2 | 958.3 | 312.4 | 263.7 | 48.65 | 6.421 | | |
| 8,500.0 | 8,263.4 | 8,447.7 | 8,263.4 | 35.5 | 31.9 | 7.11 | -1,279.2 | 958.3 | 312.4 | 263.5 | 48.86 | 6.394 | | |
| 8,600.0 | 8,363.4 | 8,547.7 | 8,363.4 | 35.6 | 32.0 | 7.11 | -1,279.2 | 958.3 | 312.4 | 263.3 | 49.07 | 6.366 | | |
| 8,700.0 | 8,463.4 | 8,647.7 | 8,463.4 | 35.7 | 32.1 | 7.11 | -1,279.2 | 958.3 | 312.4 | 263.1 | 49.28 | 6.339 | | |
| 8,800.0 | 8,563.4 | 8,747.7 | 8,563.4 | 35.8 | 32.2 | 7.11 | -1,279.2 | 958.3 | 312.4 | 262.9 | 49.49 | 6.311 | | |
| 8,900.0 | 8,663.4 | 8,847.7 | 8,663.4 | 35.8 | 32.3 | 7.11 | -1,279.2 | 958.3 | 312.4 | 262.7 | 49.71 | 6.284 | | |
| 9,000.0 | 8,763.4 | 8,947.7 | 8,763.4 | 35.9 | 32.4 | 7.11 | -1,279.2 | 958.3 | 312.4 | 262.4 | 49.93 | 6.256 | | |
| 9,100.0 | 8,863.4 | 9,047.7 | 8,863.4 | 36.0 | 32.4 | 7.11 | -1,279.2 | 958.3 | 312.4 | 262.2 | 50.15 | 6.229 | | |
| 9,200.0 | 8,963.4 | 9,147.7 | 8,963.4 | 36.1 | 32.5 | 7.11 | -1,279.2 | 958.3 | 312.4 | 262.0 | 50.37 | 6.202 | | |
| 9,300.0 | 9,063.4 | 9,247.7 | 9,063.4 | 36.1 | 32.6 | 7.11 | -1,279.2 | 958.3 | 312.4 | 261.8 | 50.59 | 6.174 | | |
| 9,400.0 | 9,163.4 | 9,347.7 | 9,163.4 | 36.2 | 32.7 | 7.11 | -1,279.2 | 958.3 | 312.4 | 261.6 | 50.81 | 6.147 | | |
| 9,500.0 | 9,263.4 | 9,447.7 | 9,263.4 | 36.3 | 32.8 | 7.11 | -1,279.2 | 958.3 | 312.4 | 261.3 | 51.04 | 6.120 | | |
| 9,600.0 | 9,363.4 | 9,547.7 | 9,363.4 | 36.4 | 32.9 | 7.11 | -1,279.2 | 958.3 | 312.4 | 261.1 | 51.27 | 6.093 | | |
| 9,700.0 | 9,463.4 | 9,647.7 | 9,463.4 | 36.5 | 33.0 | 7.11 | -1,279.2 | 958.3 | 312.4 | 260.9 | 51.49 | 6.066 | | |
| 9,800.0 | 9,563.4 | 9,747.7 | 9,563.4 | 36.5 | 33.1 | 7.11 | -1,279.2 | 958.3 | 312.4 | 260.6 | 51.72 | 6.039 | | |
| 9,900.0 | 9,663.4 | 9,847.7 | 9,663.4 | 36.6 | 33.1 | 7.11 | -1,279.2 | 958.3 | 312.4 | 260.4 | 51.95 | 6.013 | | |
| 10,000.0 | 9,763.4 | 9,947.7 | 9,763.4 | 36.7 | 33.2 | 7.11 | -1,279.2 | 958.3 | 312.4 | 260.2 | 52.18 | 5.986 | | |
| 10,100.0 | 9,863.4 | 10,047.7 | 9,863.4 | 36.8 | 33.3 | 7.11 | -1,279.2 | 958.3 | 312.4 | 260.0 | 52.42 | 5.959 | | |
| 10,200.0 | 9,963.4 | 10,147.7 | 9,963.4 | 36.9 | 33.4 | 7.11 | -1,279.2 | 958.3 | 312.4 | 259.7 | 52.65 | 5.933 | | |
| 10,251.4 | 10,014.8 | 10,199.1 | 10,014.8 | 36.9 | 33.5 | 7.11 | -1,279.2 | 958.3 | 312.4 | 259.6 | 52.77 | 5.919 SF | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-6C - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | | 0.0 ft | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|------------------------|------------|----------------------|-----------------------|------------------------|-------------------|--------------------|---------|--------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre | | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | | | |
| | | | | | | | +N/-S (ft) | +E/-W (ft) | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 10,300.0 | 10,063.4 | 10,216.3 | 10,032.0 | 37.0 | 33.5 | 7.11 | -1,279.2 | 958.3 | 313.9 | 261.1 | 52.85 | 5.940 | | | | |
| 10,323.6 | 10,087.0 | 10,216.3 | 10,032.0 | 37.0 | 33.5 | 7.11 | -1,279.2 | 958.3 | 317.2 | 264.3 | 52.88 | 5.998 | | | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-9C - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|------------------------------|----------------------|---------|---------------|--------------------|--------|
| Survey Program: O-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Highside Toolface (°) | Distance | | Total Uncertainty Axis | Separation Factor | Warning | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | | | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.77 | 50.3 | 5.1 | 50.5 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 5.77 | 50.3 | 5.1 | 50.5 | 50.2 | 0.27 | 185.553 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 5.77 | 50.3 | 5.1 | 50.5 | 49.9 | 0.62 | 81.310 CC, ES | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | -145.80 | 50.3 | 5.1 | 52.7 | 51.7 | 0.97 | 54.154 | | |
| 400.0 | 399.6 | 399.9 | 399.9 | 0.7 | 0.7 | -147.45 | 50.0 | 7.7 | 59.1 | 57.7 | 1.34 | 44.109 | | |
| 500.0 | 498.8 | 499.6 | 499.2 | 1.0 | 0.9 | -146.64 | 49.1 | 15.4 | 69.5 | 67.8 | 1.76 | 39.561 | | |
| 600.0 | 597.1 | 598.6 | 597.5 | 1.4 | 1.1 | -145.13 | 47.7 | 27.1 | 84.1 | 81.8 | 2.24 | 37.560 | | |
| 700.0 | 694.3 | 696.8 | 695.0 | 1.8 | 1.4 | -145.48 | 46.3 | 39.1 | 102.8 | 100.1 | 2.76 | 37.323 SF | | |
| 800.0 | 790.8 | 794.5 | 792.0 | 2.3 | 1.6 | -146.68 | 44.9 | 50.9 | 124.0 | 120.7 | 3.28 | 37.792 | | |
| 900.0 | 887.4 | 892.2 | 888.9 | 2.8 | 1.9 | -147.54 | 43.6 | 62.8 | 145.2 | 141.3 | 3.81 | 38.093 | | |
| 1,000.0 | 983.9 | 989.9 | 985.9 | 3.2 | 2.1 | -148.18 | 42.2 | 74.6 | 166.3 | 162.0 | 4.34 | 38.305 | | |
| 1,100.0 | 1,080.4 | 1,087.6 | 1,082.9 | 3.7 | 2.4 | -148.68 | 40.8 | 86.5 | 187.6 | 182.7 | 4.88 | 38.463 | | |
| 1,200.0 | 1,177.0 | 1,185.3 | 1,179.9 | 4.2 | 2.7 | -149.08 | 39.4 | 98.3 | 208.8 | 203.4 | 5.41 | 38.584 | | |
| 1,300.0 | 1,273.5 | 1,283.1 | 1,276.9 | 4.7 | 2.9 | -149.40 | 38.0 | 110.2 | 230.0 | 224.1 | 5.95 | 38.681 | | |
| 1,400.0 | 1,370.0 | 1,380.8 | 1,373.8 | 5.2 | 3.2 | -149.67 | 36.7 | 122.0 | 251.3 | 244.8 | 6.48 | 38.760 | | |
| 1,500.0 | 1,466.5 | 1,478.5 | 1,470.8 | 5.7 | 3.5 | -149.90 | 35.3 | 133.9 | 272.5 | 265.5 | 7.02 | 38.825 | | |
| 1,600.0 | 1,563.1 | 1,576.2 | 1,567.8 | 6.2 | 3.7 | -150.09 | 33.9 | 145.7 | 293.7 | 286.2 | 7.55 | 38.881 | | |
| 1,700.0 | 1,659.6 | 1,673.9 | 1,664.8 | 6.6 | 4.0 | -150.26 | 32.5 | 157.6 | 315.0 | 306.9 | 8.09 | 38.928 | | |
| 1,800.0 | 1,756.1 | 1,771.6 | 1,761.8 | 7.1 | 4.3 | -150.41 | 31.2 | 169.4 | 336.2 | 327.6 | 8.63 | 38.969 | | |
| 1,900.0 | 1,852.7 | 1,869.3 | 1,858.8 | 7.6 | 4.6 | -150.53 | 29.8 | 181.3 | 357.5 | 348.3 | 9.17 | 39.005 | | |
| 2,000.0 | 1,949.2 | 1,967.0 | 1,955.7 | 8.1 | 4.8 | -150.65 | 28.4 | 193.1 | 378.7 | 369.0 | 9.70 | 39.037 | | |
| 2,100.0 | 2,045.7 | 2,064.8 | 2,052.7 | 8.6 | 5.1 | -150.75 | 27.0 | 205.0 | 400.0 | 389.8 | 10.24 | 39.065 | | |
| 2,200.0 | 2,142.3 | 2,162.5 | 2,149.7 | 9.1 | 5.4 | -150.84 | 25.6 | 216.9 | 421.3 | 410.5 | 10.78 | 39.090 | | |
| 2,300.0 | 2,238.8 | 2,260.2 | 2,246.7 | 9.6 | 5.6 | -150.93 | 24.3 | 228.7 | 442.5 | 431.2 | 11.31 | 39.113 | | |
| 2,400.0 | 2,335.3 | 2,357.9 | 2,343.7 | 10.1 | 5.9 | -151.00 | 22.9 | 240.6 | 463.8 | 451.9 | 11.85 | 39.133 | | |
| 2,500.0 | 2,431.8 | 2,455.6 | 2,440.6 | 10.6 | 6.2 | -151.07 | 21.5 | 252.4 | 485.0 | 472.6 | 12.39 | 39.152 | | |
| 2,600.0 | 2,528.4 | 2,553.3 | 2,537.6 | 11.1 | 6.4 | -151.14 | 20.1 | 264.3 | 506.3 | 493.4 | 12.93 | 39.169 | | |
| 2,700.0 | 2,624.9 | 2,651.0 | 2,634.6 | 11.6 | 6.7 | -151.19 | 18.8 | 276.1 | 527.5 | 514.1 | 13.46 | 39.185 | | |
| 2,800.0 | 2,721.4 | 2,748.7 | 2,731.6 | 12.0 | 7.0 | -151.25 | 17.4 | 288.0 | 548.8 | 534.8 | 14.00 | 39.199 | | |
| 2,900.0 | 2,818.0 | 2,846.5 | 2,828.6 | 12.5 | 7.2 | -151.30 | 16.0 | 299.8 | 570.1 | 555.5 | 14.54 | 39.213 | | |
| 3,000.0 | 2,914.5 | 2,944.2 | 2,925.5 | 13.0 | 7.5 | -151.34 | 14.6 | 311.7 | 591.3 | 576.2 | 15.08 | 39.225 | | |
| 3,100.0 | 3,011.0 | 3,041.9 | 3,022.5 | 13.5 | 7.8 | -151.39 | 13.2 | 323.5 | 612.6 | 597.0 | 15.61 | 39.236 | | |
| 3,200.0 | 3,107.6 | 3,139.6 | 3,119.5 | 14.0 | 8.1 | -151.43 | 11.9 | 335.4 | 633.8 | 617.7 | 16.15 | 39.247 | | |
| 3,300.0 | 3,204.1 | 3,237.3 | 3,216.5 | 14.5 | 8.3 | -151.46 | 10.5 | 347.2 | 655.1 | 638.4 | 16.69 | 39.257 | | |
| 3,400.0 | 3,300.6 | 3,335.0 | 3,313.5 | 15.0 | 8.6 | -151.50 | 9.1 | 359.1 | 676.4 | 659.1 | 17.23 | 39.266 | | |
| 3,500.0 | 3,397.1 | 3,432.7 | 3,410.5 | 15.5 | 8.9 | -151.53 | 7.7 | 370.9 | 697.6 | 679.9 | 17.76 | 39.275 | | |
| 3,600.0 | 3,493.7 | 3,530.5 | 3,507.4 | 16.0 | 9.1 | -151.56 | 6.4 | 382.8 | 718.9 | 700.6 | 18.30 | 39.283 | | |
| 3,700.0 | 3,590.2 | 3,628.2 | 3,604.4 | 16.5 | 9.4 | -151.59 | 5.0 | 394.7 | 740.2 | 721.3 | 18.84 | 39.291 | | |
| 3,800.0 | 3,686.7 | 3,725.9 | 3,701.4 | 17.0 | 9.7 | -151.62 | 3.6 | 406.5 | 761.4 | 742.0 | 19.38 | 39.298 | | |
| 3,900.0 | 3,783.3 | 3,823.6 | 3,798.4 | 17.4 | 9.9 | -151.65 | 2.2 | 418.4 | 782.7 | 762.8 | 19.91 | 39.305 | | |
| 4,000.0 | 3,879.8 | 3,921.3 | 3,895.4 | 17.9 | 10.2 | -151.67 | 0.8 | 430.2 | 803.9 | 783.5 | 20.45 | 39.312 | | |
| 4,100.0 | 3,976.3 | 4,019.0 | 3,992.3 | 18.4 | 10.5 | -151.69 | -0.5 | 442.1 | 825.2 | 804.2 | 20.99 | 39.318 | | |
| 4,200.0 | 4,072.9 | 4,116.7 | 4,089.3 | 18.9 | 10.8 | -151.72 | -1.9 | 453.9 | 846.5 | 824.9 | 21.53 | 39.324 | | |
| 4,300.0 | 4,169.4 | 4,214.4 | 4,186.3 | 19.4 | 11.0 | -151.74 | -3.3 | 465.8 | 867.7 | 845.7 | 22.06 | 39.329 | | |
| 4,400.0 | 4,265.9 | 4,312.2 | 4,283.3 | 19.9 | 11.3 | -151.76 | -4.7 | 477.6 | 889.0 | 866.4 | 22.60 | 39.335 | | |
| 4,500.0 | 4,362.4 | 4,409.9 | 4,380.3 | 20.4 | 11.6 | -151.78 | -6.0 | 489.5 | 910.3 | 887.1 | 23.14 | 39.340 | | |
| 4,600.0 | 4,459.0 | 4,507.6 | 4,477.2 | 20.9 | 11.8 | -151.79 | -7.4 | 501.3 | 931.5 | 907.8 | 23.68 | 39.344 | | |
| 4,700.0 | 4,555.5 | 4,605.3 | 4,574.2 | 21.4 | 12.1 | -151.81 | -8.8 | 513.2 | 952.8 | 928.6 | 24.21 | 39.349 | | |
| 4,800.0 | 4,652.0 | 4,703.0 | 4,671.2 | 21.9 | 12.4 | -151.83 | -10.2 | 525.0 | 974.1 | 949.3 | 24.75 | 39.353 | | |
| 4,900.0 | 4,748.6 | 4,800.7 | 4,768.2 | 22.4 | 12.6 | -151.84 | -11.6 | 536.9 | 995.3 | 970.0 | 25.29 | 39.358 | | |
| 5,000.0 | 4,845.1 | 4,898.4 | 4,865.2 | 22.9 | 12.9 | -151.86 | -12.9 | 548.8 | 1,016.6 | 990.8 | 25.83 | 39.362 | | |
| 5,100.0 | 4,941.6 | 4,996.1 | 4,962.2 | 23.3 | 13.2 | -151.87 | -14.3 | 560.6 | 1,037.8 | 1,011.5 | 26.36 | 39.366 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 16-9C - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning | |
| 5,200.0 | 5,038.2 | 5,093.9 | 5,059.1 | 23.8 | 13.5 | -151.89 | -15.7 | 572.5 | 1,059.1 | 1,032.2 | 26.90 | 39.369 | | |
| 5,300.0 | 5,134.7 | 5,191.6 | 5,156.1 | 24.3 | 13.7 | -151.90 | -17.1 | 584.3 | 1,080.4 | 1,052.9 | 27.44 | 39.373 | | |
| 5,400.0 | 5,231.2 | 5,289.3 | 5,253.1 | 24.8 | 14.0 | -151.92 | -18.4 | 596.2 | 1,101.6 | 1,073.7 | 27.98 | 39.376 | | |
| 5,500.0 | 5,327.7 | 5,387.0 | 5,350.1 | 25.3 | 14.3 | -151.93 | -19.8 | 608.0 | 1,122.9 | 1,094.4 | 28.51 | 39.379 | | |
| 5,600.0 | 5,424.3 | 5,484.7 | 5,447.1 | 25.8 | 14.5 | -151.94 | -21.2 | 619.9 | 1,144.2 | 1,115.1 | 29.05 | 39.383 | | |
| 5,700.0 | 5,520.8 | 5,582.4 | 5,544.0 | 26.3 | 14.8 | -151.95 | -22.6 | 631.7 | 1,165.4 | 1,135.8 | 29.59 | 39.386 | | |
| 5,800.0 | 5,617.3 | 5,680.1 | 5,641.0 | 26.8 | 15.1 | -151.96 | -24.0 | 643.6 | 1,186.7 | 1,156.6 | 30.13 | 39.389 | | |
| 5,900.0 | 5,713.9 | 5,777.8 | 5,738.0 | 27.3 | 15.4 | -151.97 | -25.3 | 655.4 | 1,208.0 | 1,177.3 | 30.67 | 39.391 | | |
| 6,000.0 | 5,810.4 | 5,875.6 | 5,835.0 | 27.8 | 15.6 | -151.98 | -26.7 | 667.3 | 1,229.2 | 1,198.0 | 31.20 | 39.394 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 21-1B - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|----------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | Distance | | Total | | Separation | | Warning | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -174.23 | -16.8 | -1.7 | 16.8 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -174.23 | -16.8 | -1.7 | 16.8 | 16.6 | 0.27 | 61.851 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -174.23 | -16.8 | -1.7 | 16.8 | 16.2 | 0.62 | 27.103 | | |
| 300.0 | 300.0 | 300.0 | 300.0 | 0.5 | 0.5 | 41.81 | -16.8 | -1.7 | 14.8 | 13.8 | 0.97 | 15.197 | | |
| 400.0 | 399.6 | 399.4 | 399.3 | 0.7 | 0.7 | 60.01 | -19.1 | -0.5 | 11.6 | 10.2 | 1.36 | 8.474 | | |
| 489.1 | 487.9 | 488.1 | 487.8 | 1.0 | 0.9 | 84.09 | -25.0 | 2.5 | 10.4 | 8.6 | 1.82 | 5.742 CC | | |
| 500.0 | 498.8 | 499.0 | 498.7 | 1.0 | 0.9 | 87.29 | -26.0 | 3.0 | 10.4 | 8.6 | 1.87 | 5.578 ES | | |
| 600.0 | 597.1 | 599.0 | 597.7 | 1.4 | 1.1 | 113.27 | -37.6 | 8.9 | 12.2 | 9.7 | 2.44 | 4.983 | | |
| 700.0 | 694.3 | 699.2 | 696.3 | 1.8 | 1.5 | 129.66 | -53.8 | 17.1 | 15.8 | 12.9 | 2.97 | 5.336 | | |
| 800.0 | 790.8 | 799.7 | 794.0 | 2.3 | 1.9 | 134.01 | -74.7 | 27.7 | 18.8 | 15.2 | 3.59 | 5.226 | | |
| 900.0 | 887.4 | 900.3 | 890.4 | 2.8 | 2.5 | 125.32 | -100.2 | 40.6 | 18.5 | 13.8 | 4.64 | 3.981 | | |
| 998.0 | 982.0 | 998.1 | 983.5 | 3.2 | 3.0 | 109.09 | -127.2 | 54.3 | 17.7 | 11.7 | 6.00 | 2.956 | | |
| 1,000.0 | 983.9 | 1,000.1 | 985.4 | 3.2 | 3.0 | 108.75 | -127.8 | 54.5 | 17.7 | 11.7 | 6.03 | 2.942 | | |
| 1,100.0 | 1,080.4 | 1,100.0 | 1,080.3 | 3.7 | 3.5 | 92.23 | -155.3 | 68.5 | 18.5 | 11.3 | 7.26 | 2.554 | | |
| 1,200.0 | 1,177.0 | 1,199.8 | 1,175.3 | 4.2 | 4.1 | 78.12 | -182.9 | 82.5 | 20.7 | 12.6 | 8.13 | 2.545 SF | | |
| 1,300.0 | 1,273.5 | 1,299.7 | 1,270.3 | 4.7 | 4.7 | 67.19 | -210.5 | 96.4 | 23.8 | 15.1 | 8.71 | 2.737 | | |
| 1,400.0 | 1,370.0 | 1,399.6 | 1,365.2 | 5.2 | 5.2 | 59.03 | -238.0 | 110.4 | 27.7 | 18.5 | 9.14 | 3.025 | | |
| 1,500.0 | 1,466.5 | 1,499.4 | 1,460.2 | 5.7 | 5.8 | 52.94 | -265.6 | 124.3 | 31.9 | 22.4 | 9.51 | 3.352 | | |
| 1,600.0 | 1,563.1 | 1,599.3 | 1,555.1 | 6.2 | 6.4 | 48.30 | -293.2 | 138.3 | 36.4 | 26.5 | 9.86 | 3.690 | | |
| 1,700.0 | 1,659.6 | 1,699.1 | 1,650.1 | 6.6 | 6.9 | 44.71 | -320.7 | 152.3 | 41.1 | 30.9 | 10.22 | 4.021 | | |
| 1,800.0 | 1,756.1 | 1,799.0 | 1,745.1 | 7.1 | 7.5 | 41.86 | -348.3 | 166.2 | 45.9 | 35.3 | 10.58 | 4.339 | | |
| 1,900.0 | 1,852.7 | 1,898.9 | 1,840.0 | 7.6 | 8.1 | 39.56 | -375.9 | 180.2 | 50.8 | 39.9 | 10.95 | 4.639 | | |
| 2,000.0 | 1,949.2 | 1,998.7 | 1,935.0 | 8.1 | 8.6 | 37.66 | -403.4 | 194.1 | 55.8 | 44.4 | 11.33 | 4.921 | | |
| 2,100.0 | 2,045.7 | 2,098.6 | 2,029.9 | 8.6 | 9.2 | 36.08 | -431.0 | 208.1 | 60.8 | 49.1 | 11.73 | 5.185 | | |
| 2,200.0 | 2,142.3 | 2,198.4 | 2,124.9 | 9.1 | 9.8 | 34.74 | -458.6 | 222.0 | 65.9 | 53.7 | 12.13 | 5.431 | | |
| 2,300.0 | 2,238.8 | 2,298.3 | 2,219.9 | 9.6 | 10.3 | 33.59 | -486.1 | 236.0 | 71.0 | 58.4 | 12.54 | 5.661 | | |
| 2,400.0 | 2,335.3 | 2,398.2 | 2,314.8 | 10.1 | 10.9 | 32.59 | -513.7 | 250.0 | 76.1 | 63.1 | 12.95 | 5.875 | | |
| 2,500.0 | 2,431.8 | 2,498.0 | 2,409.8 | 10.6 | 11.5 | 31.72 | -541.2 | 263.9 | 81.2 | 67.9 | 13.37 | 6.076 | | |
| 2,600.0 | 2,528.4 | 2,597.9 | 2,504.7 | 11.1 | 12.0 | 30.96 | -568.8 | 277.9 | 86.4 | 72.6 | 13.79 | 6.263 | | |
| 2,700.0 | 2,624.9 | 2,697.7 | 2,599.7 | 11.6 | 12.6 | 30.28 | -596.4 | 291.8 | 91.6 | 77.3 | 14.22 | 6.438 | | |
| 2,800.0 | 2,721.4 | 2,797.6 | 2,694.7 | 12.0 | 13.2 | 29.67 | -623.9 | 305.8 | 96.7 | 82.1 | 14.65 | 6.603 | | |
| 2,900.0 | 2,818.0 | 2,897.5 | 2,789.6 | 12.5 | 13.8 | 29.13 | -651.5 | 319.8 | 101.9 | 86.8 | 15.09 | 6.757 | | |
| 3,000.0 | 2,914.5 | 2,997.3 | 2,884.6 | 13.0 | 14.3 | 28.63 | -679.1 | 333.7 | 107.1 | 91.6 | 15.52 | 6.902 | | |
| 3,100.0 | 3,011.0 | 3,097.2 | 2,979.6 | 13.5 | 14.9 | 28.19 | -706.6 | 347.7 | 112.3 | 96.4 | 15.96 | 7.039 | | |
| 3,200.0 | 3,107.6 | 3,197.1 | 3,074.5 | 14.0 | 15.5 | 27.78 | -734.2 | 361.6 | 117.6 | 101.2 | 16.40 | 7.167 | | |
| 3,300.0 | 3,204.1 | 3,296.9 | 3,169.5 | 14.5 | 16.0 | 27.41 | -761.8 | 375.6 | 122.8 | 105.9 | 16.84 | 7.289 | | |
| 3,400.0 | 3,300.6 | 3,396.8 | 3,264.4 | 15.0 | 16.6 | 27.07 | -789.3 | 389.6 | 128.0 | 110.7 | 17.29 | 7.404 | | |
| 3,500.0 | 3,397.1 | 3,496.6 | 3,359.4 | 15.5 | 17.2 | 26.75 | -816.9 | 403.5 | 133.2 | 115.5 | 17.73 | 7.513 | | |
| 3,600.0 | 3,493.7 | 3,596.5 | 3,454.4 | 16.0 | 17.7 | 26.46 | -844.5 | 417.5 | 138.5 | 120.3 | 18.18 | 7.616 | | |
| 3,700.0 | 3,590.2 | 3,696.4 | 3,549.3 | 16.5 | 18.3 | 26.19 | -872.0 | 431.4 | 143.7 | 125.1 | 18.63 | 7.714 | | |
| 3,800.0 | 3,686.7 | 3,796.2 | 3,644.3 | 17.0 | 18.9 | 25.94 | -899.6 | 445.4 | 148.9 | 129.9 | 19.08 | 7.808 | | |
| 3,900.0 | 3,783.3 | 3,896.1 | 3,739.2 | 17.4 | 19.5 | 25.71 | -927.2 | 459.4 | 154.2 | 134.6 | 19.52 | 7.896 | | |
| 4,000.0 | 3,879.8 | 3,995.9 | 3,834.2 | 17.9 | 20.0 | 25.49 | -954.7 | 473.3 | 159.4 | 139.4 | 19.98 | 7.981 | | |
| 4,100.0 | 3,976.3 | 4,095.8 | 3,929.2 | 18.4 | 20.6 | 25.28 | -982.3 | 487.3 | 164.7 | 144.2 | 20.43 | 8.061 | | |
| 4,200.0 | 4,072.9 | 4,195.7 | 4,024.1 | 18.9 | 21.2 | 25.09 | -1,009.8 | 501.2 | 169.9 | 149.0 | 20.88 | 8.138 | | |
| 4,300.0 | 4,169.4 | 4,295.5 | 4,119.1 | 19.4 | 21.7 | 24.91 | -1,037.4 | 515.2 | 175.2 | 153.8 | 21.33 | 8.212 | | |
| 4,400.0 | 4,265.9 | 4,395.4 | 4,214.0 | 19.9 | 22.3 | 24.74 | -1,065.0 | 529.2 | 180.4 | 158.6 | 21.78 | 8.282 | | |
| 4,500.0 | 4,362.4 | 4,495.2 | 4,309.0 | 20.4 | 22.9 | 24.58 | -1,092.5 | 543.1 | 185.7 | 163.4 | 22.24 | 8.349 | | |
| 4,600.0 | 4,459.0 | 4,595.1 | 4,404.0 | 20.9 | 23.5 | 24.43 | -1,120.1 | 557.1 | 190.9 | 168.2 | 22.69 | 8.414 | | |
| 4,700.0 | 4,555.5 | 4,695.0 | 4,498.9 | 21.4 | 24.0 | 24.29 | -1,147.7 | 571.0 | 196.2 | 173.0 | 23.15 | 8.476 | | |
| 4,800.0 | 4,652.0 | 4,794.8 | 4,593.9 | 21.9 | 24.6 | 24.15 | -1,175.2 | 585.0 | 201.4 | 177.8 | 23.60 | 8.535 | | |
| 4,900.0 | 4,748.6 | 4,894.7 | 4,688.8 | 22.4 | 25.2 | 24.02 | -1,202.8 | 599.0 | 206.7 | 182.6 | 24.06 | 8.592 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 21-1B - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft | | | |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|-------------------|---------------------------|--|---------------------------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | | | Offset Well Error: 0.0 ft | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | Warning | | | |
| 5,000.0 | 4,845.1 | 4,994.5 | 4,783.8 | 22.9 | 25.7 | 23.90 | -1,230.4 | 612.9 | 211.9 | 187.4 | 24.51 | 8.647 | | | | |
| 5,100.0 | 4,941.6 | 5,094.4 | 4,878.8 | 23.3 | 26.3 | 23.78 | -1,257.9 | 626.9 | 217.2 | 192.2 | 24.97 | 8.700 | | | | |
| 5,200.0 | 5,038.2 | 5,194.3 | 4,973.7 | 23.8 | 26.9 | 23.67 | -1,285.5 | 640.8 | 222.5 | 197.0 | 25.42 | 8.750 | | | | |
| 5,300.0 | 5,134.7 | 5,294.1 | 5,068.7 | 24.3 | 27.5 | 23.56 | -1,313.1 | 654.8 | 227.7 | 201.8 | 25.88 | 8.799 | | | | |
| 5,400.0 | 5,231.2 | 5,394.0 | 5,163.6 | 24.8 | 28.0 | 23.46 | -1,340.6 | 668.8 | 233.0 | 206.6 | 26.34 | 8.847 | | | | |
| 5,500.0 | 5,327.7 | 5,493.8 | 5,258.6 | 25.3 | 28.6 | 23.37 | -1,368.2 | 682.7 | 238.2 | 211.5 | 26.79 | 8.892 | | | | |
| 5,600.0 | 5,424.3 | 5,593.7 | 5,353.6 | 25.8 | 29.2 | 23.27 | -1,395.7 | 696.7 | 243.5 | 216.3 | 27.25 | 8.936 | | | | |
| 5,700.0 | 5,520.8 | 5,693.6 | 5,448.5 | 26.3 | 29.7 | 23.18 | -1,423.3 | 710.6 | 248.8 | 221.1 | 27.71 | 8.978 | | | | |
| 5,800.0 | 5,617.3 | 5,793.4 | 5,543.5 | 26.8 | 30.3 | 23.10 | -1,450.9 | 724.6 | 254.0 | 225.9 | 28.17 | 9.019 | | | | |
| 5,900.0 | 5,713.9 | 5,893.3 | 5,638.4 | 27.3 | 30.9 | 23.02 | -1,478.4 | 738.6 | 259.3 | 230.7 | 28.62 | 9.059 | | | | |
| 6,000.0 | 5,810.4 | 5,993.1 | 5,733.4 | 27.8 | 31.5 | 22.94 | -1,506.0 | 752.5 | 264.6 | 235.5 | 29.08 | 9.097 | | | | |
| 6,100.0 | 5,906.9 | 6,093.0 | 5,828.4 | 28.3 | 32.0 | 22.86 | -1,533.6 | 766.5 | 269.8 | 240.3 | 29.54 | 9.134 | | | | |
| 6,200.0 | 6,003.4 | 6,192.9 | 5,923.3 | 28.8 | 32.6 | 22.79 | -1,561.1 | 780.4 | 275.1 | 245.1 | 30.00 | 9.170 | | | | |
| 6,300.0 | 6,100.0 | 6,292.7 | 6,018.3 | 29.2 | 33.2 | 22.72 | -1,588.7 | 794.4 | 280.4 | 249.9 | 30.46 | 9.205 | | | | |
| 6,400.0 | 6,196.5 | 6,392.6 | 6,113.2 | 29.7 | 33.7 | 22.66 | -1,616.3 | 808.4 | 285.6 | 254.7 | 30.92 | 9.239 | | | | |
| 6,500.0 | 6,293.0 | 6,492.5 | 6,208.2 | 30.2 | 34.3 | 22.59 | -1,643.8 | 822.3 | 290.9 | 259.5 | 31.37 | 9.272 | | | | |
| 6,600.0 | 6,389.6 | 6,592.3 | 6,303.2 | 30.7 | 34.9 | 22.53 | -1,671.4 | 836.3 | 296.2 | 264.3 | 31.83 | 9.304 | | | | |
| 6,700.0 | 6,486.1 | 6,692.2 | 6,398.1 | 31.2 | 35.5 | 22.47 | -1,699.0 | 850.2 | 301.4 | 269.1 | 32.29 | 9.334 | | | | |
| 6,800.0 | 6,582.6 | 6,792.0 | 6,493.1 | 31.7 | 36.0 | 22.41 | -1,726.5 | 864.2 | 306.7 | 274.0 | 32.75 | 9.364 | | | | |
| 6,900.0 | 6,679.2 | 6,891.9 | 6,588.0 | 32.2 | 36.6 | 22.35 | -1,754.1 | 878.2 | 312.0 | 278.8 | 33.21 | 9.393 | | | | |
| 7,000.0 | 6,775.7 | 6,991.8 | 6,683.0 | 32.7 | 37.2 | 22.30 | -1,781.7 | 892.1 | 317.2 | 283.6 | 33.67 | 9.422 | | | | |
| 7,100.0 | 6,872.2 | 7,096.4 | 6,782.6 | 33.2 | 37.8 | 22.27 | -1,810.2 | 906.6 | 322.2 | 288.1 | 34.15 | 9.434 | | | | |
| 7,200.0 | 6,969.2 | 7,208.3 | 6,890.2 | 33.6 | 38.3 | 22.33 | -1,837.8 | 920.5 | 325.7 | 291.1 | 34.67 | 9.394 | | | | |
| 7,300.0 | 7,066.9 | 7,320.3 | 6,999.0 | 34.0 | 38.8 | 22.39 | -1,861.5 | 932.6 | 328.8 | 293.7 | 35.14 | 9.357 | | | | |
| 7,400.0 | 7,165.4 | 7,432.5 | 7,108.9 | 34.3 | 39.2 | 22.44 | -1,881.5 | 942.7 | 331.4 | 295.9 | 35.56 | 9.321 | | | | |
| 7,500.0 | 7,264.3 | 7,544.8 | 7,219.7 | 34.6 | 39.5 | 22.47 | -1,897.7 | 950.9 | 333.6 | 297.6 | 35.92 | 9.286 | | | | |
| 7,600.0 | 7,363.8 | 7,657.1 | 7,331.2 | 34.8 | 39.8 | 22.49 | -1,909.9 | 957.1 | 335.2 | 299.0 | 36.23 | 9.252 | | | | |
| 7,700.0 | 7,463.5 | 7,769.6 | 7,443.2 | 34.9 | 40.0 | 22.50 | -1,918.3 | 961.3 | 336.4 | 299.9 | 36.49 | 9.220 | | | | |
| 7,800.0 | 7,563.4 | 7,882.1 | 7,555.6 | 35.0 | 40.1 | 22.51 | -1,922.7 | 963.6 | 337.1 | 300.4 | 36.69 | 9.187 | | | | |
| 7,900.0 | 7,663.4 | 7,989.9 | 7,663.4 | 35.1 | 40.1 | 172.44 | -1,923.5 | 964.0 | 337.3 | 300.4 | 36.90 | 9.140 | | | | |
| 8,000.0 | 7,763.4 | 8,089.9 | 7,763.4 | 35.2 | 40.2 | 172.44 | -1,923.5 | 964.0 | 337.3 | 300.1 | 37.17 | 9.075 | | | | |
| 8,100.0 | 7,863.4 | 8,189.9 | 7,863.4 | 35.3 | 40.3 | 172.44 | -1,923.5 | 964.0 | 337.3 | 299.9 | 37.43 | 9.011 | | | | |
| 8,200.0 | 7,963.4 | 8,289.9 | 7,963.4 | 35.3 | 40.3 | 172.44 | -1,923.5 | 964.0 | 337.3 | 299.6 | 37.70 | 8.948 | | | | |
| 8,300.0 | 8,063.4 | 8,389.9 | 8,063.4 | 35.4 | 40.4 | 172.44 | -1,923.5 | 964.0 | 337.3 | 299.3 | 37.96 | 8.885 | | | | |
| 8,400.0 | 8,163.4 | 8,489.9 | 8,163.4 | 35.5 | 40.5 | 172.44 | -1,923.5 | 964.0 | 337.3 | 299.1 | 38.23 | 8.823 | | | | |
| 8,500.0 | 8,263.4 | 8,589.9 | 8,263.4 | 35.5 | 40.5 | 172.44 | -1,923.5 | 964.0 | 337.3 | 298.8 | 38.50 | 8.761 | | | | |
| 8,600.0 | 8,363.4 | 8,689.9 | 8,363.4 | 35.6 | 40.6 | 172.44 | -1,923.5 | 964.0 | 337.3 | 298.5 | 38.77 | 8.700 | | | | |
| 8,700.0 | 8,463.4 | 8,789.9 | 8,463.4 | 35.7 | 40.6 | 172.44 | -1,923.5 | 964.0 | 337.3 | 298.3 | 39.04 | 8.640 | | | | |
| 8,800.0 | 8,563.4 | 8,889.9 | 8,563.4 | 35.8 | 40.7 | 172.44 | -1,923.5 | 964.0 | 337.3 | 298.0 | 39.31 | 8.580 | | | | |
| 8,900.0 | 8,663.4 | 8,989.9 | 8,663.4 | 35.8 | 40.8 | 172.44 | -1,923.5 | 964.0 | 337.3 | 297.7 | 39.59 | 8.520 | | | | |
| 9,000.0 | 8,763.4 | 9,089.9 | 8,763.4 | 35.9 | 40.8 | 172.44 | -1,923.5 | 964.0 | 337.3 | 297.4 | 39.86 | 8.461 | | | | |
| 9,100.0 | 8,863.4 | 9,189.9 | 8,863.4 | 36.0 | 40.9 | 172.44 | -1,923.5 | 964.0 | 337.3 | 297.2 | 40.14 | 8.403 | | | | |
| 9,200.0 | 8,963.4 | 9,289.9 | 8,963.4 | 36.1 | 41.0 | 172.44 | -1,923.5 | 964.0 | 337.3 | 296.9 | 40.42 | 8.345 | | | | |
| 9,300.0 | 9,063.4 | 9,389.9 | 9,063.4 | 36.1 | 41.1 | 172.44 | -1,923.5 | 964.0 | 337.3 | 296.6 | 40.69 | 8.288 | | | | |
| 9,400.0 | 9,163.4 | 9,489.9 | 9,163.4 | 36.2 | 41.1 | 172.44 | -1,923.5 | 964.0 | 337.3 | 296.3 | 40.97 | 8.232 | | | | |
| 9,500.0 | 9,263.4 | 9,589.9 | 9,263.4 | 36.3 | 41.2 | 172.44 | -1,923.5 | 964.0 | 337.3 | 296.0 | 41.26 | 8.176 | | | | |
| 9,600.0 | 9,363.4 | 9,689.9 | 9,363.4 | 36.4 | 41.3 | 172.44 | -1,923.5 | 964.0 | 337.3 | 295.8 | 41.54 | 8.120 | | | | |
| 9,700.0 | 9,463.4 | 9,789.9 | 9,463.4 | 36.5 | 41.3 | 172.44 | -1,923.5 | 964.0 | 337.3 | 295.5 | 41.82 | 8.065 | | | | |
| 9,800.0 | 9,563.4 | 9,889.9 | 9,563.4 | 36.5 | 41.4 | 172.44 | -1,923.5 | 964.0 | 337.3 | 295.2 | 42.10 | 8.011 | | | | |
| 9,900.0 | 9,663.4 | 9,989.9 | 9,663.4 | 36.6 | 41.5 | 172.44 | -1,923.5 | 964.0 | 337.3 | 294.9 | 42.39 | 7.957 | | | | |
| 10,000.0 | 9,763.4 | 10,089.9 | 9,763.4 | 36.7 | 41.6 | 172.44 | -1,923.5 | 964.0 | 337.3 | 294.6 | 42.67 | 7.904 | | | | |
| 10,100.0 | 9,863.4 | 10,189.9 | 9,863.4 | 36.8 | 41.6 | 172.44 | -1,923.5 | 964.0 | 337.3 | 294.3 | 42.96 | 7.851 | | | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 21-1B - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------------|-------------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | | |
| 10,200.0 | 9,963.4 | 10,289.9 | 9,963.4 | 36.9 | 41.7 | 172.44 | -1,923.5 | 964.0 | 337.3 | 294.0 | 43.25 | 7.799 | | |
| 10,300.0 | 10,063.4 | 10,389.9 | 10,063.4 | 37.0 | 41.8 | 172.44 | -1,923.5 | 964.0 | 337.3 | 293.8 | 43.54 | 7.747 | | |
| 10,323.6 | 10,087.0 | 10,413.5 | 10,087.0 | 37.0 | 41.8 | 172.44 | -1,923.5 | 964.0 | 337.3 | 293.7 | 43.61 | 7.735 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Federal 21-3A - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------------|---------------------------|---------------------------|-------------------|----------------|-----------------------------|---|---------------|----------------------------|-----------------------------|------------------------------|----------------------|--------------------|--------|
| Survey Program: O-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total Uncertainty Axis | Separation Factor | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | | | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -131.14 | -7.6 | -8.8 | 11.6 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | -131.14 | -7.6 | -8.8 | 11.6 | 11.4 | 0.27 | 42.698 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | -131.14 | -7.6 | -8.8 | 11.6 | 11.0 | 0.62 | 18.711 CC, ES | | |
| 300.0 | 300.0 | 299.4 | 299.4 | 0.5 | 0.5 | 84.91 | -10.0 | -9.8 | 13.5 | 12.6 | 0.98 | 13.814 SF | | |
| 400.0 | 399.6 | 398.5 | 398.1 | 0.7 | 0.7 | 95.45 | -17.1 | -12.8 | 19.8 | 18.4 | 1.40 | 14.195 | | |
| 500.0 | 498.8 | 496.9 | 495.7 | 1.0 | 1.0 | 103.00 | -28.8 | -17.8 | 30.9 | 29.0 | 1.92 | 16.136 | | |
| 600.0 | 597.1 | 594.4 | 591.6 | 1.4 | 1.3 | 107.32 | -45.0 | -24.7 | 46.7 | 44.2 | 2.56 | 18.248 | | |
| 700.0 | 694.3 | 690.7 | 685.3 | 1.8 | 1.8 | 109.70 | -65.3 | -33.3 | 67.1 | 63.8 | 3.35 | 20.063 | | |
| 800.0 | 790.8 | 785.8 | 776.6 | 2.3 | 2.3 | 110.26 | -89.7 | -43.7 | 91.1 | 86.9 | 4.20 | 21.669 | | |
| 900.0 | 887.4 | 882.2 | 868.4 | 2.8 | 2.8 | 109.34 | -116.9 | -55.3 | 116.6 | 111.5 | 5.09 | 22.916 | | |
| 1,000.0 | 983.9 | 978.8 | 960.4 | 3.2 | 3.3 | 108.74 | -144.2 | -66.9 | 142.2 | 136.2 | 5.98 | 23.755 | | |
| 1,100.0 | 1,080.4 | 1,075.5 | 1,052.4 | 3.7 | 3.9 | 108.32 | -171.6 | -78.6 | 167.7 | 160.8 | 6.89 | 24.354 | | |
| 1,200.0 | 1,177.0 | 1,172.2 | 1,144.4 | 4.2 | 4.4 | 108.01 | -198.9 | -90.2 | 193.3 | 185.5 | 7.79 | 24.802 | | |
| 1,300.0 | 1,273.5 | 1,268.9 | 1,236.4 | 4.7 | 4.9 | 107.78 | -226.2 | -101.8 | 218.8 | 210.1 | 8.70 | 25.149 | | |
| 1,400.0 | 1,370.0 | 1,365.5 | 1,328.4 | 5.2 | 5.5 | 107.59 | -253.6 | -113.5 | 244.4 | 234.8 | 9.61 | 25.426 | | |
| 1,500.0 | 1,466.5 | 1,462.2 | 1,420.4 | 5.7 | 6.0 | 107.44 | -280.9 | -125.1 | 270.0 | 259.4 | 10.52 | 25.651 | | |
| 1,600.0 | 1,563.1 | 1,558.9 | 1,512.3 | 6.2 | 6.6 | 107.32 | -308.2 | -136.8 | 295.5 | 284.1 | 11.44 | 25.837 | | |
| 1,700.0 | 1,659.6 | 1,655.6 | 1,604.3 | 6.6 | 7.1 | 107.21 | -335.6 | -148.4 | 321.1 | 308.7 | 12.35 | 25.994 | | |
| 1,800.0 | 1,756.1 | 1,752.2 | 1,696.3 | 7.1 | 7.7 | 107.12 | -362.9 | -160.0 | 346.7 | 333.4 | 13.27 | 26.129 | | |
| 1,900.0 | 1,852.7 | 1,848.9 | 1,788.3 | 7.6 | 8.2 | 107.05 | -390.2 | -171.7 | 372.2 | 358.0 | 14.18 | 26.244 | | |
| 2,000.0 | 1,949.2 | 1,945.6 | 1,880.3 | 8.1 | 8.8 | 106.98 | -417.6 | -183.3 | 397.8 | 382.7 | 15.10 | 26.345 | | |
| 2,100.0 | 2,045.7 | 2,042.3 | 1,972.3 | 8.6 | 9.3 | 106.92 | -444.9 | -195.0 | 423.4 | 407.4 | 16.02 | 26.434 | | |
| 2,200.0 | 2,142.3 | 2,138.9 | 2,064.3 | 9.1 | 9.9 | 106.87 | -472.2 | -206.6 | 448.9 | 432.0 | 16.93 | 26.513 | | |
| 2,300.0 | 2,238.8 | 2,235.6 | 2,156.3 | 9.6 | 10.4 | 106.82 | -499.6 | -218.2 | 474.5 | 456.7 | 17.85 | 26.583 | | |
| 2,400.0 | 2,335.3 | 2,332.3 | 2,248.3 | 10.1 | 11.0 | 106.78 | -526.9 | -229.9 | 500.1 | 481.3 | 18.77 | 26.646 | | |
| 2,500.0 | 2,431.8 | 2,429.0 | 2,340.3 | 10.6 | 11.5 | 106.74 | -554.2 | -241.5 | 525.7 | 506.0 | 19.69 | 26.703 | | |
| 2,600.0 | 2,528.4 | 2,525.6 | 2,432.3 | 11.1 | 12.0 | 106.71 | -581.6 | -253.2 | 551.2 | 530.6 | 20.60 | 26.755 | | |
| 2,700.0 | 2,624.9 | 2,622.3 | 2,524.3 | 11.6 | 12.6 | 106.67 | -608.9 | -264.8 | 576.8 | 555.3 | 21.52 | 26.802 | | |
| 2,800.0 | 2,721.4 | 2,719.0 | 2,616.3 | 12.0 | 13.1 | 106.65 | -636.3 | -276.4 | 602.4 | 579.9 | 22.44 | 26.845 | | |
| 2,900.0 | 2,818.0 | 2,815.7 | 2,708.3 | 12.5 | 13.7 | 106.62 | -663.6 | -288.1 | 627.9 | 604.6 | 23.36 | 26.885 | | |
| 3,000.0 | 2,914.5 | 2,912.3 | 2,800.3 | 13.0 | 14.2 | 106.59 | -690.9 | -299.7 | 653.5 | 629.2 | 24.28 | 26.921 | | |
| 3,100.0 | 3,011.0 | 3,009.0 | 2,892.3 | 13.5 | 14.8 | 106.57 | -718.3 | -311.4 | 679.1 | 653.9 | 25.19 | 26.955 | | |
| 3,200.0 | 3,107.6 | 3,105.7 | 2,984.3 | 14.0 | 15.3 | 106.55 | -745.6 | -323.0 | 704.7 | 678.6 | 26.11 | 26.986 | | |
| 3,300.0 | 3,204.1 | 3,202.4 | 3,076.3 | 14.5 | 15.9 | 106.53 | -772.9 | -334.6 | 730.2 | 703.2 | 27.03 | 27.015 | | |
| 3,400.0 | 3,300.6 | 3,299.0 | 3,168.3 | 15.0 | 16.4 | 106.51 | -800.3 | -346.3 | 755.8 | 727.9 | 27.95 | 27.042 | | |
| 3,500.0 | 3,397.1 | 3,395.7 | 3,260.3 | 15.5 | 17.0 | 106.50 | -827.6 | -357.9 | 781.4 | 752.5 | 28.87 | 27.067 | | |
| 3,600.0 | 3,493.7 | 3,492.4 | 3,352.3 | 16.0 | 17.5 | 106.48 | -854.9 | -369.6 | 807.0 | 777.2 | 29.79 | 27.091 | | |
| 3,700.0 | 3,590.2 | 3,589.1 | 3,444.3 | 16.5 | 18.1 | 106.47 | -882.3 | -381.2 | 832.5 | 801.8 | 30.71 | 27.113 | | |
| 3,800.0 | 3,686.7 | 3,685.7 | 3,536.3 | 17.0 | 18.6 | 106.45 | -909.6 | -392.8 | 858.1 | 826.5 | 31.62 | 27.134 | | |
| 3,900.0 | 3,783.3 | 3,782.4 | 3,628.3 | 17.4 | 19.2 | 106.44 | -936.9 | -404.5 | 883.7 | 851.1 | 32.54 | 27.154 | | |
| 4,000.0 | 3,879.8 | 3,879.1 | 3,720.2 | 17.9 | 19.7 | 106.43 | -964.3 | -416.1 | 909.3 | 875.8 | 33.46 | 27.173 | | |
| 4,100.0 | 3,976.3 | 3,975.8 | 3,812.2 | 18.4 | 20.3 | 106.42 | -991.6 | -427.8 | 934.8 | 900.4 | 34.38 | 27.190 | | |
| 4,200.0 | 4,072.9 | 4,072.4 | 3,904.2 | 18.9 | 20.8 | 106.40 | -1,018.9 | -439.4 | 960.4 | 925.1 | 35.30 | 27.207 | | |
| 4,300.0 | 4,169.4 | 4,169.1 | 3,996.2 | 19.4 | 21.4 | 106.39 | -1,046.3 | -451.0 | 986.0 | 949.8 | 36.22 | 27.222 | | |
| 4,400.0 | 4,265.9 | 4,265.8 | 4,088.2 | 19.9 | 21.9 | 106.38 | -1,073.6 | -462.7 | 1,011.6 | 974.4 | 37.14 | 27.237 | | |
| 4,500.0 | 4,362.4 | 4,362.5 | 4,180.2 | 20.4 | 22.5 | 106.37 | -1,101.0 | -474.3 | 1,037.1 | 999.1 | 38.06 | 27.252 | | |
| 4,600.0 | 4,459.0 | 4,459.1 | 4,272.2 | 20.9 | 23.0 | 106.37 | -1,128.3 | -486.0 | 1,062.7 | 1,023.7 | 38.98 | 27.265 | | |
| 4,700.0 | 4,555.5 | 4,555.8 | 4,364.2 | 21.4 | 23.6 | 106.36 | -1,155.6 | -497.6 | 1,088.3 | 1,048.4 | 39.90 | 27.278 | | |
| 4,800.0 | 4,652.0 | 4,652.5 | 4,456.2 | 21.9 | 24.1 | 106.35 | -1,183.0 | -509.2 | 1,113.8 | 1,073.0 | 40.81 | 27.290 | | |
| 4,900.0 | 4,748.6 | 4,749.2 | 4,548.2 | 22.4 | 24.7 | 106.34 | -1,210.3 | -520.9 | 1,139.4 | 1,097.7 | 41.73 | 27.302 | | |
| 5,000.0 | 4,845.1 | 4,845.8 | 4,640.2 | 22.9 | 25.2 | 106.33 | -1,237.6 | -532.5 | 1,165.0 | 1,122.3 | 42.65 | 27.313 | | |
| 5,100.0 | 4,941.6 | 4,942.5 | 4,732.2 | 23.3 | 25.8 | 106.33 | -1,265.0 | -544.2 | 1,190.6 | 1,147.0 | 43.57 | 27.324 | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| | | | | | | | | | | | | | |
|--|------------------------|------------------------|------------------------|-------------------|----------------|--------------------------|---|---------------|-------------------------|--------------------------|---------------------------|-------------------|----------------------------------|
| Offset Design (J16W) - HMU Federal 21-3A - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: 0.0 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Total Uncertainty Axis | Separation Factor | |
| 5,200.0 | 5,038.2 | 5,039.2 | 4,824.2 | 23.8 | 26.3 | 106.32 | -1,292.3 | -555.8 | 1,216.1 | 1,171.7 | 44.49 | 27.334 | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

| Offset Design (J16W) - HMU Fee 16-8D - DD - Plan #1 | | | | | | | | | | | | | Offset Site Error: | 0.0 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|------------------|----------------|--------------------|--------|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | 0.0 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | Total | Separation | Warning | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Uncertainty Axis | Factor | | |
| 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 5.48 | 67.7 | 6.5 | 68.1 | | | | | |
| 100.0 | 100.0 | 100.0 | 100.0 | 0.1 | 0.1 | 5.48 | 67.7 | 6.5 | 68.1 | 67.8 | 0.27 | 249.949 | | |
| 200.0 | 200.0 | 200.0 | 200.0 | 0.3 | 0.3 | 5.48 | 67.7 | 6.5 | 68.1 | 67.4 | 0.62 | 109.528 CC, ES | | |
| 300.0 | 300.0 | 297.4 | 297.3 | 0.5 | 0.5 | -144.18 | 69.3 | 8.4 | 72.0 | 71.0 | 0.97 | 74.036 | | |
| 400.0 | 399.6 | 393.9 | 393.5 | 0.7 | 0.7 | -143.47 | 74.0 | 14.1 | 83.8 | 82.4 | 1.35 | 61.994 | | |
| 500.0 | 498.8 | 488.6 | 487.5 | 1.0 | 1.0 | -142.58 | 81.6 | 23.3 | 103.2 | 101.5 | 1.78 | 58.084 | | |
| 600.0 | 597.1 | 580.8 | 578.3 | 1.4 | 1.3 | -141.67 | 91.9 | 35.6 | 130.2 | 127.9 | 2.26 | 57.506 SF | | |
| 700.0 | 694.3 | 672.7 | 668.0 | 1.8 | 1.7 | -140.96 | 104.5 | 50.8 | 163.9 | 161.1 | 2.81 | 58.388 | | |
| 800.0 | 790.8 | 765.9 | 759.0 | 2.3 | 2.0 | -141.34 | 117.5 | 66.6 | 200.1 | 196.7 | 3.39 | 59.119 | | |
| 900.0 | 887.4 | 859.1 | 849.9 | 2.8 | 2.4 | -141.63 | 130.6 | 82.4 | 236.3 | 232.3 | 3.97 | 59.471 | | |
| 1,000.0 | 983.9 | 952.3 | 940.8 | 3.2 | 2.8 | -141.85 | 143.7 | 98.2 | 272.5 | 267.9 | 4.57 | 59.648 | | |
| 1,100.0 | 1,080.4 | 1,045.6 | 1,031.8 | 3.7 | 3.2 | -142.01 | 156.7 | 114.0 | 308.7 | 303.5 | 5.17 | 59.736 | | |
| 1,200.0 | 1,177.0 | 1,138.8 | 1,122.7 | 4.2 | 3.6 | -142.14 | 169.8 | 129.7 | 344.9 | 339.1 | 5.77 | 59.776 | | |
| 1,300.0 | 1,273.5 | 1,232.0 | 1,213.6 | 4.7 | 4.0 | -142.24 | 182.9 | 145.5 | 381.1 | 374.7 | 6.37 | 59.789 | | |
| 1,400.0 | 1,370.0 | 1,325.2 | 1,304.6 | 5.2 | 4.4 | -142.33 | 195.9 | 161.3 | 417.3 | 410.3 | 6.98 | 59.787 | | |
| 1,500.0 | 1,466.5 | 1,418.4 | 1,395.5 | 5.7 | 4.8 | -142.40 | 209.0 | 177.1 | 453.5 | 445.9 | 7.59 | 59.776 | | |
| 1,600.0 | 1,563.1 | 1,511.6 | 1,486.5 | 6.2 | 5.2 | -142.46 | 222.1 | 192.9 | 489.7 | 481.5 | 8.19 | 59.761 | | |
| 1,700.0 | 1,659.6 | 1,604.9 | 1,577.4 | 6.6 | 5.6 | -142.51 | 235.1 | 208.7 | 525.9 | 517.1 | 8.80 | 59.743 | | |
| 1,800.0 | 1,756.1 | 1,698.1 | 1,668.3 | 7.1 | 6.0 | -142.56 | 248.2 | 224.4 | 562.1 | 552.7 | 9.41 | 59.723 | | |
| 1,900.0 | 1,852.7 | 1,791.3 | 1,759.3 | 7.6 | 6.4 | -142.60 | 261.3 | 240.2 | 598.3 | 588.3 | 10.02 | 59.703 | | |
| 2,000.0 | 1,949.2 | 1,884.5 | 1,850.2 | 8.1 | 6.7 | -142.63 | 274.3 | 256.0 | 634.6 | 623.9 | 10.63 | 59.683 | | |
| 2,100.0 | 2,045.7 | 1,977.7 | 1,941.1 | 8.6 | 7.1 | -142.67 | 287.4 | 271.8 | 670.8 | 659.5 | 11.24 | 59.664 | | |
| 2,200.0 | 2,142.3 | 2,070.9 | 2,032.1 | 9.1 | 7.5 | -142.70 | 300.5 | 287.6 | 707.0 | 695.1 | 11.85 | 59.646 | | |
| 2,300.0 | 2,238.8 | 2,164.1 | 2,123.0 | 9.6 | 7.9 | -142.72 | 313.5 | 303.3 | 743.2 | 730.7 | 12.46 | 59.628 | | |
| 2,400.0 | 2,335.3 | 2,257.4 | 2,213.9 | 10.1 | 8.3 | -142.75 | 326.6 | 319.1 | 779.4 | 766.3 | 13.07 | 59.611 | | |
| 2,500.0 | 2,431.8 | 2,350.6 | 2,304.9 | 10.6 | 8.7 | -142.77 | 339.7 | 334.9 | 815.6 | 801.9 | 13.69 | 59.594 | | |
| 2,600.0 | 2,528.4 | 2,443.8 | 2,395.8 | 11.1 | 9.1 | -142.79 | 352.7 | 350.7 | 851.8 | 837.5 | 14.30 | 59.579 | | |
| 2,700.0 | 2,624.9 | 2,537.0 | 2,486.7 | 11.6 | 9.5 | -142.80 | 365.8 | 366.5 | 888.0 | 873.1 | 14.91 | 59.564 | | |
| 2,800.0 | 2,721.4 | 2,630.2 | 2,577.7 | 12.0 | 9.9 | -142.82 | 378.9 | 382.2 | 924.2 | 908.7 | 15.52 | 59.550 | | |
| 2,900.0 | 2,818.0 | 2,723.4 | 2,668.6 | 12.5 | 10.3 | -142.84 | 391.9 | 398.0 | 960.4 | 944.3 | 16.13 | 59.537 | | |
| 3,000.0 | 2,914.5 | 2,816.6 | 2,759.5 | 13.0 | 10.7 | -142.85 | 405.0 | 413.8 | 996.6 | 979.9 | 16.74 | 59.524 | | |
| 3,100.0 | 3,011.0 | 2,909.9 | 2,850.5 | 13.5 | 11.1 | -142.86 | 418.1 | 429.6 | 1,032.8 | 1,015.5 | 17.35 | 59.512 | | |
| 3,200.0 | 3,107.6 | 3,003.1 | 2,941.4 | 14.0 | 11.5 | -142.88 | 431.1 | 445.4 | 1,069.0 | 1,051.1 | 17.97 | 59.500 | | |
| 3,300.0 | 3,204.1 | 3,096.3 | 3,032.4 | 14.5 | 11.9 | -142.89 | 444.2 | 461.1 | 1,105.2 | 1,086.7 | 18.58 | 59.489 | | |
| 3,400.0 | 3,300.6 | 3,189.5 | 3,123.3 | 15.0 | 12.3 | -142.90 | 457.3 | 476.9 | 1,141.4 | 1,122.3 | 19.19 | 59.479 | | |
| 3,500.0 | 3,397.1 | 3,282.7 | 3,214.2 | 15.5 | 12.7 | -142.91 | 470.3 | 492.7 | 1,177.7 | 1,157.8 | 19.80 | 59.469 | | |
| 3,600.0 | 3,493.7 | 3,375.9 | 3,305.2 | 16.0 | 13.1 | -142.92 | 483.4 | 508.5 | 1,213.9 | 1,193.4 | 20.41 | 59.459 | | |

Cathedral Energy Services

Anticollision Report

| | | | |
|---------------------------|----------------------------|-------------------------------------|-------------------------------------|
| Company: | EnCana Oil & Gas (USA) Inc | Local Co-ordinate Reference: | Well HMU Federal 16-6C2 |
| Project: | Mamm Creek | TVD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Reference Site: | (J16W) | MD Reference: | KBE @ 7667.0ft (Original Well Elev) |
| Site Error: | 0.0ft | North Reference: | True |
| Reference Well: | HMU Federal 16-6C2 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | DD | Database: | EDM 5000.1 US Multi Users DB |
| Reference Design: | Plan #1 | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to KBE @ 7667.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: HMU Federal 16-6C2
 Coordinate System is US State Plane 1983, Colorado Central Zone
 Grid Convergence at Surface is: -1.44°

