

Edge Energy LLC

Weld County, Co (NAD 83)

Sec. 10 Twn 4N Rng 63W

70 Ranch-10-11-9 - Slot A9

Hz

UWI:

WL:

Plan: #1

Standard Planning Report

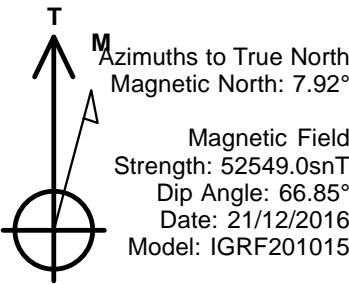
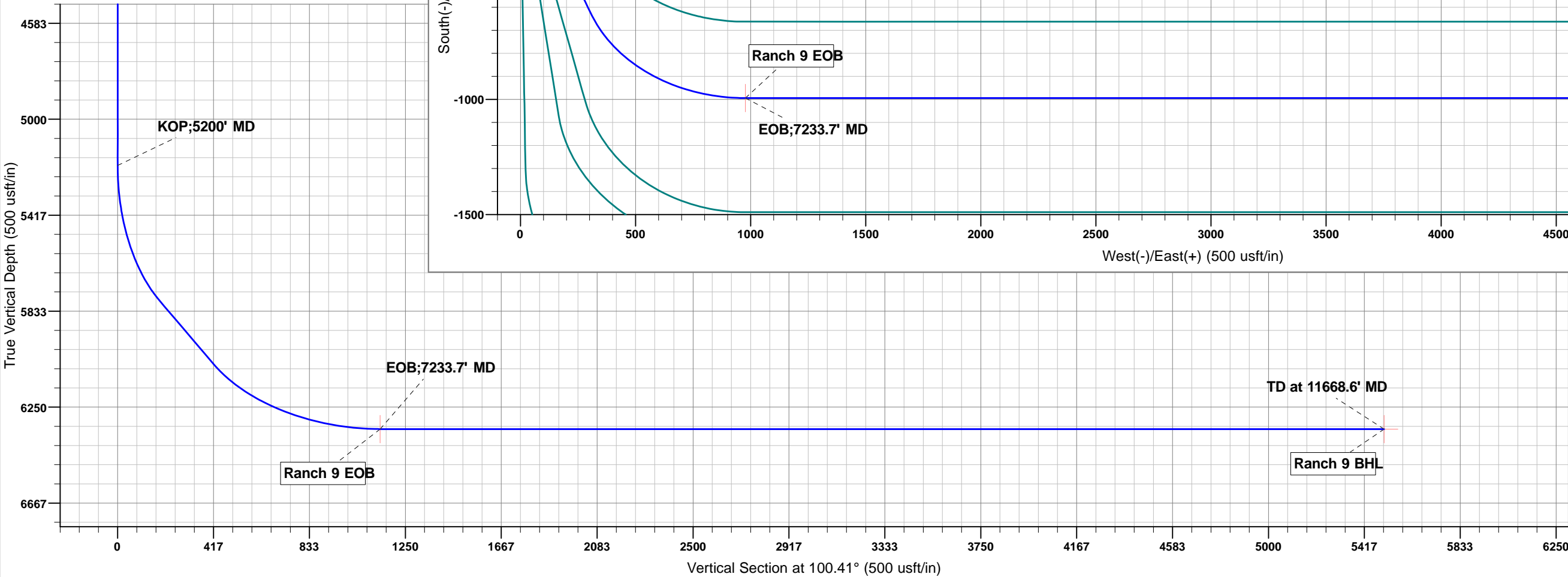
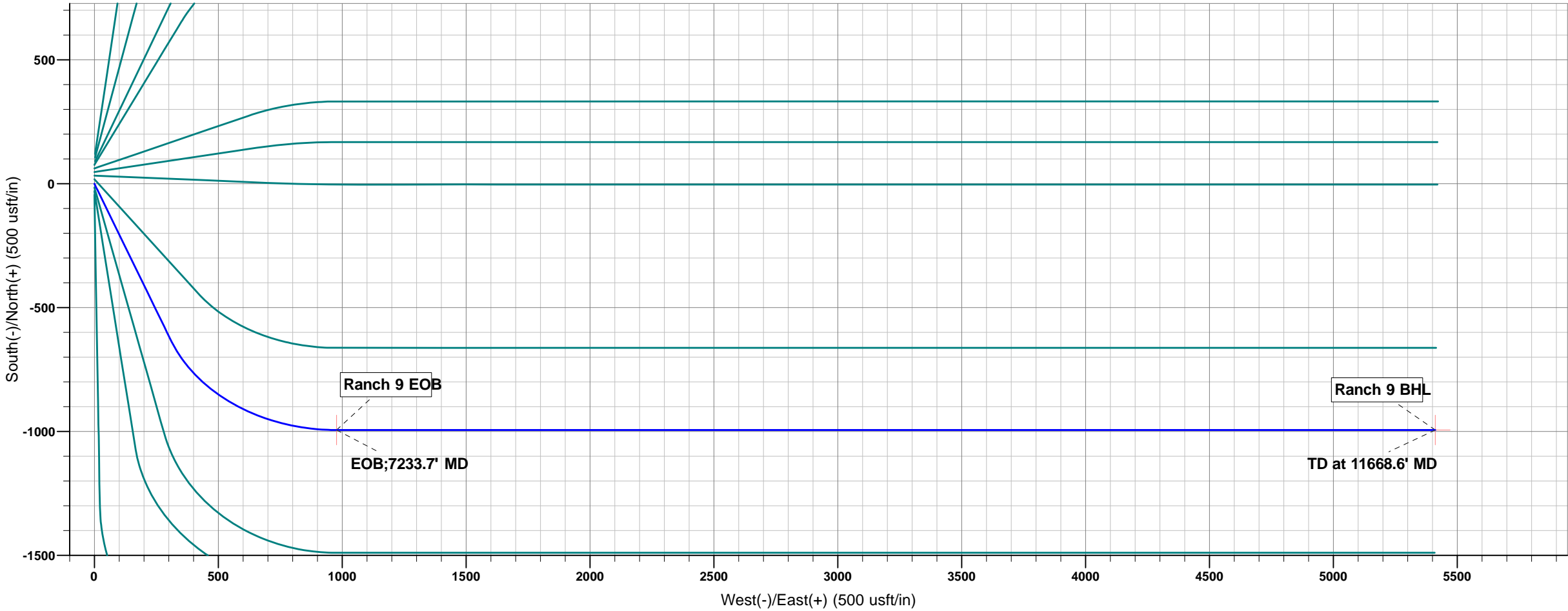
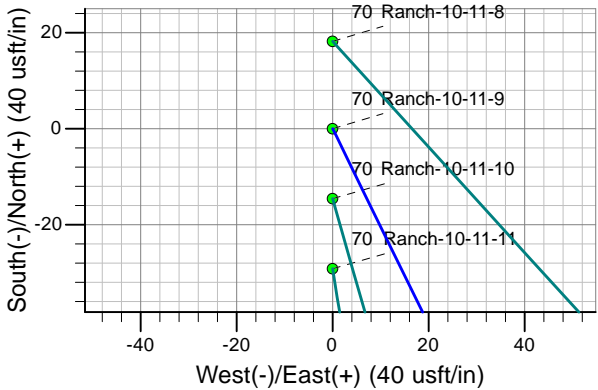
28 December, 2016

Project: Weld County, Co (NAD 83)
Site: Sec. 10 TwN 4N Rng 63W
Well: 70 Ranch-10-11-9
Wellbore: Hz
Plan: #1

Reference Details - WELL CENTRE
Geodetic System: US State Plane 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
Northing: 1363902.09
Easting: 3301962.40
Latitude: 40° 19' 38.09988 N
Longitude: 104° 25' 0.94800 W
Grid Convergence: 0.70° West
Ground Elevation: 4605.0
KB Elevation: RKB @ 4625.0usft (kb;20')

PLAN DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target |
|-----|---------|-------|--------|--------|--------|--------|------|--------|--------|-------------|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 5200.0 | 0.00 | 0.00 | 5200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 5889.0 | 55.12 | 153.95 | 5787.5 | -275.5 | 134.7 | 8.00 | 153.95 | 182.2 | |
| 4 | 6372.6 | 55.12 | 153.95 | 6064.1 | -631.9 | 308.9 | 0.00 | 0.00 | 418.0 | |
| 5 | 7233.7 | 90.00 | 90.00 | 6345.0 | -993.9 | 977.0 | 8.00 | -74.38 | 1140.5 | Ranch 9 EOB |
| 6 | 11668.6 | 90.00 | 90.00 | 6345.0 | -993.9 | 5411.9 | 0.00 | 0.00 | 5502.4 | Ranch 9 BHL |



Planning Report

| | | | |
|------------------|--------------------------|-------------------------------------|---------------------------------|
| Database: | WellPlan Services | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Company: | Edge Energy LLC | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Project: | Weld County, Co (NAD 83) | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site: | Sec. 10 Twn 4N Rng 63W | North Reference: | True |
| Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | #1 | | |

| | | | |
|--------------------|---------------------------|----------------------|----------------|
| Project | Weld County, Co (NAD 83) | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| | | | | | |
|-----------------------|----------|------------------------|-------------------|-------------------|--------------------|
| Site | | Sec. 10 Twn 4N Rng 63W | | | |
| Site Position: | | Northing: | 1,364,022.34 usft | Latitude: | 40° 19' 39.28800 N |
| From: | Lat/Long | Easting: | 3,301,963.73 usft | Longitude: | 104° 25' 0.91200 W |
| Position Uncertainty: | 0.0 usft | Slot Radius: | 13-3/16 " | Grid Convergence: | 0.70 ° |

| Well | 70 Ranch-10-11-9 - Slot A9 | | | | | |
|----------------------|----------------------------|-------------|---------------------|-------------------|---------------|--------------------|
| Well Position | +N/-S | -120.2 usft | Northing: | 1,363,902.09 usft | Latitude: | 40° 19' 38.09988 N |
| | +E/-W | -2.8 usft | Easting: | 3,301,962.41 usft | Longitude: | 104° 25' 0.94800 W |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | 0.0 usft | Ground Level: | 4,605.0 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Hz | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF201015 | 21/12/2016 | 7.92 | 66.85 | 52,549 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Design | #1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.0 | 0.0 | 0.0 | 100.41 |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|------------------------|-----------------------|---------|-------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | TFO (°) | Target |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,200.0 | 0.00 | 0.00 | 5,200.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,889.0 | 55.12 | 153.95 | 5,787.5 | -275.5 | 134.7 | 8.00 | 8.00 | 0.00 | 153.95 | |
| 6,372.6 | 55.12 | 153.95 | 6,064.1 | -631.9 | 308.9 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,233.7 | 90.00 | 90.00 | 6,345.0 | -993.9 | 977.0 | 8.00 | 4.05 | -7.43 | -74.38 | Ranch 9 EOB |
| 11,668.6 | 90.00 | 90.00 | 6,345.0 | -993.9 | 5,411.9 | 0.00 | 0.00 | 0.00 | 0.00 | Ranch 9 BHL |

Planning Report

| | | | |
|------------------|--------------------------|-------------------------------------|---------------------------------|
| Database: | WellPlan Services | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Company: | Edge Energy LLC | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Project: | Weld County, Co (NAD 83) | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site: | Sec. 10 Twn 4N Rng 63W | North Reference: | True |
| Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | H2 | | |
| Design: | #1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|---------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0 | 0.00 | 0.00 | 0.0 | -4,625.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| KOP;5200' MD | | | | | | | | | | |
| 5,200.0 | 0.00 | 0.00 | 5,200.0 | 575.0 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 |
| 5,300.0 | 8.00 | 153.95 | 5,299.7 | 674.7 | -6.3 | 3.1 | 4.1 | 8.00 | 8.00 | 0.00 |
| 5,400.0 | 16.00 | 153.95 | 5,397.4 | 772.4 | -24.9 | 12.2 | 16.5 | 8.00 | 8.00 | 0.00 |
| 5,500.0 | 24.00 | 153.95 | 5,491.3 | 866.3 | -55.6 | 27.2 | 36.8 | 8.00 | 8.00 | 0.00 |
| 5,600.0 | 32.00 | 153.95 | 5,579.5 | 954.5 | -97.8 | 47.8 | 64.7 | 8.00 | 8.00 | 0.00 |
| 5,700.0 | 40.00 | 153.95 | 5,660.4 | 1,035.4 | -150.5 | 73.6 | 99.6 | 8.00 | 8.00 | 0.00 |
| 5,800.0 | 48.00 | 153.95 | 5,732.2 | 1,107.2 | -212.9 | 104.1 | 140.8 | 8.00 | 8.00 | 0.00 |
| 5,889.0 | 55.12 | 153.95 | 5,787.5 | 1,162.5 | -275.5 | 134.7 | 182.2 | 8.00 | 8.00 | 0.00 |
| 5,900.0 | 55.12 | 153.95 | 5,793.8 | 1,168.8 | -283.6 | 138.6 | 187.6 | 0.00 | 0.00 | 0.00 |
| 6,000.0 | 55.12 | 153.95 | 5,851.0 | 1,226.0 | -357.3 | 174.6 | 236.3 | 0.00 | 0.00 | 0.00 |
| 6,100.0 | 55.12 | 153.95 | 5,908.2 | 1,283.2 | -431.0 | 210.7 | 285.1 | 0.00 | 0.00 | 0.00 |
| 6,200.0 | 55.12 | 153.95 | 5,965.4 | 1,340.4 | -504.7 | 246.7 | 333.8 | 0.00 | 0.00 | 0.00 |
| 6,300.0 | 55.12 | 153.95 | 6,022.6 | 1,397.6 | -578.4 | 282.7 | 382.6 | 0.00 | 0.00 | 0.00 |
| 6,372.6 | 55.12 | 153.95 | 6,064.1 | 1,439.1 | -631.9 | 308.9 | 418.0 | 0.00 | 0.00 | 0.00 |
| 6,400.0 | 55.73 | 151.40 | 6,079.6 | 1,454.6 | -651.9 | 319.2 | 431.7 | 8.00 | 2.25 | -9.32 |
| 6,500.0 | 58.41 | 142.41 | 6,134.1 | 1,509.1 | -722.1 | 365.1 | 489.5 | 8.00 | 2.68 | -8.99 |
| 6,600.0 | 61.68 | 133.98 | 6,184.1 | 1,559.1 | -786.5 | 422.8 | 557.9 | 8.00 | 3.27 | -8.43 |
| 6,700.0 | 65.44 | 126.09 | 6,228.6 | 1,603.6 | -844.0 | 491.3 | 635.7 | 8.00 | 3.75 | -7.89 |
| 6,800.0 | 69.58 | 118.68 | 6,266.9 | 1,641.9 | -893.3 | 569.3 | 721.3 | 8.00 | 4.14 | -7.41 |
| 6,900.0 | 74.01 | 111.67 | 6,298.2 | 1,673.2 | -933.6 | 655.3 | 813.1 | 8.00 | 4.44 | -7.01 |
| 7,000.0 | 78.67 | 104.97 | 6,321.8 | 1,696.8 | -964.1 | 747.4 | 909.3 | 8.00 | 4.65 | -6.70 |
| 7,100.0 | 83.47 | 98.49 | 6,337.4 | 1,712.4 | -984.1 | 844.1 | 1,008.0 | 8.00 | 4.80 | -6.48 |
| 7,200.0 | 88.35 | 92.13 | 6,344.5 | 1,719.5 | -993.3 | 943.3 | 1,107.2 | 8.00 | 4.88 | -6.36 |
| EOB;7233.7' MD | | | | | | | | | | |
| 7,233.7 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 977.0 | 1,140.5 | 8.00 | 4.90 | -6.32 |
| 7,300.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,043.3 | 1,205.7 | 0.00 | 0.00 | 0.00 |
| 7,400.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,143.3 | 1,304.0 | 0.00 | 0.00 | 0.00 |
| 7,500.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,243.3 | 1,402.4 | 0.00 | 0.00 | 0.00 |
| 7,600.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,343.3 | 1,500.7 | 0.00 | 0.00 | 0.00 |
| 7,700.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,443.3 | 1,599.1 | 0.00 | 0.00 | 0.00 |
| 7,800.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,543.3 | 1,697.5 | 0.00 | 0.00 | 0.00 |
| 7,900.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,643.3 | 1,795.8 | 0.00 | 0.00 | 0.00 |
| 8,000.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,743.3 | 1,894.2 | 0.00 | 0.00 | 0.00 |
| 8,100.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,843.3 | 1,992.5 | 0.00 | 0.00 | 0.00 |
| 8,200.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 1,943.3 | 2,090.9 | 0.00 | 0.00 | 0.00 |
| 8,300.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,043.3 | 2,189.2 | 0.00 | 0.00 | 0.00 |
| 8,400.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,143.3 | 2,287.6 | 0.00 | 0.00 | 0.00 |
| 8,500.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,243.3 | 2,385.9 | 0.00 | 0.00 | 0.00 |
| 8,600.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,343.3 | 2,484.3 | 0.00 | 0.00 | 0.00 |
| 8,700.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,443.3 | 2,582.7 | 0.00 | 0.00 | 0.00 |
| 8,800.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,543.3 | 2,681.0 | 0.00 | 0.00 | 0.00 |
| 8,900.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,643.3 | 2,779.4 | 0.00 | 0.00 | 0.00 |
| 9,000.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,743.3 | 2,877.7 | 0.00 | 0.00 | 0.00 |
| 9,100.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,843.3 | 2,976.1 | 0.00 | 0.00 | 0.00 |

Planning Report

| | | | |
|------------------|--------------------------|-------------------------------------|---------------------------------|
| Database: | WellPlan Services | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Company: | Edge Energy LLC | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Project: | Weld County, Co (NAD 83) | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site: | Sec. 10 Twn 4N Rng 63W | North Reference: | True |
| Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | #1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|---------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Subsea (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 9,200.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 2,943.3 | 3,074.4 | 0.00 | 0.00 | 0.00 |
| 9,300.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,043.3 | 3,172.8 | 0.00 | 0.00 | 0.00 |
| 9,400.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,143.3 | 3,271.1 | 0.00 | 0.00 | 0.00 |
| 9,500.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,243.3 | 3,369.5 | 0.00 | 0.00 | 0.00 |
| 9,600.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,343.3 | 3,467.8 | 0.00 | 0.00 | 0.00 |
| 9,700.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,443.3 | 3,566.2 | 0.00 | 0.00 | 0.00 |
| 9,800.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,543.3 | 3,664.6 | 0.00 | 0.00 | 0.00 |
| 9,900.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,643.3 | 3,762.9 | 0.00 | 0.00 | 0.00 |
| 10,000.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,743.3 | 3,861.3 | 0.00 | 0.00 | 0.00 |
| 10,100.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,843.3 | 3,959.6 | 0.00 | 0.00 | 0.00 |
| 10,200.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 3,943.3 | 4,058.0 | 0.00 | 0.00 | 0.00 |
| 10,300.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,043.3 | 4,156.3 | 0.00 | 0.00 | 0.00 |
| 10,400.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,143.3 | 4,254.7 | 0.00 | 0.00 | 0.00 |
| 10,500.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,243.3 | 4,353.0 | 0.00 | 0.00 | 0.00 |
| 10,600.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,343.3 | 4,451.4 | 0.00 | 0.00 | 0.00 |
| 10,700.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,443.3 | 4,549.8 | 0.00 | 0.00 | 0.00 |
| 10,800.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,543.3 | 4,648.1 | 0.00 | 0.00 | 0.00 |
| 10,900.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,643.3 | 4,746.5 | 0.00 | 0.00 | 0.00 |
| 11,000.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,743.3 | 4,844.8 | 0.00 | 0.00 | 0.00 |
| 11,100.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,843.3 | 4,943.2 | 0.00 | 0.00 | 0.00 |
| 11,200.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 4,943.3 | 5,041.5 | 0.00 | 0.00 | 0.00 |
| 11,300.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 5,043.3 | 5,139.9 | 0.00 | 0.00 | 0.00 |
| 11,400.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 5,143.3 | 5,238.2 | 0.00 | 0.00 | 0.00 |
| 11,500.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 5,243.3 | 5,336.6 | 0.00 | 0.00 | 0.00 |
| 11,600.0 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 5,343.3 | 5,434.9 | 0.00 | 0.00 | 0.00 |
| TD at 11668.6' MD | | | | | | | | | | |
| 11,668.6 | 90.00 | 90.00 | 6,345.0 | 1,720.0 | -993.9 | 5,411.9 | 5,502.4 | 0.00 | 0.00 | 0.00 |

| Design Targets | | | | | | | | | | |
|---------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|--------------------|--|---------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | | Longitude |
| Ranch 9 EOB | 0.00 | 0.00 | 6,345.0 | -993.9 | 977.0 | 1,362,920.18 | 3,302,951.47 | 40° 19' 28.27762 N | | 104° 24' 48.33343 W |
| - plan hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |
| Ranch 9 BHL | 0.00 | 0.00 | 6,345.0 | -993.9 | 5,411.9 | 1,362,974.35 | 3,307,386.05 | 40° 19' 28.27196 N | | 104° 23' 51.07200 W |
| - plan hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |

Planning Report

| | | | |
|------------------|--------------------------|-------------------------------------|---------------------------------|
| Database: | WellPlan Services | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Company: | Edge Energy LLC | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Project: | Weld County, Co (NAD 83) | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site: | Sec. 10 Twn 4N Rng 63W | North Reference: | True |
| Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | H2 | | |
| Design: | #1 | | |

| Plan Annotations | | | | |
|-----------------------|-----------------------|-------------------|--------------|-------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
| | | +N/-S (usft) | +E/-W (usft) | |
| 5,200.0 | 5,200.0 | 0.0 | 0.0 | KOP;5200' MD |
| 7,233.7 | 6,345.0 | -993.9 | 977.0 | EOB;7233.7' MD |
| 11,668.6 | 6,345.0 | -993.9 | 5,411.9 | TD at 11668.6' MD |

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

| Reference | #1 | | |
|------------------------------|---------------------------------------------------------------------|----------------|---------------------|
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | MD Interval 50.0usft | Error Model: | ISCSWA |
| Depth Range: | 5,000.0 to 99,999.0usft | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 50.0 usft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | Casing Method: | Not applied |

| Survey Tool Program | | Date | 28/12/2016 | | |
|---------------------|--------------|-------------------|------------|----------------|--|
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 0.0 | 11,668.6 | #1 (Hz) | MWD | MWD - Standard | |

| Summary | | | | | | |
|---------------------------------|---------------------------------|------------------------------|---------------------------------|----------------------------------|-------------------|---------------------|
| Site Name | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| Sec. 10 Twn 4N Rng 63W | | | | | | |
| 70 Ranch-10-11-1 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-10 - Hz - #1 | 5,200.0 | 5,200.0 | 14.6 | -8.5 | 0.631 | Level 1, CC |
| 70 Ranch-10-11-10 - Hz - #1 | 5,250.0 | 5,249.0 | 14.7 | -8.6 | 0.630 | Level 1, ES, SF |
| 70 Ranch-10-11-11 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-12 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-2 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-3 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-4 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-5 - Hz - #1 | | | | | | Out of range |
| 70 Ranch-10-11-6 - Hz - #1 | 5,200.0 | 5,200.0 | 47.4 | 24.2 | 2.049 | CC, ES, SF |
| 70 Ranch-10-11-7 - Hz - #1 | 5,200.0 | 5,200.0 | 32.8 | 9.7 | 1.419 | Level 3, CC, ES, SF |
| 70 Ranch-10-11-8 - Hz - #1 | 5,200.0 | 5,200.0 | 18.2 | -4.9 | 0.788 | Level 1, CC, ES, SF |

| | | | | | | | | | | | | | | |
|------------------------------|------------------------------------------------------|------------------------------|------------------------------|-------------------------|----------------------|------------------------------|--------------------------------------------|---------------------|-------------------------------|--------------------------------|----------------------------------|--------------------------|---------------------------|----------|
| Offset Design | Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-10 - Hz - #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
| Survey Program: | 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | Offset | Semi Major Axis | | Distance | | | | Warning | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | |
| 5,000.0 | 5,000.0 | 5,000.0 | 5,000.0 | 11.1 | 11.1 | 180.00 | -14.6 | 0.0 | 14.6 | -7.6 | 22.21 | 0.656 | Level 1 | |
| 5,050.0 | 5,050.0 | 5,050.0 | 5,050.0 | 11.2 | 11.2 | 180.00 | -14.6 | 0.0 | 14.6 | -7.9 | 22.43 | 0.650 | Level 1 | |
| 5,100.0 | 5,100.0 | 5,100.0 | 5,100.0 | 11.3 | 11.3 | 180.00 | -14.6 | 0.0 | 14.6 | -8.1 | 22.66 | 0.643 | Level 1 | |
| 5,150.0 | 5,150.0 | 5,150.0 | 5,150.0 | 11.4 | 11.4 | 180.00 | -14.6 | 0.0 | 14.6 | -8.3 | 22.88 | 0.637 | Level 1 | |
| 5,200.0 | 5,200.0 | 5,200.0 | 5,200.0 | 11.6 | 11.6 | 180.00 | -14.6 | 0.0 | 14.6 | -8.5 | 23.11 | 0.631 | Level 1, CC | |
| 5,250.0 | 5,250.0 | 5,249.0 | 5,249.0 | 11.7 | 11.6 | 27.19 | -16.2 | 0.5 | 14.7 | -8.6 | 23.26 | 0.630 | Level 1, ES, SF | |
| 5,300.0 | 5,299.7 | 5,298.1 | 5,297.8 | 11.7 | 11.7 | 30.54 | -21.0 | 1.8 | 14.9 | -8.4 | 23.33 | 0.640 | Level 1 | |
| 5,350.0 | 5,348.9 | 5,347.1 | 5,346.1 | 11.8 | 11.8 | 35.79 | -29.1 | 4.1 | 15.5 | -7.9 | 23.36 | 0.664 | Level 1 | |
| 5,400.0 | 5,397.4 | 5,396.1 | 5,393.7 | 11.9 | 11.9 | 42.39 | -40.2 | 7.3 | 16.5 | -6.9 | 23.40 | 0.706 | Level 1 | |
| 5,450.0 | 5,445.0 | 5,445.1 | 5,440.3 | 12.0 | 12.0 | 49.62 | -54.5 | 11.3 | 18.1 | -5.4 | 23.50 | 0.769 | Level 1 | |
| 5,500.0 | 5,491.3 | 5,494.0 | 5,485.8 | 12.1 | 12.1 | 56.72 | -71.8 | 16.2 | 20.3 | -3.4 | 23.69 | 0.857 | Level 1 | |
| 5,550.0 | 5,536.2 | 5,542.9 | 5,530.0 | 12.2 | 12.2 | 63.15 | -92.1 | 22.0 | 23.2 | -0.7 | 23.96 | 0.969 | Level 1 | |
| 5,600.0 | 5,579.5 | 5,591.8 | 5,572.6 | 12.4 | 12.3 | 68.64 | -115.1 | 28.5 | 26.8 | 2.5 | 24.31 | 1.104 | Level 2 | |
| 5,650.0 | 5,621.0 | 5,640.7 | 5,613.4 | 12.6 | 12.5 | 73.18 | -140.9 | 35.9 | 31.1 | 6.4 | 24.72 | 1.260 | Level 3 | |
| 5,700.0 | 5,660.4 | 5,689.5 | 5,652.2 | 12.8 | 12.7 | 76.85 | -169.3 | 43.9 | 36.0 | 10.9 | 25.18 | 1.431 | Level 3 | |
| 5,750.0 | 5,697.5 | 5,738.3 | 5,689.0 | 13.0 | 12.9 | 79.78 | -200.2 | 52.7 | 41.5 | 15.8 | 25.71 | 1.615 | | |

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

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

| Offset Design Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-10 - Hz - #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|---------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|---------------------------|----------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | |
| 5,800.0 | 5,732.2 | 5,787.0 | 5,723.5 | 13.3 | 13.1 | 82.11 | -233.3 | 62.1 | 47.5 | 21.2 | 26.32 | 1.806 | |

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

| Offset Design Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-6 - Hz - #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|--------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|---------------------------|----------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | |
| 5,000.0 | 5,000.0 | 5,000.0 | 5,000.0 | 11.1 | 11.1 | 0.00 | 47.4 | 0.0 | 47.4 | 25.1 | 22.21 | 2.132 | |
| 5,050.0 | 5,050.0 | 5,050.0 | 5,050.0 | 11.2 | 11.2 | 0.00 | 47.4 | 0.0 | 47.4 | 24.9 | 22.43 | 2.111 | |
| 5,100.0 | 5,100.0 | 5,100.0 | 5,100.0 | 11.3 | 11.3 | 0.00 | 47.4 | 0.0 | 47.4 | 24.7 | 22.66 | 2.090 | |
| 5,150.0 | 5,150.0 | 5,150.0 | 5,150.0 | 11.4 | 11.4 | 0.00 | 47.4 | 0.0 | 47.4 | 24.5 | 22.88 | 2.070 | |
| 5,200.0 | 5,200.0 | 5,200.0 | 5,200.0 | 11.6 | 11.6 | 0.00 | 47.4 | 0.0 | 47.4 | 24.2 | 23.11 | 2.049 CC, ES, SF | |
| 5,250.0 | 5,250.0 | 5,250.0 | 5,250.0 | 11.7 | 11.7 | -154.79 | 47.4 | 0.0 | 48.9 | 25.6 | 23.28 | 2.102 | |

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

| Offset Design Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-7 - Hz - #1 | | | | | | | | | | | | Offset Site Error: | 0.0 usft |
|--------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|---------------------------|---------------------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning |
| 5,000.0 | 5,000.0 | 5,000.0 | 5,000.0 | 11.1 | 11.1 | 0.00 | 32.8 | 0.0 | 32.8 | 10.6 | 22.21 | 1.476 | Level 3 |
| 5,050.0 | 5,050.0 | 5,050.0 | 5,050.0 | 11.2 | 11.2 | 0.00 | 32.8 | 0.0 | 32.8 | 10.4 | 22.43 | 1.462 | Level 3 |
| 5,100.0 | 5,100.0 | 5,100.0 | 5,100.0 | 11.3 | 11.3 | 0.00 | 32.8 | 0.0 | 32.8 | 10.1 | 22.66 | 1.447 | Level 3 |
| 5,150.0 | 5,150.0 | 5,150.0 | 5,150.0 | 11.4 | 11.4 | 0.00 | 32.8 | 0.0 | 32.8 | 9.9 | 22.88 | 1.433 | Level 3 |
| 5,200.0 | 5,200.0 | 5,200.0 | 5,200.0 | 11.6 | 11.6 | 0.00 | 32.8 | 0.0 | 32.8 | 9.7 | 23.11 | 1.419 | Level 3, CC, ES, SF |
| 5,250.0 | 5,250.0 | 5,250.0 | 5,250.0 | 11.7 | 11.7 | -155.17 | 32.8 | 0.0 | 34.4 | 11.1 | 23.28 | 1.476 | Level 3 |
| 5,300.0 | 5,299.7 | 5,299.7 | 5,299.7 | 11.7 | 11.8 | -158.24 | 32.8 | 0.0 | 39.2 | 15.8 | 23.35 | 1.677 | |
| 5,350.0 | 5,348.9 | 5,348.9 | 5,348.9 | 11.8 | 11.9 | -161.93 | 32.8 | 0.0 | 47.3 | 24.0 | 23.33 | 2.030 | |

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | Sec. 10 Twn 4N Rng 63W - 70 Ranch-10-11-8 - Hz - #1 | | | Offset Site Error: | | 0.0 usft |
|-----------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|-----------------------------------------------------|-------------------|---------------------|--------------------|--|----------|
| Survey Program: 0-MWD | | | | | | | | | | | | | | Offset Well Error: | | 0.0 usft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | |
| Measured Depth (usft) | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | | | | |
| 5,000.0 | 5,000.0 | 5,000.0 | 5,000.0 | 11.1 | 11.1 | 0.00 | 18.2 | 0.0 | 18.2 | -4.0 | 22.21 | 0.820 | Level 1 | | | |
| 5,050.0 | 5,050.0 | 5,050.0 | 5,050.0 | 11.2 | 11.2 | 0.00 | 18.2 | 0.0 | 18.2 | -4.2 | 22.43 | 0.812 | Level 1 | | | |
| 5,100.0 | 5,100.0 | 5,100.0 | 5,100.0 | 11.3 | 11.3 | 0.00 | 18.2 | 0.0 | 18.2 | -4.4 | 22.66 | 0.804 | Level 1 | | | |
| 5,150.0 | 5,150.0 | 5,150.0 | 5,150.0 | 11.4 | 11.4 | 0.00 | 18.2 | 0.0 | 18.2 | -4.7 | 22.88 | 0.796 | Level 1 | | | |
| 5,200.0 | 5,200.0 | 5,200.0 | 5,200.0 | 11.6 | 11.6 | 0.00 | 18.2 | 0.0 | 18.2 | -4.9 | 23.11 | 0.788 | Level 1, CC, ES, SF | | | |
| 5,250.0 | 5,250.0 | 5,250.0 | 5,250.0 | 11.7 | 11.7 | -156.12 | 18.2 | 0.0 | 19.8 | -3.5 | 23.28 | 0.850 | Level 1 | | | |
| 5,300.0 | 5,299.7 | 5,299.7 | 5,299.7 | 11.7 | 11.8 | -160.91 | 18.2 | 0.0 | 24.7 | 1.3 | 23.35 | 1.057 | Level 2 | | | |
| 5,350.0 | 5,348.9 | 5,348.9 | 5,348.9 | 11.8 | 11.9 | -165.67 | 18.2 | 0.0 | 33.0 | 9.7 | 23.31 | 1.416 | Level 3 | | | |
| 5,400.0 | 5,397.4 | 5,397.4 | 5,397.4 | 11.9 | 12.0 | -169.32 | 18.2 | 0.0 | 44.8 | 21.7 | 23.17 | 1.934 | | | | |

Anticollision Report

| | | | |
|---------------------------|--------------------------|-------------------------------------|---------------------------------|
| Company: | Edge Energy LLC | Local Co-ordinate Reference: | Well 70 Ranch-10-11-9 - Slot A9 |
| Project: | Weld County, Co (NAD 83) | TVD Reference: | RKB @ 4625.0usft (kb;20') |
| Reference Site: | Sec. 10 Twn 4N Rng 63W | MD Reference: | RKB @ 4625.0usft (kb;20') |
| Site Error: | 0.0 usft | North Reference: | True |
| Reference Well: | 70 Ranch-10-11-9 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.0 usft | Output errors are at | 2.00 sigma |
| Reference Wellbore | Hz | Database: | WellPlan Services |
| Reference Design: | #1 | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to RKB @ 4625.0usft (kb;20')
 Offset Depths are relative to Offset Datum
 Central Meridian is 105° 30' 0.00000 W

Coordinates are relative to: 70 Ranch-10-11-9 - Slot A9
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.70°

